

# Field Exchange

Emergency Nutrition Network



## Special section on CMAM Surge

Programme adaptations in the COVID-19 pandemic

Evaluation of the nutrition response in North eastern Nigeria

Health systems strengthening in Kenya

Use of satellite technology to direct food assistance in Mali

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Dear readers,

Welcome to the 64th edition of *Field Exchange*. We are delighted to kick start 2021 featuring a special section on learning around CMAM Surge, nicely coinciding with the 20th anniversary of community-based management of acute malnutrition (CMAM), an approach that originated as community therapeutic care (CTC).<sup>1</sup> Concern Worldwide (Concern) were closely involved in the first CTC programmes undertaken by VALID International in partnership with Concern and Oxfam in Ethiopia and have remained committed to community-based care since, learning from and evolving their approach along the way in open and close collaboration with many partners and increasingly government. CMAM Surge is an approach that works to support government health systems to prepare for and manage spikes in caseloads of wasting that are typical in many contexts. Concern first piloted CMAM Surge at county level in Kenya in 2012. It has since been implemented in 12 countries (seven supported by Concern) and momentum is growing for it to be applied more broadly to comorbidities, such as diarrhoea and malaria (Health Surge) in multiple contexts. This special section includes seven articles that tell the story of the evolution of the approach, reflecting on the strengths, weaknesses, lessons learned and ways forward. A few things struck us as we reflected on the experiences shared and on several related articles in the edition.

Essentially, CMAM Surge is a health systems strengthening (HSS) approach that has demonstrated good traction at health facility and district levels. Government authorities have engaged with CMAM Surge to different degrees in different contexts. The critical importance of government leadership is reflected in an article by Ngetich et al that explores the testing and scale up of Integrated Management of Acute Malnutrition (IMAM) Surge (CMAM Surge) in 10 priority counties in the Arid and Semi-arid Lands (ASAL) to improve the shock-responsiveness of the health system. Success factors include early and sustained government leadership and the involvement of decision-makers at sub-national level. Long term, flexible financing from governments and donors was also critical. A related article on HSS in Kenya by Hailey et al under the MQSUN+ Consortium describes the transition of external humanitarian support for nutrition services towards government-led, managed and financed nutrition services in the ASAL regions over the last 14 years. Donor openness to innovation has also helped move CMAM Surge forwards. In West and Central Africa, European Civil Protection and Humanitarian Aid Operations (ECHO) prioritised CMAM Surge which helped



High levels of malnutrition afflict Kenya's poorest people

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drive uptake by partners in the region. Important lessons include the need to ensure that partners are well capacitated - Save the Children International and Concern were engaged to provide technical support to partners to deliver due to some early shortcomings - and to make sure that the haste of non-governmental organisations (NGOs) to support implementation does not deprioritise government engagement and fuel perceptions that CMAM Surge is an externally led and resourced activity.

In making the case for CMAM Surge, cost is a question. An article on the cost-effectiveness of CMAM Surge reflects on the difficulties of demonstrating cost-effectiveness of HSS approaches, given that many of the positive outcomes (empowerment of health staff to make informed decisions for example) are difficult to quantify. The authors argue that, before cost-effectiveness can be demonstrated, we first need cost analysis tools more fit for purpose for HSS initiatives.

The emerging direction of travel by Concern and others into Health Surge is an interesting one. Staff on the ground began to apply the CMAM Surge approach used for wasting management to other morbidities as doing so made practical sense in their day-to-day management of caseloads. There is now a growing community of practice amongst the 'CMAM Surge' fraternity at global and regional level, led by Concern, who are developing the approach and supporting resources to continue rollout. Critical to this new initiative will be active engagement of the health sector at global, regional and national levels. One of the constraints to embedding CMAM in health systems is that it is an initiative that has been 'housed' and essentially owned by the nutrition sector; we need to make sure we don't do the same for Health Surge.

How to support HSS in more acute emergency contexts and fragile settings needs more consideration. Some of the challenges associated with this are reflected in an evaluation of the Northeastern Nigeria emergency response by Donnelly et al, also under MQSUN+. While external support addressed urgent needs, it was not designed to encourage long-term sustainability and government ownership and recruitment of

local staff ended up depleting the government work force. Figuring how to immediately meet urgent needs versus long term capacity support is a tough balancing act.

This special section of *Field Exchange* sets some of the scene nicely for a virtual conference for practitioners that Concern is hosting between 22nd and 25th March this year in partnership with Irish Aid. *CMAM 20 years on: going to scale in fragile contexts* is an event designed to take a moment to share and reflect on operational learning and direction on CMAM programming. The conference will feature country and regional presentations and panel discussions from Democratic Republic of Congo, Niger, Kenya, Ethiopia, Somalia, South Sudan, South Asia and Pakistan. See the news item in this edition for more information and registration details. ENN is a member of the steering committee for this event and we look forward to updating you on it in our May edition.

A prevailing context that continues to trouble us the world over is the COVID-19 pandemic. But, as ever in the nutrition world, challenges are met with field innovation; necessity remains the mother of invention. Several articles show the formidable task that decision-makers and health workers have had all over the world to quickly adapt services across nations to ensure that nutrition services are continued and those in need can access them. An article by Action Against Hunger provides an overview of programmatic adaptations that have been made in wasting treatment services in multiple locations. Other articles zone in on adaptations made in Zimbabwe (use of RapidPro software to allow remote data collection); Zambia (reallocation of resources to support personal protective equipment and community-level screening); and Ethiopia (use of Family MUAC to enable screening of infants under six months of age for management in an established programme). A common theme across these contexts is the initial fall in service uptake followed by an increase again as adaptations were made; this reflects success that has enabled the continuation of services. However,

<sup>1</sup> <https://www.enonline.net/attachments/1195/ctcreport-operational-challenges-washington-enn-2005.pdf>

interpretation of such trends is complicated; where screening criteria have been amended, such as higher mid-upper arm circumference (MUAC) thresholds, we are not comparing like with like. Where frequency of attendance to treatment facilities is reduced to minimise contacts, we don't yet have clear data on outcomes. Predictions of the consequences of the COVID 19 pandemic for nutrition are grim; the challenge remains in evidencing this.

Several more articles reflect on the power of information. A key success of the CMAM Surge approach is its potential to empower health facility staff. By building health workers' capacity to analyse their own data and make decisions, not only are better decisions made, but the workforce becomes more engaged and motivated. The desire of health workers to apply the approach to other childhood illnesses demonstrates their conviction that it works. At a higher-level, the Kenya experience shows that a well-functioning nutrition information system, owned by the government, has supported informed decision-making around nutrition services. Access to and use of information to inform decision-making can be supported by the use of technology with several examples in this edition, such as the use of CMAM Surge online dashboards; Zimbabwe RapidPro software for remote data collection; and use of earth observation data to detect cropland abandonment by World Food Programme (WFP) Mali that enabled early planning for food assistance three months ahead of the lean season.

When it comes to task shifting to community-level, several articles reflect how training and supervision are key to quality services. A strong theme throughout the issue is the shifting of tasks to Community Health Workers (CHWs) and shifting further still to caregivers for the screening of malnutrition across multiple contexts (Family MUAC) – both accelerated in the context of the COVID-19 pandemic and including infants under six months of age. A key theme is the critical need for quality training and supervision of CHWs (and training of caregivers including refresher training) to ensure quality programming is maintained. The Zimbabwe RapidPro article, which found a large discrepancy between the number of referrals and actual admissions, demonstrates this very clearly. The need for training of caregivers is echoed in a research summary by UNICEF West and Central Africa Regional Office (WCARO) that shares evidence and experience on the use of Family MUAC in the region. Not only are CHWs the unsung heroes of the pandemic response - adapting to and accommodating to demands that carry personal risk - they are the backbone of nutrition programming and the route to scale. Key challenges persist, including how to sustainably incentivise CHWs as well as ensure quality training and supervision.

As ever, we were spoilt for choice when it came to interesting research to summarise. A rich mixture includes a thought-provoking paper on sex differences and undernutrition by Thurstans et al. Although higher neonatal and infant mor-

bidity/ mortality for boys is well described, it is commonly assumed that girls are very often disadvantaged over boys. A systematic review and meta-analysis of 44 studies showed consistently higher odds for boys being wasted, stunted or underweight than girls across multiple contexts. Possible reasons are now being examined by the authors with further papers to come but results are starting to show that this is not the result of gender bias, but due to multiple other biological and social factors. This has the potential to be an area of debate that is politically charged, with signs that this is already the case. Interestingly, the authors found that even where sex differences are reported in a paper, they are not always acknowledged or explored. This paper challenges the current notion that equal representation of boys and girls in wasting treatment programmes, for example, is a sign of equity, and that over-representation of boys is a sign of gender bias. In fact, such programmes may be reflecting the reality. The paper's findings also raise the question of whether joint sex versions of growth charts and universal measurements such as MUAC consider these differences and fully account for the fact that boys have further to fall to meet these thresholds, and may therefore be in a more depleted state than their female counterparts. Critically, the message of this study is not that boys should be prioritised over girls, rather it seeks to support all at-risk children, through improved understanding of sex differences in undernutrition. To help, the authors call on nutrition actors to improve data collection in programmes, surveys and research through the full disaggregation and analysis of sex and age in order to identify which children are most vulnerable in specific contexts, and to allow comparison of programme data with population-level burdens. We welcome submission of such analyses to *Field Exchange*.

Adolescent nutrition is an area gaining increasing attention. We summarise the results of a global stakeholder survey of policies, research, interventions and data gaps on adolescent nutrition by ENN, along with several articles describing research in this age group. With evidence and programme experience in this area growing, we consider it a good time to produce a special edition of *Field Exchange* on Adolescent Nutrition (Issue 66) in collaboration with the Adolescent Nutrition Interest Group - an informal collective of interested researchers, academics and programmers established by ENN, the London School of Hygiene and Tropical Medicine (LSHTM) and Save the Children. We will soon launch a call for content for this issue, due out in November 2021 - watch our website for more details. Meanwhile, we encourage you to participate in (or catch up on) a virtual meeting on adolescent nutrition (9th and 10th Feb), convened by ENN, UNICEF and LSHTM to share information on some of the latest research and operational initiatives in adolescent nutrition and explore priorities for assessing and improving adolescent nutrition across policies and programming. Visit [www.ennonline.net](http://www.ennonline.net) for registration

details or to access a recording after the event.

The news section in this issue reflects a busy and critical year ahead for the nutrition world, from conferences (Nutrition For Growth, Food Systems Summit), to guideline development (World Health Organisation (WHO) wasting guidelines update) to revamped ways of working (e.g. relaunch of the Global Nutrition Cluster (GNC) Technical Alliance, formerly the Global Technical Assistance Mechanism for Nutrition (GTAM) and a revamped UNICEF-WFP partnership on wasting management). Watch out for updates and summaries in *Field Exchange* online and in future editions and please share with us what you are doing to prepare and contribute. We especially welcome national perspectives on these international fora and initiatives.

Finally, we'd like to highlight to you a letter to the editor from Mubarek Abera, Ethiopian lecturer and nutrition scientist, that reflects the value of giving researchers from the 'Global South' space in global platforms and opportunities to engage in international nutrition discourse. The stark Global North/South Gap in this regard is highlighted in an exposition of a sobering online exhibition of cartoons (illustrations of blog articles written by local researchers) by Congolese political cartoonist, Tembo Kash from Democratic Republic of Congo (DRC). Exploring power dynamics between researchers from the Global North and Global South, '*Silent Voices: Bukavu Expo*' raises issues about donor methodologies, duty of care, cultural differences and gender discrimination as well as the difficulties of conducting research in conflict and post-conflict settings. We can all do more to give a voice and a platform to members of the Global South. Through 2021 we will continue to proactively pursue and support greater national authorship of the articles that we publish and track our success in this. We will summarise key *Field Exchange* articles into 'digested' reads for sharing online and with national and sub-national stakeholders and will examine how we can further distill the 'so what' of research findings for policy and programming to improve accessibility for all. We have editorial capacity to support article submissions in French and look forward to featuring more nationally authored Francophone learning through 2021. Please help us by encouraging and supporting your national colleagues - programmers, researchers, policy makers - to contribute to *Field Exchange*.

This edition again demonstrates the continued innovation and adaptation of nutrition actors to evolving contexts and challenges. The challenge remains to keep nutrition centre stage within all the various (and what can feel like competing) global priorities, including pandemics, food systems, and climate change, where there has never perhaps been greater urgency and opportunity to integrate nutrition. We look forward to capturing your experiences of doing so through 2021.

Chloe Angood (Sub-editor), Anne Bush (Surge Editor), Marie McGrath (Editor)

## Transitioning nutrition programming from humanitarian aid to health system strengthening in Kenya

By Peter Hailey, Brenda Akwanyi, Emiliana Mbelenga and Tamsin Walters



High levels of malnutrition afflict Kenya's poorest people in the arid and semi-arid areas

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The authors comprise a Nutrition Works team that provided technical nutrition assistance to the Foreign, Commonwealth and Development Office (FCDO) in Kenya between 2018 and 2020 through the MQSUN+ consortium.

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## KENYA

**What we know:** The Arid and Semi-arid Lands (ASALs) of Kenya have experienced 25 years of repeated drought-related emergencies and are dependent on short-term aid for nutrition response.

**What this article adds:** Since 2006, nutrition partners have combined efforts to transition from 'aid' to government led, managed and financed nutrition programming. Impressive gains have been driven by strong central government leadership framed by a health system strengthening approach. Devolution, increased government investment at county level and an obligated requirement to build more resilience in the ASALs have enabled transition. Success factors include developing a common vision for nutrition, inclusive communication and coordination bridging humanitarian and development, securing sufficient human resources, embedding technical assistance into government ministries, improving nutrition information systems, securing longer-term financing and strengthening supply chains. Innovations included the community-based management of acute malnutrition (CMAM) surge approach that significantly increased utilisation/coverage of services. A minimum package of quality nutrition services is now offered every day in health centres. Challenges remain, including a reliance on external technical assistance and difficulties in ensuring long-term funding. A vision, clear criteria and formalised framework are now needed to guide transition from aid to development financing for nutrition in the health system.

### Background

From June 2018 to April 2020, Maximising the Quality of Scaling Up Nutrition Plus (MQSUN+) provided technical support to the UK's Foreign, Commonwealth and Development Office (FCDO), previously the Department for International Development/DFID) and UNICEF in Kenya to analyse progress in the implementation of the Kenya Nutrition Support Transition Programme and to examine the next steps following programme completion in March 2020. Activities included field visits, consultations with stakeholders and technical input to proposals, log-frames and monitoring and evaluation plans.

This article presents observations of successes over the last 14 years and the remaining challenges in transitioning away from aid towards government-led, managed and financed nutrition services within the health system.

Since 1984, large drought-related emergencies have repeatedly affected parts or all of Kenya's ASALs. Evaluations following

<sup>1</sup> MQSUN+ provides the FCDO and the Scaling Up Nutrition (SUN) Movement with technical services to improve the quality of nutrition-specific and nutrition-sensitive programmes. The project is resourced by a consortium of five leading non-state organisations working on nutrition. The consortium is led by PATH.

the 2005-2006, 2008-2009 and 2011 drought responses highlighted recurring issues of late, parallel and weakly coordinated response. Furthermore, associating nutrition programming with drought responses contributed to short-term and intermittent funding and programming. Consequently, there was a need to identify solutions to enable nutrition stakeholders to respond earlier, integrate nutrition-related responses into government systems and identify approaches to improve the coordination of nutrition responses. Subsequent experience showed that establishing strong government-led, health-related nutrition services would result in a better coordinated and timely response in the ASALs.

Nutrition partners, therefore, engaged in a combination of strategies and innovations, starting in 2006 and accelerating between 2012 and 2019 across all six of the World Health Organization (WHO) health systems strengthening (HSS) blocks: leadership and governance, service delivery, human resources, information systems, supply chain and strategic use of financing (WHO 2010).

### Transitioning to a HSS approach

Three additional important developments in the enabling environment have influenced this transition. Firstly, the 2013 devolution process transferred responsibility for health services to the new county administrative level which, coupled with increased government investment in the most deprived counties of Kenya, resulted in a significant boost to the health system's functioning in the ASALs. The number of government health staff with specific nutrition roles grew and health-related projects increasingly focused on enhancing the service infrastructure. Secondly, Kenya's

classification in 2014 from a low to lower-middle-income country resulted in donors beginning to shift financing away from grants for supporting service delivery towards a technical assistance (TA) HSS approach. Thirdly, in 2014-2015, the adoption of the Ending Drought Emergency Common Programme Framework (EDE CPF) obligated the government and its partners to end the cycle of drought responses by building more resilient systems in the ASALs, providing impetus for the health system to lead drought responses.

This article examines key factors that have successfully shaped the transition to date, driven by strong central government leadership and commitment by key partners (UNICEF, the FCDO and other donors) to a systems approach.

### A common vision for nutrition

Prior to 2006, nutrition services were largely provided by non-governmental organisations (NGOs). After the 2006 emergency, nutrition partners began working within government health services. By 2008, a formal Memorandum of Understanding (MoU) between UNICEF and its partner NGOs clarified roles and responsibilities. This was consolidated in a 2009 Partnership Framework between the Ministry of Health (MoH), UNICEF, the World Food Programme (WFP) and their partner NGOs. The framework formalised the common vision for nutrition services, in development since 2007, and included the transition of leadership and governance to the MoH and management of a package of both 'regular' and 'emergency' nutrition services incorporated into existing health services. In 2008-2009, with the support of UNICEF and other stakeholders, the government

adopted integrated management of acute malnutrition (IMAM) protocols and, by 2010, it had institutionalised a package of 11 high-impact nutrition interventions (HiNi),<sup>2</sup> establishing nutrition services as an integral part of the routine health system.

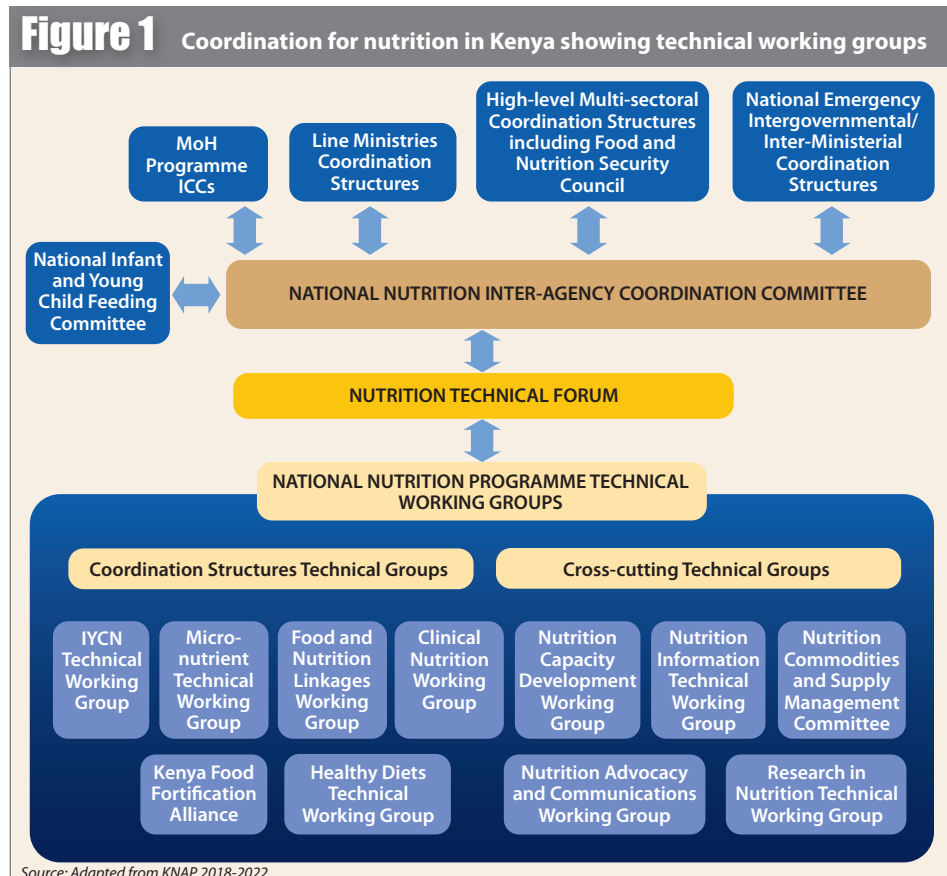
By the time of the 2011 drought, the emergency nutrition response was led by the government, delivered through government services by government staff. While evaluations indicated many improvements, several weaknesses remained, particularly related to the capacity of the health system to respond to a nutrition emergency. This highlighted the need for strengthened government-led, managed and integrated nutrition services and clarification of the government's leadership in nutrition service delivery in response to emergencies.

Important policy and strategy documents were quickly developed following the 2011 drought, including the National Food and Nutrition Security Policy and the 2012-2017 and 2018-2022 National Nutrition Action Plans, which facilitated the mainstreaming of nutrition budgeting into national development plans. Related County Nutrition Action Plans and Annual Work Plans replicated this at a county level.

Incremental progress in achieving the common vision has continued in a wide variety of ways using a health systems approach (described below). The most significant outstanding issues include the lack of a clear strategy on how to achieve transition in the areas of government leadership and the financing of nutrition services and the nutrition response to emergencies (see conclusions).

### Ensuring continuous and inclusive coordination and communication

A synthesis paper following the 2005-2006 drought response noted that coordination mechanisms were fragmented with separate structures for drought response and long-term development issues. The paper recommended a coordination mechanism that bridged both relief and development (Longley and Wekesa 2009). The establishment of a MoH-led Nutrition Technical Forum and working groups, which regularly brought together all nutrition partners, at national, then later at county levels (although limited), was a major step in strengthening nutrition coordination and improving communication. These technical groups included a Nutrition Information Technical Working Group, a Nutrition Capacity Working Group, a Maternal, Infant and Young Child Nutrition Technical Working Group and County Nutrition Task Forces (Figure 1). The Nutrition Interagency Coordinating Committee<sup>3</sup> has been key in ensuring donor alignment with



<sup>2</sup> HiNi adopted in Kenya include breastfeeding promotion; complementary feeding for infants after the age of six months; improved hygiene practices, including handwashing; deworming; supplementation (with vitamin A, zinc for diarrhoea management, multiple micronutrients, iron-folic acid for pregnant women), salt iodisation, iron fortification of staple foods; and prevention and treatment of moderate undernutrition and treatment of severe acute malnutrition.

<sup>3</sup> The NICC has representation from various agency heads and government line ministries.

government priorities; it now also constitutes the Scaling Up Nutrition (SUN) multi-stakeholder platform. The Nutrition Response Advisory Group, which became the Emergency Nutrition Advisory Committee in 2014, was critical in guiding preparedness and drought response at both national and county levels.

Recent evaluations of the nutrition response to the 2017 drought and 2019 food insecurity crisis credited this coordination system with considerably improving the communication amongst stakeholders, resulting in the nutrition sector being an example to other sectoral responses. Notably, the 2018 Global Nutrition Report stated, “the Kenyan government’s approach presents an example of a country-led approach to resilience. It demonstrates that a stronger development-focused approach can reduce the burden on traditional humanitarian response, benefitting crisis-prone populations” (Development Initiatives 2018).

### Human resources for nutrition: Nutrition Support Officers and embedded technical assistance

There has been a progressive increase in the recruitment of nutritionists in most counties since 2013. Since May 2010, donor-funded Nutrition Support Officers (NSOs)<sup>4</sup> have been embedded in the MoH structures at national and ASALs county levels. The NSOs provide TA to County Nutrition Coordinators which has been instrumental in supporting the government and, in 2017, NSOs were seconded to the National Drought Management Authority (NDMA) through this mechanism. Evaluations in 2013 and 2017 noted the importance of NSOs and the role that they have played in establishing effective relationships, systems and processes at national and sub-national levels, as well as in influencing resource allocation to ensure an effective response. Given their undoubted success, it is not yet clear how their critical role can be transitioned in a sustainable way.

### Improved nutrition information systems

Nutrition information systems (NIS) have transitioned from gathering and analysing information before and during drought emergencies to becoming the basis on which the health system manages all nutrition services. After 2006, parallel NGO and United Nations (UN) reporting systems and nutrition surveys were gradually integrated under the leadership of UNICEF and were formalised in the 2008 Memorandum of Understanding (MoU) and 2009 Framework Agreement.

Early in the transition, challenges included the use of non-standard indicators, duplicative and inconsistent data collection mechanisms and inconsistent results (Maina-Gathigi *et al.*, 2017). Recommendations from a 2013 NIS evaluation led to the rationalisation of indicators and processes used at the district/sub-county level, the alignment of anthropometric data to global standards and widespread capacity strengthening of nutrition and nutrition-related information

systems, including the NDMA early warning system. These improvements in the NIS were credited to “strong government leadership and commitment from all stakeholders, the building of institutional capacities and structures” (Maina-Gathigi *et al.*, 2017).

Capacity strengthening involved investment in increased specialist NIS staff at UNICEF and at the MoH and embedded TA within the MoH, regular data clinics led by the MoH and facilitated by the Center for Disease Control & Prevention (CDC) with close attention to on-the-job training of health facility, sub-county and county staff and others, often supported by NGOs.

The value of a strengthened overall NIS became evident in the nutrition response to the 2016-2017 drought emergency. Following early warning reports in July 2016 (Famine Early Warning Systems Network 2016) describing a worse-than-expected projected harvest, the MoH and its nutrition partners began to adapt activities to respond and new funds were allocated to nutrition programming (the Centre for Humanitarian Change and the Global Emergency Group 2018). This nutrition response began up to six months ahead of other sectors.

Regular programme monitoring has also seen significant improvements in terms of timeliness, completeness and quality of the reporting. Focus is now shifting to capacity strengthening of the District Health Information System 2 (DHIS2) system with a nutrition lens.

### Longer-term financing

During the 2011 drought it became apparent that multi-year funding was required to ensure better programming for drought response and the maintenance of high-quality services before, during and after a drought. Since 2012, donors have funded the multi-year UNICEF Maternal and Child Nutrition Programmes (MCNPs) through a mix of multi-year humanitarian and development funds with a gradual shift to higher proportions from development envelopes, making supplementary emergency funds available during drought years. This longer-term view has allowed programmes to strengthen health system-related nutrition services. County MoH annual work plans increasingly include funding provisions for health system-related nutrition services. At the end of 2019, UNICEF reported that four out of 13 priority counties had increased funding allocated to nutrition in the fiscal year and two further counties had allocated funding for the first time. Despite this, there are still many steps to take to achieve the financing goals of the common vision, including incorporating nutrition financing in County Integrated Development Plans, financing nutrition supplies and MoH integration into emerging disaster risk financing mechanisms and county level contingency budgeting.

The NDMA also introduced a government-managed Drought Contingency Fund, used for the first time in July 2014. By October 2016, health and nutrition services benefited from this fund. However, government financing systems for a response to drought, especially for

health, are still weak in terms of timeliness and identifying hotspots. In 2019, National Government Emergency Response Funds were allocated to nutrition services and, in a few counties, recently established County Contingency Funds were allocated to nutrition services as part of the response, although transparency regarding amounts and expenditure is weak (Fortnam *et al.*, 2020).

### Supply chain strengthening

Since 2011, IMAM supplies have been included in the essential medicines list, thereby facilitating government procurement, management and monitoring. This was followed by the inclusion of supply chain quality and management in the 2012-2017 National Nutrition Action Plan. Standard operating procedures were developed to improve coordination which increased transparency and enabled a quicker response to fluctuations in supply and demand. The government-led Commodity Steering Committee ensured commitment and stakeholder engagement.

In 2017, nutrition partners increased their focus on supply systems strengthening, building the capacity of county teams to scale up the logistics management information system (LMIS), leading to a measurable improvement in management and reporting. UNICEF reported that stock-outs decreased from an estimated 25% in January 2017 to 8% at the end of 2017.<sup>5</sup> Ready-to-use therapeutic food (RUTF) supplies remain significantly dependent on donor funding and there is an urgent need to prioritise sustainable financing of supplies within the common vision.

The MoH, UNICEF and the Kenya Medical Supplies Authority (KEMSA) jointly monitor progress and sign off quarterly on agreed key performance indicators.

### Innovations in nutrition health systems

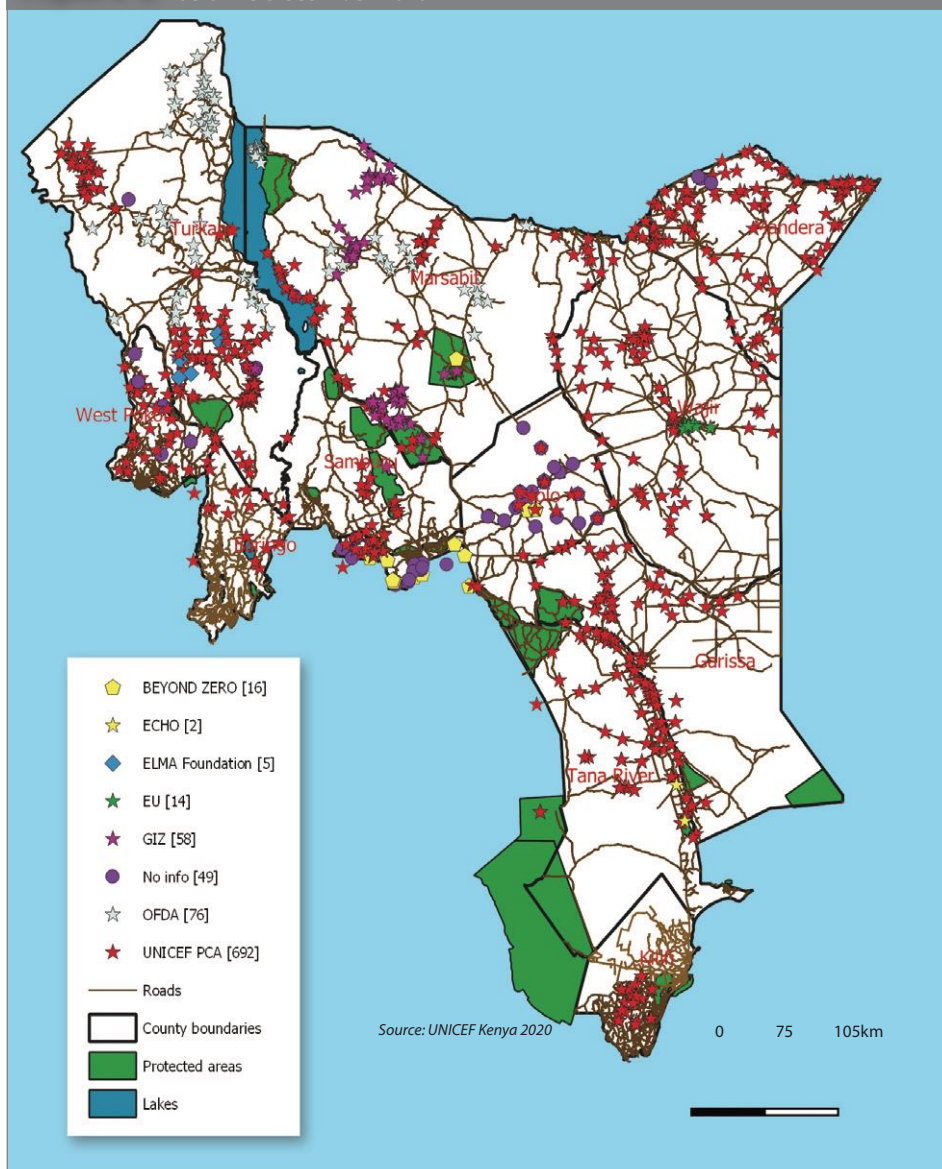
#### Community-based management of acute malnutrition surge approach

North-western and north-eastern Kenya are particularly vulnerable to droughts. Consequently, a resilient health system is essential. The CMAM/IMAM surge approach, developed by Concern Worldwide and partners, helps the health system to prepare for, detect and respond to peaks in demand for nutrition services by setting thresholds for caseloads based on health facility capacity to provide quality nutrition services, monitoring caseloads against these thresholds and triggering surge support when thresholds are reached. In 2016, the government adopted the approach and initiated rollout to the ASALs counties. As analysis of the 2019 drought response emerges, there are indications that the approach contributed to the timeliness of the response, as 63% of health facilities in 10 counties offering IMAM now implement the

<sup>4</sup> Between 2010 and 2014, provincial/district nutrition officers were funded by the US Agency for International Development (USAID); 16 NSOs were recruited to support 28 counties, 10 of which were in the ASALs. From 2014 to date, UNICEF NSOs were funded by DFID, USAID and internal funds and recently also supported by World Bank funds through the NICHE project

<sup>5</sup> Data from UNICEF reporting; internal communication

**Figure 2** North and North Eastern Kenya outreach sites by donor support, map as of 18 December 2019



ment (iCCM)-IMAM and task shifting to community levels is likely to be the next challenge for the transition process.

**Community capacity to provide and receive nutrition services**

Since the rollout of the Community Health Strategy (CHS) in 2006 (Kenya Ministry of Health 2006), civil society actors and faith-based organisations (FBOs) have complemented the government’s efforts to roll out the CHS including by establishing and supporting/facilitating community units, aiming to empower communities to manage their own health. Capacity building of the Community Health Extension Workers (who are employees of the MoH) and Community Health Volunteers (CHVs) to deliver nutrition services has mainly taken place through partners (UNICEF, NGOs and FBOs). During the 2011 emergency response, CHS enhanced service delivery at the facility level by establishing links to community-level structures. As a result, by 2017 improved early detection, identification and referral of acute malnutrition was noted (Figure 2). The new Community Health Policy 2020-2030 aims to streamline the implementation of the CHS, clarifying leadership, coordination structures and the appropriate level of human resources required. In several counties, legislation clarifying issues related to the sustainability of the CHS including incentives to CHVs has been passed or is in progress. Despite the crucial nature of the community health system, the CHS still experiences weaknesses, including how to sustainably incentivise CHVs.

**Indications of progress in nutrition services**

The steps outlined above contributed to an increase in admissions for children with severe wasting rising from 21,658 in 2009 to 87,622 in 2019 (Figure 3). Despite the increase in admissions, recovery rates remained relatively unchanged with cure rates of 81% in 2019 (Figure 4). These figures are notable given the shifts from NGO driven to government owned services and three droughts occurring within this timeframe.

approach. Building on this success, there is potential for the surge model to be extended to other community health interventions.

**Outreach services**

Given the sparse population and long distances to health facilities in the ASALs, outreach services were critical but costly. Consequently, the government relied on donor resources for funding outreaches. Two innovations have considerably increased the effectiveness and coverage of outreach services. Firstly, the integration of a basic package of health and nutrition services led to reduced duplication of outreach interventions. Secondly, county outreach deployment plans, in use since 2016, (see Figure 2 and Table 1) have successfully used evidence from nutrition services and local contextual knowledge to prioritise malnutrition hotspots and inform the timing of scale-up. This approach was used extensively in 2017 and 2019 and is credited with a significant increase in the utilisation and coverage of services. The challenge of sparse populations in large geographical areas means that externally funded and expensive

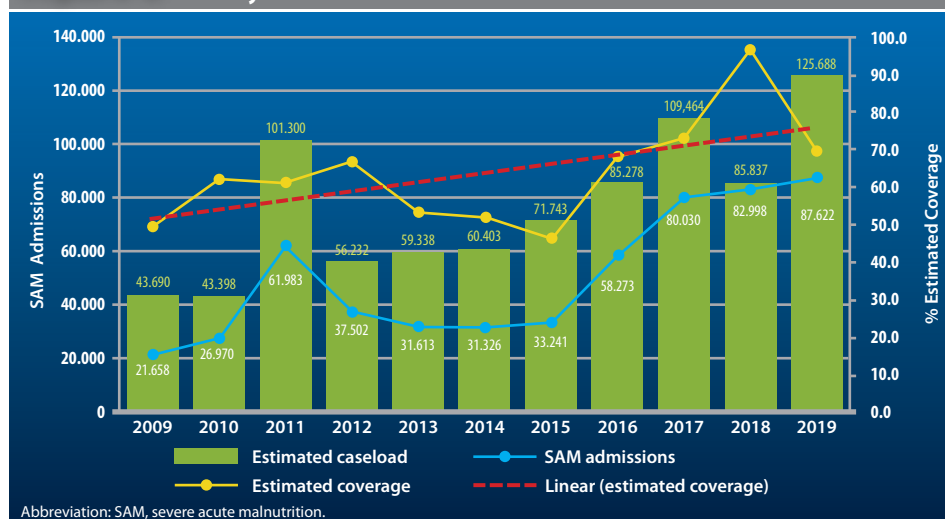
mechanisms to achieve universal health coverage (UHC) is unlikely to ever be sustainable. Incorporating alternative approaches into UHC, such as integrated Community Case Manage-

County	Mapped sites Sept 2019 (#)	Operational outreach sites July 2019	Operational outreach sites Sept 2019	Increase (#)	Increase (%)	Current gap (#)
Baringo (East Pokot)	109	26	91	65	71%	18
Garissa	280	21	81	60	74%	199
Isiolo	82	10	20	10	50%	62
Kilifi	66	20	22	2	9%	44
Mandera	194	77	140	63	45%	54
Marsabit	172	72	92	20	22%	80
Samburu	71	14	31	17	55%	40
Tana River	63	25	44	19	43%	19
Turkana	195	66	185	119	64%	10
Wajir	120	12	42	30	71%	78
West Pokot	102	14	18	4	22%	84
<b>Total</b>	<b>1454</b>	<b>357</b>	<b>766</b>	<b>409</b>	<b>53%</b>	<b>688</b>

Source: UNICEF Kenya 2020



**Figure 3** 10 year trends in severe acute malnutrition admissions and caseloads<sup>6</sup> in Kenya



Abbreviation: SAM, severe acute malnutrition.  
Source: MoH Kenya/UNICEF integrated management of acute malnutrition database

**Moving forward and building on the successes**

The last 14 years of nutrition programming in Kenya have seen considerable progress, moving from a parallel UN and NGO ‘emergency’ approach to a government-led and managed nutrition service within the health system. A minimum package of nutrition services is now offered every day in health centres and nutrition services are no longer seen as emergency-related interventions. These transitions have gone some way to achieving the objectives of the EDE CPF and the common vision for nutrition formalised in 2009:

- Integrating a holistic package of nutrition services into the health system
- Using a HSS approach to support the government (national and county) to provide high-quality health and nutrition services.
- Using the HSS approach to integrate emergency responses into government-led and managed health systems.

This process has had synergistic benefits for ‘regular’ nutrition services as well as the nutrition drought response. Weaknesses in responses prior to 2011, i.e. parallel programming, late response, poor coordination and intermittent services, have now, to a great extent, been addressed but

<sup>6</sup> Estimated caseloads are calculated using standard conversion from prevalence to incidence and assuming a 75% coverage of the programmes.

the question of financing remains. A faster transition from donor support to government-financed systems is now urgent. This transition will also mean a reduction in external TA, necessitating a strategy to ensure sustainability of the capacities the TA has successfully strengthened. There is a need to further embed nutrition in the health system within the national and county financing vision/strategy and disbursement.

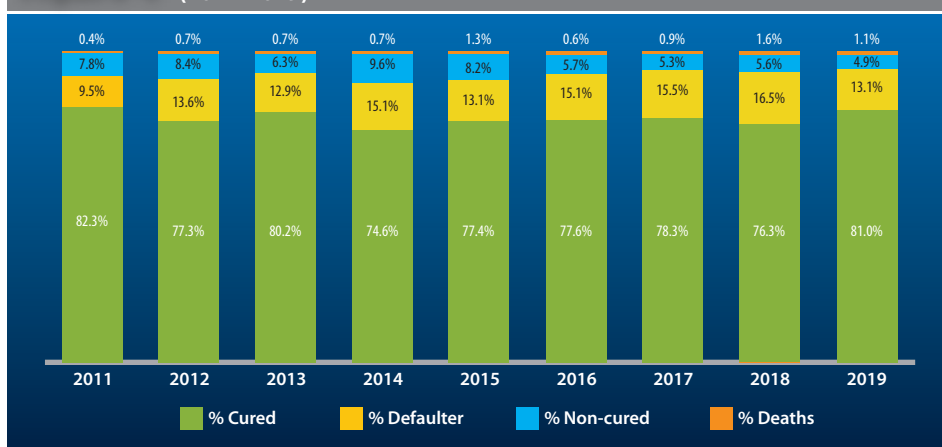
A recent analysis of how countries have transitioned away from aid concludes, “Usually,

countries do not have a strategy to address potential challenges and plan ahead for the transition from aid” (Engen and Prizzon 2019). It recommends, “Both recipient countries and donors should identify priorities and develop a strategy for managing the transition away from aid”. Learning from the last 13 years suggests that a common vision and coordination structure, together with strong UNICEF and donor support, was fundamental for the successful steps taken to date in the transition. There is now an urgent need for Kenya’s nutrition partners to build on these successes, developing and implementing a clear, criteria-based transition away from aid to development financing for nutrition in the health system and formalising this refreshed transition vision in a MoU or similar framework.

Building on successes, priorities for the next five years include refreshing the common vision for health system-based nutrition services transitioning away from aid to develop financing, embedding the financing of nutrition services into government-led financing of the health system, most immediately the financing of specialist nutrition products and ensuring that the health systems can better respond to the forecast increase in climate shocks related to climate change. Finally, sustained reductions in the prevalence of undernutrition in the ASALs will not be achieved without addressing all of the drivers of undernutrition across all sectors of people’s livelihoods.

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**Figure 4** Total Outpatient Therapeutic Programme discharges by year in Kenya (2011-2019)



Source: MoH Kenya/UNICEF severe acute malnutrition database

**References**

Centre for Humanitarian Change, and Global Emergency Group. 2018. “Real Time Evaluation of the Emergency Drought Situation Response in Kenya, 2017.”

CONCERN Worldwide. 2016. “Global CMAM Surge Approach: Operational Guide.”

Development Initiatives. 2018. “2018 Global Nutrition Report: Shining a Light to Spur Action on Nutrition.” Bristol. <https://doi.org/10.2499/9780896295643>.

Eby, Eryn, Tewoldeberhan Daniel, Olivia Agutu, Pedro Gonzalez Cortijo, and Grainne Moloney. 2019. “Integration of the UNICEF Nutrition Supply Chain: A Cost Analysis in Kenya.” *Health Policy and Planning* 34 (3): 188–96. <https://doi.org/10.1093/heapol/czz007>.

Engen, Lars, and Annalisa Prizzon. 2019. “Exit from Aid An Analysis of Country Experiences.”

Famine Early Warning Systems Network. 2016. “Long Rains Harvest in Rift Valley Now Likely Below-Average Due to Dry Spell in May/June.” 2016. <https://fewns.net/east-africa/kenya/key-message-update/july-2016>.

Fortnam, Matt, Peter Hailey, Emily Mbelenga, Nancy Balfour, Stephen Odhiambo, and Elijah Odundo. 2020. “Climate Shock Responsiveness of the Kenya Health System: Working Paper.” Oxford Policy Management. <https://doi.org/10.13140/RG.2.2.17862.29768>.

Government of Kenya. 2011. “National Food and Nutrition Security Policy.” 2012. “National Nutrition Action Plan 2012-2017.”

Kenya Ministry of Health. 2006. “Taking the Kenya Essential Package for Health to the Community: A Strategy for the Delivery of Level One Services.” 2019. “Nutrition Capacity Assessment Reports.” Unpublished. <http://www.nutrition.health.or.ke/reports-capacity-assessment-reports/capacity-assessment-reports/capacity-assessment-reports-2/>.

Longley, Catherine, and Mike Wekesa. 2009. “Improving Drought Response in Pastoral Areas of Kenya: Lessons and Recommendations.” <http://www.odi.org.uk/resources/details.asp?id=4408&title=kenya-pastoralists>.

Maina-Gathigi, Lucy, Louise Mwirigi, Veronica Imelda, Oleg Bilukha, Eva Leidman, Lucy Kinyua, and Kibet Chirchir. 2017. “Improving Nutrition Information Systems: Lessons from Kenya.” *Field Exchange*. <https://www.enonline.net/fex/55/nutinfosystemlessonskenya>.

UNICEF Kenya. 2020. “Maternal Child Nutrition Programme II UNICEF - Department for International Development (DFID-UK) Partnership Six Months Progress Report.”

WHO. 2010. “Monitoring the Building Blocks of Health Systems: A Handbook Of Indicators and Their Measurement Strategies.” [http://www.who.int/healthinfo/systems/WHO\\_MBHSS\\_2010\\_full\\_web.pdf](http://www.who.int/healthinfo/systems/WHO_MBHSS_2010_full_web.pdf).

# Integration of family planning in nutrition programming: experiences from the *Suaahara II* programme in Nepal

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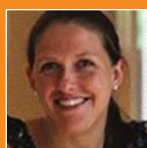


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## Nepal

**What we know:** Family planning is an important nutrition-sensitive intervention that is often overlooked in nutrition and food security programming.

**What this article adds:** This article provides an example of how to integrate family planning and nutrition programming by highlighting experiences and lessons learned from the *Suaahara II* programme in Nepal. The *Suaahara II* programme aims to reduce widespread undernutrition, particularly among mothers and children within the first 1,000 days of life, through interventions spanning nutrition, health and family planning, Water, sanitation and hygiene (WASH), agriculture and markets and nutrition governance. Family planning messages were integrated throughout household and community level social and behaviour change activities to improve knowledge and increase demand for high-quality family planning services. Cautious interpretation of the project monitoring data from surveys conducted among a randomly selected sample of households in 2017 and 2019 suggests some modest but positive trends in family planning indicators. Leveraging existing platforms across sectors helped deliver integrated messages to beneficiaries and ensured that messages were reinforced in diverse platforms. Programme experience and monitoring data show that utilising multiple communications channels and reaching multiple household members increased the possibility of desired behaviour changes.

## Overview of nutrition and family planning in Nepal

Nepal is a small landlocked country with tremendous geographic, ecological and cultural diversity. Half of Nepal's population of 26 million live in the low-lying southern plains known as the *terais*, the other almost half (43%) live in the middle hills and around 7% live in the northern mountains (Government of Nepal, 2014). Forty percent of Nepal's population is under the age of 18 years (Government of Nepal, 2018).

Nepal remains burdened by public health challenges including malnutrition as evidenced in the latest Demographic and Health Survey (Government of Nepal, 2016). Among adolescent women 15 to 19 years of age, 17% are already mothers or pregnant with their first child and around 17% of women of reproductive age (15-49 years) are thin (body mass index <18.5). This is of concern not only for the women themselves but also for their offspring, given that thin mothers are more likely to give birth to low birth weight (LBW) infants at high risk

of being undernourished themselves thus perpetuating the intergenerational cycle of malnutrition. The national prevalence of infants born with LBW is 12%. The prevalence of stunting (short height-for-age) among children under five years of age decreased from 57% in 1996 to 36% in 2016 whereas wasting (low weight-for-height) among children aged 6 to 59 months has remained high at around 10%. Poor infant and young child feeding contribute to child undernutrition: only 66% of infants under six months of age are exclusively breastfed and only 35% of children 6 to 23 months of age receive a minimum acceptable diet.

The rate of unintended pregnancies has declined significantly in the previous two decades in Nepal from 37% in 1996 to 19% in 2016 and the unmet need for family planning (FP)<sup>1</sup> declined from 31% to 24% over the same two decades (Government of Nepal, 2016). This positive trend was driven by the

<sup>1</sup> Family planning is defined by the World Health Organization (WHO) as the ability of individuals and couples to anticipate and attain their desired number of children and the spacing and timing of their births.

long-term collective efforts of the Government of Nepal (GoN) and external development partners who have targeted marginalised and excluded populations with interventions including intensive social and behaviour change approaches to mitigate the social taboos and negative norms around family planning.

Nepal is committed to improving the health status of its people including reducing undernutrition. Nepal's National Health Policy (2019) describes a vision where all Nepali citizens have access to services, enabling high levels of physical, mental, social and emotional health. This is out-worked through a tiered healthcare delivery system structured at federal, provincial and municipality/community levels. Nepal's Multisector Nutrition Plan 2018 – 2022 (MSNP II) guides improved maternal, adolescent and child nutrition in the country through the scale up of essential nutrition-specific and nutrition-sensitive interventions (Government of Nepal, 2017). The MSNP II prioritises the reduction of existing disparities in levels of stunting and wasting (by wealth quintile, level of maternal education, geographical area and household food insecurity), promotion of equity, improvement of poor performing interventions, the scale up of low coverage interventions and addressing emerging challenges (Haag - 2020). The MSNP II also states the importance of increasing access and coverage of FP and reproductive health services as a key element of improving the quality of life for families and communities. This is to be achieved by enabling women and couples to attain their desired family size and have healthy spacing of childbirths by improving access to rights-based FP services and reducing the unmet need for modern contraceptives (Government of Nepal, 2015).

FP and nutrition are intricately linked and affect the nutritional wellbeing of individuals in direct

### Box 1 The links between family planning and nutrition

The period from conception to 24 months of age – often called the first 1,000 days of life – is a critical time to prevent undernutrition. When children are well-spaced (at least 24 months spacing after a live birth), mothers are more likely to have the time, energy and resources to recuperate the essential nutrients required resulting in better nutrition outcomes in children. The benefits of optimal birth spacing have far-reaching effects into childhood and are associated with reduced prevalence of stunting in children under five years of age (Naik and Smith, 2015).

Early pregnancies and childbearing can have negative health, nutrition and development consequences for adolescent mothers and their babies. Complications related to pregnancy and childbirth are the leading cause of death among adolescent girls aged 15-19 years globally (Neal *et al.*, 2012). Additionally, babies born to mothers aged under 20 years face higher risks of low birth weight, preterm delivery and severe neonatal conditions (WHO, 2016). Evidence suggests that children from unintended pregnancies may be at risk of poor nutrition, underscoring important linkages between family planning and nutrition (Naik and Smith, 2015).

and indirect ways (see Box 1). Family planning is therefore an important nutrition-sensitive intervention. However, FP is often overlooked in nutrition and food security programming – nutrition programmes do not generally include messages about the when, what and how of modern contraceptive methods or the healthy timing and spacing of pregnancy (HTSP). Conversely, FP providers do not usually provide information about maternal and infant nutrition. Integration of FP into nutrition programming, including harmonising counselling and services with maternal, infant and young child nutrition (MIYCN) from pre-pregnancy to early childhood, provides an opportunity to improve coverage of services towards universal health coverage (as part of the 2030 Agenda for Sustainable Development) and improve health and nutrition outcomes for both mothers and children. This article provides an example of how this kind of integration can be achieved in practice in the context of the *Suaahara II* programme, highlighting experiences and lessons learned.

### **Suaahara II programme: overview and integration of family planning into nutrition**

The *Suaahara II* programme (*SII*) is an integrated nutrition programme funded by the United States Agency for International Development (USAID) covering all communities of 42 of Nepal's 77 districts. *SII* is a continuation of a previous programme, *Suaahara*, which was a five-year US-AID-funded programme implemented from 2011 to 2016. *SII* started in April 2016 as a five-year USD63 million programme that was recently extended until March 2023 with additional funding of USD20 million. The international non-governmental organisation (NGO), Helen Keller International (HKI), is the lead partner for the programme which is implemented through a consortium with six other organisations: two international NGOs (CARE and FHI 360) and four national NGOs (Equal Access, Environment and Public Health Organization (ENPHO), Vijaya Development Resource Center (VDRC) and Nepali Technical Assistance Group (NTAG)). Another 39 partner NGOs (PNGOs) implement activities at the district level, mainly within communities and households, across the 42 programme districts.

*SII* aims to reduce widespread undernutrition in Nepal, particularly among mothers and children within the first 1,000 days of life, with interventions spanning nutrition, health and FP, Water, sanitation and hygiene (WASH), agriculture and markets and nutrition governance. Using a gender equality and social inclusion approach for all interventions, *SII*'s multi-sectoral social and behaviour change strategies are integrated across all of these sectors to reach thousands of communities and include inter-personal communication (IPC) (primarily home visits by *SII*-hired frontline workers), community events (e.g., key life events celebrating the start of pregnancy, delivery and an infant reaching six months of age), mass media (primarily a weekly radio programme also available on Facebook and YouTube) and text messages (see Figure 1). As of September 2020, nearly two million households with children in the first 1,000 day period were reached, targeting not only mothers

but other family members including men and mothers-in-law.

FP, focusing on three key HTSP messages, is integrated throughout these *SII* household and community-level activities to improve knowledge and increase demand for high-quality FP services. For example, around 10% of the episodes of *SII*'s flagship weekly *Banchhin Aama* radio programme and live call-in component are purely dedicated to FP/HTSP, a text message focused on HTSP is sent to postnatal mothers, ideal FP is promoted through social media platforms and FP-related messages are integrated within the materials and job aids of *SII*'s nearly 1,500 frontline workers (such as an FP edutainment game to discuss misconceptions related to the side effects of modern contraceptive use) and social and behaviour change communication (SBCC) materials used by Female Community Health Volunteers (FCHVs) during home visits and in community platforms.

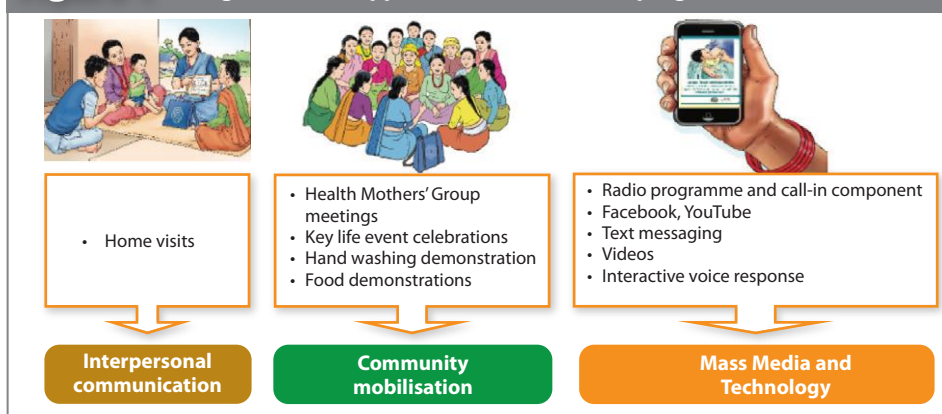
Gender inequality is pervasive in Nepal affecting household decision-making including the ability of a woman to control whether she uses FP services. Extending FP messages to the 1,000 day household members through *SII*'s family-centred approach is important for overcoming these barriers as they go beyond a mother's knowledge.

At the health service delivery level, integration of FP and HTSP into nutrition services began with revisions to the GoN's MIYCN training package. This training is given to all health workers and FCHVs to enhance their nutrition-related knowledge. This package will now also include training sessions to improve their ability to provide FP/HTSP counselling and services. Furthermore, job aids that include integrated messaging on both nutrition and FP/HTSP are also provided. As of September 2020, these have been provided to all 2,111 health facilities in the 42 *SII* implementation districts. *SII* encourages health workers to counsel on the lactational amenorrhea method (LAM) of FP which also helps to extend breastfeeding. *SII* also conducts routine monitoring of 50 to 60 health facilities per month for on-site coaching to address remaining knowledge and skill gaps and assess service readiness and status of key commodities, equipment and essential supplies including follow-up for timely reporting.

### **Partnerships and linkages**

*SII* works in partnership with the GoN to revise and develop various nutrition-related guidelines, protocols and training manuals and SBCC materials to integrate FP and HTSP. *SII* actively participates in government-led Technical Working Group meetings, provides technical support and advocates for the scale-up of *SII*'s integration approach. Similarly, *SII* community-based staff continuously advocate and collaborate with local government bodies to encourage resource allocation and utilisation to address supply-side barriers such as gaps in commodities, equipment and other essential supplies. Additionally, *SII* builds linkages and collaborates with other development programmes to increase demand for integrated services and promote and replicate best practices. For example, *SII* shares its project

**Figure 1** Integrated SBCC approach of the *Suaahara* programme



monitoring data related to supply-side stock-outs of essential commodities of FP on a quarterly basis with other health system programmes as part of strengthening the government planning and monitoring system. To ensure that key behaviours related to MIYCN/FP/HTSP are sustained, constant efforts are made at federal, provincial and local levels so that the key behaviours being promoted by the project continue beyond its intervention.

*SII* has also integrated FP/HTSP information beyond the health sector. For instance, *SII* has integrated key FP/HTSP messages in the training of Village Model Farmers and also leads discussions on these topics during Homestead Food Production Beneficiaries group meetings. To expand beyond *SII*, collaboration with the USAID-funded Knowledge-based Integrated Sustainable Agriculture project in Nepal included integration of these key FP/HTSP messages into their training package which helped reach male farmers groups across their 24 programme districts. Additionally, FP and HTSP messages are also incorporated in an integrated job aid, known as the Health Mothers' Group calendar, used by FCHVs to facilitate systematic agenda-based discussions during monthly meetings.

### Early indications of improvement

The findings from *SII*'s annual monitoring surveys conducted in 2017 and 2019 among a randomly selected sample of households with a child 0-5

**Figure 2** Progress in family planning indicators in *Suaahara II* programme areas, 2017 and 2019

Indicators	2017	2019
Prevalence of women getting married at 20 years and older	25%	28%
Prevalence of women avoiding pregnancy (FP practices among non-pregnant mothers)	40%	44%
Prevalence of married women using any modern method of FP	36%	38%
FP/HTSP knowledge among household heads (A women should wait to become pregnant until she is 20 years or older)	52%	53%
FP/HTSP knowledge among mothers (A women should wait to become pregnant until she is 20 years or older)	58%	59%

Source: *Suaahara II* programme data (Annual Monitoring Survey Report, 2019)

years of age suggest some modest but positive trends in FP indicators although the results should be interpreted with caution in the absence of control groups and a more rigorous evaluation (Figure 2).

### Implementation challenges

Challenges are inevitable in a multi-sectoral programme with large geographic coverage such as *SII* that covers more than half of Nepal. Successful integration has required continuous advocacy with government stakeholders at national and sub-national levels to allocate resources for activities in line with the ideals of integrated services as they would naturally have their own, but differing, priorities. Another challenge has been the limited time of health workers and FCHVs who have activities under multiple interventions. This has, at times, led to FP being overlooked, particularly for FP counselling sessions when more urgent health and nutrition needs have been prioritised. Quality assurance is also difficult for integrated services and large-scale programmes. In consideration of this, *SII* provides systematic on-site coaching and mentoring to healthcare providers to ensure delivery of high-quality integrated services at health facilities and to continue to build knowledge and skills. Finally, it can be challenging to reach disadvantaged populations with all the components of integrated services as barriers to adopting behaviours from multiple sectors vary from one population group to another. For example, those people struggling most to achieve dietary diversity may differ from those needing additional support to adopt modern FP practices or WASH practices such as treating drinking water and hand washing with soap as barriers to each of these practices naturally differ. This suggests the need for different targeting strategies by sector. To mitigate this issue, *SII* focuses its interventions and sharpens its targeting and behaviour changes approaches regularly.

### Learnings and potentially replicable interventions

The need for the integration of FP and nutrition programming is evident. Building bridges across sectors using integrated approaches implemented through different delivery platforms provides opportunities for addressing knowledge gaps and bolstering demand generation of integrated services. Scaling-up best practices of integrated services requires the continuous building of technical

and management capacity and collaboration with a wide group of stakeholders at all levels. Continual capacity building of the facility- and community-based healthcare providers through on-site coaching and mentoring is vital.

The *SII* family-centred approach is crucial to promoting shared responsibility among family members rather than relying exclusively on mothers to adopt optimal behaviours such as delayed marriage and first pregnancy. This can support a reduction in the prevalence of maternal and child undernutrition and related child morbidity and mortality and ultimately reduce intergenerational cycles of malnutrition in resource constrained settings. Additionally, leveraging existing platforms across sectors helps to deliver integrated messages to beneficiaries and ensures that messages are consistently reinforced using diverse platforms. Our programme experience and monitoring data show that utilising multiple communications channels and reaching multiple household members increases the possibility of desired behaviour changes.

Finally, working alongside the government at all levels is vital for the long-term sustainability of these investments. In the decentralised governance context of Nepal, a gradual increase in resources allocated through local level planning would help to sustain the efforts that have been initiated for the improved delivery of integrated services and this would contribute to achieving Nepal's commitments to providing a comprehensive package of essential health and nutrition services through universal healthcare coverage.

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### References

Annual Monitoring Survey Report. (2019). *Suaahara II* Good Nutrition Program, Nepal. <http://careevaluations.org/wp-content/uploads/Suaahara-II-Annual-Survey-Report-2.pdf>

Government of Nepal. (2014). Population Monograph of Nepal. *National Planning Commission Secretariat, Central Bureau of Statistics, Kathmandu, Nepal.*

Government of Nepal. (2015). National Family Planning Costed Implementation Plan 2015-2020. *Ministry of Health and Population, Kathmandu, Nepal.*

Government of Nepal. (2016). Nepal Demographic and Health Survey. *Ministry of Health and Population, Kathmandu, Nepal.*

Government of Nepal. (2017). Nepal's Multi-sector Nutrition Plan 2018-2022. *National Planning Commission, Kathmandu, Nepal.*

Government of Nepal. (2018). Country Program Action Plan 2018-2022. UNICEF, *Kathmandu, Nepal.*

Haag, K. C., Sharma, A., Parajuli, K. and Adhikari, A. (2020). Experiences of the Integrated Management of Acute Malnutrition (IMAM) programme in Nepal: from pilot to scale up. *Field Exchange issue 63, www.enonline.net/fex*

Naik, R. and Smith, R. (2015). Impacts of Family Planning on Nutrition. Washington, DC: Futures Group, Health Policy Project. [https://www.healthpolicyproject.com/pubs/690\\_FPandnutritionFinal.pdf](https://www.healthpolicyproject.com/pubs/690_FPandnutritionFinal.pdf)

Neal, S., Matthews, Z., Frost, M., Fogstad, H., Camacho, A. V., and Laski, L. (2012). Childbearing in adolescents aged 12-15 years in low resource countries: a neglected issue. New estimates from demographic and household surveys in 42 countries. *Acta Obstetrica et Gynecologica Scandinavica*, 91(9), 1114-1118. doi:<https://doi.org/10.1111/j.1600-0412.2012.01467.x>

WHO. (2016). Global Health Estimates 2015: Death by Cause, Age, Sex, Country and Region, 2000-2015 *World Health Organization, Geneva.*

## WHO guideline on mass drug administration of azithromycin to children under five years of age



**A**round 5.3 million children under the age of five died in 2018. Most of these deaths occurred in low-income countries with the highest risk of death in sub-Saharan Africa. Sustainable Development Goal 3 aims to end all preventable deaths of newborns and children under the age of five by 2030. There is therefore a need to identify simple, feasible and cost-effective interventions to reduce child mortality in low- and middle-income countries. Mass drug administration of azithromycin (MDA-azithromycin) has been effective in containing trachoma and recent studies have suggested that MDA-azithromycin can reduce child mortality rates. MDA-azithromycin is an effective antibiotic for the treatment of acute lower respiratory tract and enteric infections. Although the exact mechanism(s) through which MDA-azithromycin reduces child mortality has not been clearly elucidated, it has been postulated that one route may be through a reduction in the incidence of these infections. In addition, MDA-azithromycin offers short-term protection against *P. falciparum* infection, responsible for malaria. By decreasing the incidence of these

three major causes of mortality, it was hypothesised that MDA-azithromycin may have an impact on overall child mortality, especially in countries with high under-five mortality and a heavy burden of morbidity due to diarrhoea, pneumonia and malaria.

In its new guideline document,<sup>1</sup> the World Health Organization (WHO), aims to provide an evidence-informed recommendation on whether MDA-azithromycin, as a public health intervention for the reduction of under-five mortality, should (a) be rolled out universally in low- and middle-income countries, (b) be applied only in some situational contexts in low- and middle-income countries or (c) not be used at all. After carefully considering the balance of benefits and potential harm, values and preferences of the target population and ethical, acceptability and feasibility issues, the Guideline Development Group (GDG, independent of WHO) made two recommendations on implementing MDA-azithromycin.

Firstly, the GDG decided against a universal recommendation of MDA-azithromycin for low- and middle-income countries (strong recom-

mendation). However, the GDG understands that the benefits appear to outweigh the harm in the settings originally observed, i.e., in sub-Saharan Africa where there is a high burden of infant and child mortality and high burden of disease owing to malaria, pneumonia and diarrhoea. The GDG therefore issued a second (conditional) recommendation for use of MDA-azithromycin in infants aged 1 to 11 months in these settings (targeting the sub-group in which the greatest benefit was observed) with a suggested regimen of 20mg/kg as a single dose every six months. The GDG recommends that infant and child mortality and antimicrobial resistance should be monitored on a continuous basis and that other ongoing child survival interventions be strengthened concurrently. This recommendation is applicable for two to three years from the publication of this guideline, at which point the guidelines are expected to be updated according to new emerging evidence.

<sup>1</sup> WHO. (2020). WHO guideline on mass drug administration of azithromycin to children under five years of age to promote child survival. Geneva: World Health Organization. Licence: CC BY-NC-SA 3.0 IGO.

## Launch of the Scaling Up Community of Practice website



**I**n November 2020, the Scaling Up Community of Practice (CoP) website was launched. The website aims to provide a platform for experts and practitioners to exchange knowledge on approaches to scaling up development interventions, enhance collaborative efforts and promote the importance of scaling up considerations to achieve global development goals. The CoP, launched six years ago, now has a 700 strong membership base representing over 200 organisations including development organisations, operating non-governmental

organisations, foundations, universities and think tanks. The CoP has nine thematic working groups each with their own page on the website: nutrition, education, health, agriculture, social enterprises, youth employment, climate change, fragile states and monitoring and evaluation.

The Nutrition Scaling Working Group (NSWG), launched in August 2019, includes 150 members from various advocacy, research, implementation and donor organisations within the nutrition sector and aims to fill a gap in the nutrition community by providing a forum for members to

consider critically how to sustainably scale nutrition programmes. The NSWG webpage focusses on knowledge sharing of research, case studies, systems and methodologies for driving nutrition interventions towards scale, the identification of gaps and lessons learned from within the nutrition community and other sectors, the creation of guidance checklists and the development of analytical tools such as cost-benefit tools. The CoP will gradually transition communications from email to the website including job postings and real-time entries.

The NSWG is an open group – new members passionate about the science of scaling up are welcome to join.

You can register to join the CoP here <https://www.scalingcommunityofpractice.com/register/> and find out more about the Nutrition Scaling Working Group here. <https://www.scalingcommunityofpractice.com/groups/nutrition/>

# Global Nutrition Cluster Technical Alliance Launch



On the 2nd December 2020, the Global Nutrition Cluster (GNC) Technical Alliance (formally Global Technical Assistance Mechanism (GTAM)) was officially launched via a webinar with over 300 participants. The Alliance is an initiative to improve the quality of nutrition preparedness, response and recovery by enabling and providing coordinated, accessible and timely technical support through multiple channels where gaps exist. It is led by the United Nations Children's Fund (UNICEF), co-led by World Vision and supported by a leadership team including Emergency Nutrition Network (ENN), the GNC Coordination Team and International Medical Corps and includes

GNC partners and other actors working at a global, regional and country level.

Broadly speaking, the Alliance enables practitioners working at all levels to access existing technical resources, guidance, country learnings and capacity strengthening tools via the website as well as technical support from experienced nutrition advisors to answer questions or provide more in-depth support (through either remote or in-country support). When there is a need for guidance on an emerging technical area and/or challenging context, the Alliance brings together experts in Global Thematic Working Groups (GTWG) to rapidly develop interim guidance or provide expert advice. These GTWGs develop

consensus driven 'stop-gap' guidance on emerging nutrition technical issues, where guidance is lacking or evidence is inconclusive and will link with the World Health Organization (WHO) rapid or longer-term normative guidance development processes where appropriate. ENN's en-net platform links directly to the Alliance in order that technical issues put forward by practitioners can inform the work of the GTWGs and so that practitioners can input into this work.

Support from the Alliance is available to all practitioners working in nutrition programmes in all countries responding to or recovering from emergency situations. You can ask a technical question or request support by registering your interest on the request form found on the GNC Technical Alliance website.

For more information, visit the website:

<https://ta.nutritioncluster.net/>

Read the Strategic Intent (2021- 2023) of the GNC TA here: [https://ta.nutritioncluster.net/sites/gtamcluster.com/files/2020-11/GNC%20technical%20alliance\\_strategic%20intent\\_Nov2020\\_final.pdf](https://ta.nutritioncluster.net/sites/gtamcluster.com/files/2020-11/GNC%20technical%20alliance_strategic%20intent_Nov2020_final.pdf)

## Evidence and guidance notes on the use of cash and voucher assistance for nutrition outcomes in emergencies



The use of Cash and Voucher Assistance (CVA) as a modality of humanitarian assistance has increased rapidly over recent years across all humanitarian sectors. There is growing recognition that CVA modalities can contribute to nutrition outcomes. However, the use of CVA for this purpose has been restricted likely due to the limited evidence base and lack of familiarity of nutrition practitioners with CVA modalities and approaches. There

has also been no guidance on why, when and how to integrate cash and voucher modalities in nutrition interventions, what information and analysis is required to make these decisions and how a CVA component should be designed to maximise effectiveness and minimise risks. CashCap and the Global Nutrition Cluster have attempted to address this gap through the development of an evidence note and guidance note to support nutrition sector partners to more routinely consider and, if appropriate, use CVA modalities in emergency nutrition responses.<sup>1</sup>

The **Evidence note** provides an overview of the evidence of the use of CVA for nutrition outcomes in emergencies and identifies the most common approaches and best practice to integrate CVA in nutrition response. It starts by linking CVA with the conceptual framework for adequate maternal and child nutrition, introducing demand and supply side barriers to achieving adequate nutrition and how cash and voucher modalities can address them. The note also provides an overview of the impact of cash and vouchers on the nutrition status of children and the determinants of adequate nutrition, concluding that CVA alone is unlikely to be enough to achieve nutrition outcomes. Lastly, based on reviewed studies and programme documents, the note identifies and assesses the main CVA approaches for nutrition.

The **Guidance note** provides step-by-step guidance throughout the humanitarian programme cycle on the incorporation of CVA into a nutrition response. Links are provided to additional resources and guidance to support operationalisation. Measures are also identified to help apply a nutrition lens to household cash transfer, including entry points for improving the potential of household cash transfers, including multi-purpose cash, to contribute to nutrition outcomes. The note concludes with recommendations to the nutrition sector and other humanitarian actors on key actions that are required to more routinely consider and, if appropriate, use cash and voucher modalities in nutrition in emergencies.

Due to the general lack of experience within the nutrition sector to systematically consider and use CVA modalities, the guidance note is based on expert opinion and extensive consultation with nutrition practitioners. As such, it should be regularly updated to reflect emerging learning and experiences in considering and using CVA modalities for nutrition outcomes.

<sup>1</sup> CashCap and Global Nutrition Cluster. (2020). Evidence and Guidance Note on the Use of Cash and Voucher Assistance for Nutrition Outcomes in Emergencies. [https://www.nutritioncluster.net/resource\\_Evidence%20and%20Guidance%20Note](https://www.nutritioncluster.net/resource_Evidence%20and%20Guidance%20Note)



© UNICEF/UN235509/Willocq, Guatemala, October 2019.



tion at country and regional level and iv) identify stakeholder groups to take up and support the call to action.

Through a mix of plenary and breakout sessions that included panels, discussions, training exercises, networking and visual notetaking, participants took stock of the data value chain for nutrition in West Africa. Country and regional experiences were shared related to each step of the nutrition data value chain by researchers, policymakers, implementers, donors and international agencies. Breakout groups refined the various calls to action, synthesised lessons learnt for each stage of the chain and identified promising practices and the support required for implementation (Figure 2).

Drawing on these lessons and opportunities, participants developed a common Call To Action (CTA) for strengthening actions across the nutrition data value chain directed to national and regional governments, donors, UN agencies, implementing partners and researchers. This CTA reflects the priorities of individuals and institutions working on nutrition from the 15 ECOWAS countries and has been endorsed by the West

African Health Organisation (WAHO). In addition, participants suggested various ways to adapt and use it in their specific contexts. For example, at regional level, the CTA could be adopted during the session of the ECOWAS Assembly of Ministers of Health. At national level, it could be referenced during national policy development to support priorities for action and investment by government agencies and donors.

The Data Forum catalysed uptake by countries such as Liberia which has adapted the CTA to its own context. To accelerate uptake throughout the region, the WAHO organised a webinar that

aimed to share some of these experiences with all West African countries (February 2021). This regional-driven approach to put into practice the Nutrition Data Value Chain brings to life a quote from Piwoz *et al.*, “*What gets defined gets measured. What gets measured gets done. What gets costed gets financed.*” (Piwoz *et al.*, 2019).

The meeting report and all other outputs from the Forum are available on the event page at: <https://westafrica.transformnutrition.org/event/together-for-nutrition-west-african-data-forum>

For more information, please contact Roos Verstraeten at [R.Verstraeten@cgiar.org](mailto:R.Verstraeten@cgiar.org)

## References

Development Initiatives. (2017). *Global Nutrition Report 2017: Nourishing the SDGs*. Bristol, UK: Development Initiatives.

Development Initiatives. (2018). *Global Nutrition Report 2018: Shining a light to spur action on nutrition*. Bristol, UK: Development Initiatives.

IFPRI. (2014). *Global Nutrition Report 2014: Actions and Accountability to Accelerate the World's Progress on Nutrition*. The International Food Policy Research Institute. Washington, DC, USA.

Kim D. (2016). *Mapping Exercise Global Data and Accountability Initiatives for Nutrition*.

Piwoz E, Rawat R, Fracassi P, and Kim D. (2019). *Strengthening the Data Value Chain for accountability and Action. Progress, gaps, and next steps*. *Sight and Life Magazine, Data in Nutrition*, Vol. 33(1). [https://sightandlife.org/wpcontent/uploads/2019/08/SightandLifeMagazine\\_2019\\_Data\\_in\\_Nutrition\\_FULL.pdf](https://sightandlife.org/wpcontent/uploads/2019/08/SightandLifeMagazine_2019_Data_in_Nutrition_FULL.pdf)

## UNICEF and WFP partnership framework to address wasting in children globally



A mother and child at a nutrition centre in Yambio South Sudan eating ready-to-use therapeutic food

© UNICEF/Helene Sandbu/Ryang, South Sudan

UNICEF and the World Food Programme (WFP) have launched a new partnership framework to support the work of both agencies to enact a paradigm shift that places emphasis on prevention, while accelerating actions for the early detection and treatment of wasted children.

In 2015, countries committed to eliminating all forms of malnutrition by 2030 as part of the Sustainable Development Goals (SDGs), including child wasting, with a global target to keep the prevalence of wasting below 3% by 2030. However, progress towards meeting this target has been hindered by fragmented approaches and unpredictable financing. UNICEF and WFP are now pursuing a more purposeful, systematic and accountable collaboration that leverages their collective strengths more effectively. Both agencies will play a key role in supporting national governments to reach global targets, with UNICEF serving as the lead coordinating agency and WFP as an essential partner, particularly in fragile con-

texts. The Partnership will focus on fragile contexts where UNICEF and WFP have a unique opportunity to streamline their operations and achieve greater impact, scaling up operations in selected countries from the Sahel and Horn of Africa regions. These include Ethiopia, Chad, Mali, Niger, Somalia and South Sudan. Ways of working are detailed in a partnership framework matrix.

The new framework represents a paradigm shift, placing emphasis on early prevention so that children never become wasted. To this end, WFP and UNICEF will identify context-specific actions to support sustainable and resilient systems and related capacity building of national institutions to ensure that wasting is prevented from pre-conception throughout the life cycle. For when prevention fails, UNICEF and WFP will accelerate actions to support the integration of early detection and treatment services for wasted children into primary health care and other routine and community-based services. This will aim to make treatment easier, shorter, less costly and more

effective and will include the generation and use of evidence on simplified treatment approaches

The UNICEF-WFP Partnership Framework coincides with the launch of the Global Action Plan (GAP) on Child Wasting, and as such, it offers a unique opportunity to build on the country-level, government-led agendas being developed under the GAP. The Partnership Framework is thus a distinct but inter-connected part of UNICEF and WFP's work on the prevention, early detection and treatment of child wasting. The Global Action Plan Roadmaps are being developed under the leadership of national governments. The role of UN agencies is to support the development of these Roadmaps, and to identify their distinct contribution to support their implementation. As they identify these opportunities, UNICEF and WFP teams will be guided by the Partnership Framework to support the efforts by national governments.

Read the partnership agreement here: <https://www.enonline.net/unicefwfpchild-wastingframework>



# The '(Silent) Voices: Bukavu Expo' online exhibition – exploring power dynamics between researchers from the Global North and Global South



An online exhibition of cartoons drawn by Congolese political cartoonist, Tembo Kash, has been launched. The cartoons are illustrations of blog articles written by local researchers in the Democratic Republic of the Congo (DRC) during workshops that took place in Bukavu, eastern DRC. The workshops explored the challenge of research collaborations between the Global North and the Global South. The cartoons raise a number of issues about donor methodologies, duty of care, cultural differences and gender discrimination as well as the difficulties of conducting research in conflict and post-conflict settings. A total of 36 blogs were written, altogether named "The Bukavu Series", hosted by the Governance in Conflict Network (GIC) (<https://www.gicnetwork.be/>) at Ghent University.

The new exhibition is a visual representation of the Bukavu Series, entitled the "(Silent) Voices: Bukavu Expo". The preface is named "(Silent) Voices" to illustrate the experience of local researchers' voices and wider contributions often being erased or 'silenced' from the research design and publication process. Local researchers report that they are often given a pre-planned research framework to adhere to which may not fit with the contextual realities on the ground. They also report a common experience of being treated as mere data collectors with their names not appearing as authors on the final publication. Overall, the exhibition seeks to highlight the power dynamics and current inequalities between North – South research collaborations. It has implications for policymakers, global north donor agencies, civil society organisations, non-

governmental organisations, research institutions and academics alike.

Almost all the content was produced by Congolese researchers and institutions, namely the Angaza Institute (<https://angazainstitute.ac.cd/>), the GEC-SH (<https://gecscheruki.org/>) and the ISDR-Bukavu (<https://www.isdrbukavu.ac.cd/>) and received funding from the UK Foreign, Commonwealth and Development Office (FCDO)<sup>1</sup> through the London School of Economics and Political Science (LSE) and Ghent University.

Start the tour here: <https://bukavuseries.com/>

<sup>1</sup> Formerly the UK Department for International Development (DFID)

## Conference for community-based management of acute malnutrition (CMAM)

CONCERN  
worldwide

ENDING  
EXTREME POVERTY  
WHATEVER  
IT TAKES

Concern Worldwide, in partnership with Irish Aid, is hosting a conference for community-based management of acute malnutrition (CMAM) practitioners on the **22nd to 25th March 2021**, entitled 'CMAM 20 Years On: Going to Scale in Fragile Contexts'. The conference marks the 20th anniversary of the first CMAM pilot which signalled a huge leap forward in the detection and treatment of child wasting and nutritional oedema and for child survival.

Two decades on, the fundamentals of the original model – community mobilisation, use of a ready-to-use-therapeutic food and simple assessment and treatment protocols – remain very much intact and central to its effectiveness. At the same time, practitioners and policy makers have been continuously adapting the approach to local contexts, health systems and community struc-

tures in an effort to reach the millions of children in need of treatment services. Some of these adaptations have been consolidated as best practice while others have not been well documented or evaluated. In the context of COVID-19, many adaptations are being fast-tracked to support continued nutrition treatment during the pandemic. Consensus is lacking on which adaptations should be taken forward and in which contexts they may be most effective.

Meanwhile, a number of structural and resource-related barriers to scale up persist, including funding, human resources, supply chains and coordination. The 2020 Global Action Plan (GAP) on Child Wasting sets out a framework to better prevent and treat child wasting to achieve the Sustainable Development Goal of reducing the proportion of children who are

wasted from 7.3% to less than 5% by 2025 and less than 3% by 2030. Work is also underway to develop road maps for countries with a high burden of wasting to achieve these targets.

This conference aims to:

- Identify the key enablers and barriers to bringing effective management of wasting (and nutritional oedema) to scale
- Review evidence-based and promising adaptations to the management of wasting (and nutritional oedema)
- Identify critical gaps in the knowledge, evidence and resources needed to facilitate best and promising practice to scale
- Identify priority actions needed to better manage wasting (and nutritional oedema) at scale in light of the Global Action Plan on Child Wasting

Up to 100 practitioners and technical experts from governments, international organisations, donor agencies and research institutions will be invited as a core group of online participants. Governments and stakeholders from a selected set of high burden countries in more fragile contexts will present their experience of scaling up services for wasting (and nutritional oedema). Other topics will include experience implementing simplified approaches, strategies for supporting community health workers, planning for seasonal caseload fluctuations and the management of at-risk mothers and infants under six months, among others.

To register for the conference please go to <https://www.acelevents.com/e/CMAM2021>

# Summary of the development process for the guideline on the prevention and treatment of wasting



A mother with her baby daughter waits to be seen at a health clinic in Yola, northeastern Nigeria

© UNICEF/Nigeria/Modiba

## Background

The World Health Organization (WHO), in collaboration with UNICEF, the United Nations High Commissioner for Refugees (UNHCR), the Food and Agriculture Organization (FAO) and the World Food Programme (WFP) convened a technical consultation in Geneva in December 2019 on the prevention and treatment of wasting in children. Bringing together international experts in the fields of undernutrition and child health, the meeting aimed to review the technical framing of wasting, to discuss how to identify children at highest risk of morbidity and mortality and to identify the key gaps in the guidance on preventing and treating wasting in children. The meeting highlighted among other things the importance of understanding what defines nutritional vulnerability and risk of death (not only anthropometric but functional recovery). The discussions were also the basis for the development of the Global Action Plan (GAP) Framework on child wasting.<sup>1</sup>

In collaboration with UNICEF, UNHCR, FAO and WFP, WHO released the GAP Framework on child wasting in February 2020, highlighting priority actions on the prevention and treatment of child wasting, with emphasis on preventing low birthweight, advancing child health, improving infant and young child feeding and strengthening treatment as well as the importance of a systems-approach involving health, food, water, sanitation and hygiene (WASH) and social protection. The GAP framework reiterated WHO's mandate to update and develop guidelines on wasting.

## WHO Guideline development process on wasting prevention and treatment

In November 2020, WHO created the Guideline Development Group (GDG) consisting of 26 members including researchers, clinicians and programme managers in the areas of infant and child health and nutrition and treatment and prevention of child wasting with representation from all the world regions. The first step in a guideline development process is the scoping of the guideline and the development of the PICO questions. The following scoping reviews to map the available evidence on the prevention and treatment of wasting were commissioned and completed at the end of November:

- Growth failure in infants under six months of age
- Severe wasting and oedema in children aged six months and older
- Moderate wasting in children aged six months and older
- Prevention of wasting.

A GDG scoping meeting was held 8-11 December 2020 to discuss the four scoping reviews and to prioritise questions in each of the topics. Key areas/questions were identified for the first three topics. There was not enough time to discuss the topic of prevention of wasting in detail and what questions would be relevant for the WHO guideline development process in this area. More discussion is also needed on how to address the area of risk stratification when it comes to wasting in children.

To complete the scoping process (the development and prioritisation of the questions), small working groups will be established for each of the four topics to develop the questions

identified during the meeting. The GDG will be asked to prioritise the questions as well as rank the outcomes for each of the priority questions. Once the information is available, WHO will commission systematic reviews and additional methods as appropriate to examine the available evidence for each of the questions. It is expected that the reviews will be completed in 2021 and the final guideline meeting be held at the end of 2021 to formulate the recommendations.

Key research gaps will be highlighted and a research agenda developed in parallel.

## Guideline on wasting/country action

WHO recommendations can be implemented in, and adapted to, local setting and contexts. Guideline 'derivatives' such as implementation guidelines, policy briefs and training courses will be developed in 2021/2022 to help countries with the appropriate implementation based on their context. The involvement of key multisector stakeholders will be important for this.

For more detailed information on the guideline development process, watch this webinar co-hosted by WHO and ENN to improve understanding of the WHO guideline development process in general as well as the layout of specific considerations and timelines for the new wasting guidelines.

<https://www.ennonline.net/mediahub/video/whowebinaronwastingguidelinesanddevelopment>

For more detailed information on WHO's guideline development process: WHO Handbook for Guideline Development: <https://apps.who.int/iris/handle/10665/145714>

<sup>1</sup> <https://www.childwasting.org/>



# CMAM Surge

## The 'CMAM Surge' approach: setting the scene

By Amanda Yourchuck and Kate Golden



Amanda Yourchuck is an Emergency Nutrition Advisor for the United States Agency for International Development (USAID) Advancing Nutrition. She has over 10 years of experience supporting wasting treatment and prevention activities. Amanda was previously a Nutrition and Health Advisor with Concern Worldwide and served as the technical focal point for global CMAM Surge activities.



Kate Golden is Senior Nutrition Adviser at Concern Worldwide. Her career started in Ethiopia in 2003 in one of the early pilots of community-based management of acute malnutrition. Since then, she has worked in South Sudan, Sudan and Lebanon and supported Concern nutrition programming and strategy development in roughly 20 countries across Africa and Asia as a global adviser.

The authors acknowledge the support of Chris Pain, Head of Technical Assistance at Concern Worldwide and Regine Kopplow, Senior Food and Nutrition Security Adviser, in the writing of this article

Community-based management of acute malnutrition (CMAM)<sup>1</sup> will celebrate its twentieth anniversary this year. Since its inception in Ethiopia in 2000, and subsequent pilots by Concern Worldwide (Concern) in partnership with Valid International in Malawi (2002) and Ethiopia (2003), it has evolved from a primarily non-governmental organisation (NGO)-driven emergency response to an increasingly integrated part of government-run child health services. Now more than 70 countries are implementing CMAM, many where treatment is integrated into routine basic health services (UNICEF, 2014). An estimated 5.2 million children with severe wasting accessed treatment in 2018. While this shows a remarkable increase from the first pilot, it still only represents 31% of the 16.6 million severely wasted children in need (State of Acute Malnutrition, 2020).



Mid-Upper Arm Circumference (MUAC) measurement at the nutrition clinic in Koloji IDP camp, Ethiopia

Despite CMAM's incredible contribution to the management of child wasting,<sup>2</sup> it is clear that more must be done to strengthen and increase coverage of services for wasting within health systems to ensure all children who need life-saving treatment receive it. Concern has continued to identify ways to improve the quality of and access to CMAM services as a core part of its nutrition and health programming. This is achieved through support to existing government health systems, more direct service provision in emergencies where necessary and by piloting new, innovative approaches.

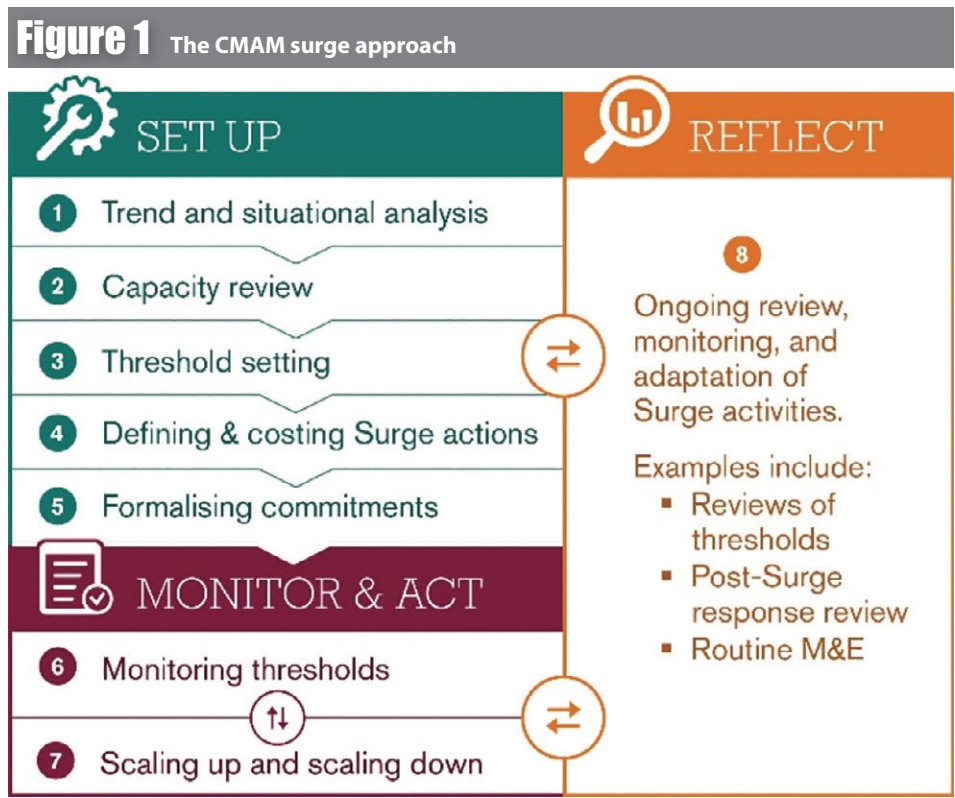
The CMAM Surge approach is one of many ongoing efforts to improve the efficiency and effectiveness of treatment services for wasting during both normal and emergency periods (Kueter *et al.*,

2018; McGrath & Shoham, 2019). The approach uses routine CMAM services as an entry point to strengthen the capacity of health systems to better anticipate, prepare for and respond to peaks in caseloads of wasted children.

The need for a more predictable, sustainable approach to responding to caseload increases, particularly when they reach emergency levels, was first articulated in *Field Exchange* in 2010. In their article, *Suggested New Design Framework for CMAM Programming*, Peter Hailey and Daniel Teweldeberha (2010) highlighted the challenges of CMAM programming as it was typically implemented at that time. They described the seasonal vulnerability of livelihoods and other local systems that drive predictable spikes in CMAM caseloads at particular

times of year. The article challenged the traditional 'stop-start' emergency response model that failed to adequately address these caseload spikes as responses often began too late, missing the most opportune time to save the most lives. In addition, the article highlighted that traditional emergency responses often led to disruptions in health systems strengthening initiatives, given their parallel nature, and that additional capacity was withdrawn at the end of an emergency, leaving nothing behind to build upon when the next emergency inevitably occurred. Emergency responses relied heavily on external capacity and support from NGO and United Nations (UN) partners which, while meeting immediate needs and providing life-saving support, did not enable governments to build more sustainable country-led response systems.

Around the same time, Concern began searching for ways to improve its own response to nutrition emergencies. Despite decades of experience managing wasting in both emergency and non-emergency settings (including at least a decade before the development of CMAM), Concern faced many of the same challenges and frustrations articulated in the Hailey & Teweldeberha article.<sup>3</sup> While it was clear that Concern and government health staff in most countries were well aware of the local



<sup>1</sup> CMAM aims to reach the maximum number of acutely malnourished children with treatment services at decentralised outpatient care sites. The CMAM approach consists of four main components: community outreach, outpatient care for the management of SAM without medical complications, inpatient care for the management of SAM with medical complications and programmes for the management of moderate acute malnutrition (MAM), such as a supplementary feeding programme (SFP).

<sup>2</sup> There has been a recent shift towards use of the term 'wasting' rather than acute malnutrition to emphasise its importance outside 'acute' emergencies. Wasting is also easier to visualise and, therefore, more likely to move people to action. CMAM, however, treats both children who are wasted and/or have nutritional oedema.

<sup>3</sup> For more information about Concern's experience delivering CMAM and other wasting treatment services see the following two reports: <https://reliefweb.int/report/world/concern-worldwide-s-learning-15-years-community-management-acute-malnutrition> <https://reliefweb.int/report/world/taking-stock-concern-worldwide-s-15-year-contribution-community-based-management-acute>

warning signs of an imminent nutritional emergency, this knowledge was not being sufficiently leveraged to trigger early action. Concern also saw that capacity varied considerably between health facilities and that relatively modest but tailored support could help health teams better cope with increases in demand for services. Finally, Concern could see that CMAM admission numbers could be a practical and efficient trigger of timely support but they needed to be understood relative to historical trends and a health facility team's own capacity to respond. Based on experience from multiple countries, this prompted Concern to develop and pilot what is now known as the CMAM Surge approach in Kenya in partnership with the Kenya Ministry of Health and the United Nations International Children's Fund (UNICEF) beginning in 2012 (Kopplow *et al.*, 2014).

The CMAM Surge approach uses eight steps to help government health teams respond to relative changes in capacity and caseloads (Figure 1). These steps begin with an analysis of the local context, including a review of seasonal trends and known risk factors that drive child wasting rates (Step 1) and individual health facility capacity (Step 2). The analysis process culminates in the setting of health facility-specific thresholds that, when crossed, trigger a shift from normal implementation into a higher phase of action based on the severity of the situation (alert, serious, emergency) (Step 3). Pre-agreed Surge actions and support from both gov-

ernment and non-government actors are agreed (Step 4 and 5) and activated (Step 7), with the first level of action often being taken from within the health facility itself, sometimes in collaboration with communities. Thresholds are monitored on an ongoing basis by health facility staff using routine health facility data (Step 6), enabling action as soon as a threshold is crossed. The status of each health facility is also monitored by the higher level health authority (e.g., district health management team) that can, in turn, monitor trends across a wider geographic area and call for higher-level regional or national response if the situation continues to deteriorate.

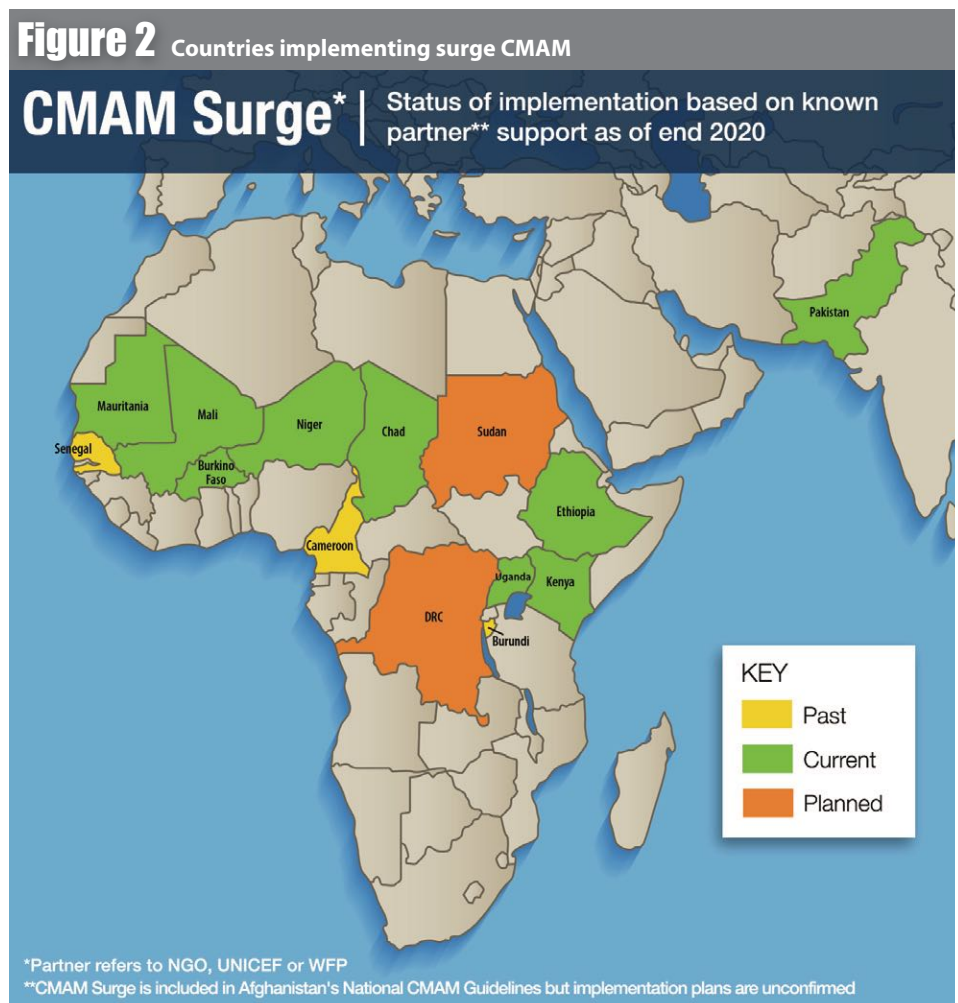
Now, nearly eight years later, CMAM Surge is being implemented in 12 countries with technical assistance to governments provided by multiple NGO and UN partners and financial support from both development and emergency donors across humanitarian and development contexts (Figure 2). Concern has had a direct implementation presence in seven<sup>4</sup> of these countries. In other countries, partners have either introduced CMAM Surge on their own using Concern's CMAM Surge Operational Guidance or worked in coordination with Concern to bring CMAM Surge to scale with multiple implementing partners. During this time, a wealth of knowledge has been generated that points to lessons learned and best practices. It is important to now take stock of what we know and chart the way forward for practitioners to further refine and scale up the approach.

Since 2012, both CMAM programming and the contexts in which Concern supports delivery of treatment services for wasting have changed, demanding new thinking on how to best adapt and scale up health systems strengthening approaches such as CMAM Surge where they are most needed. Services are being delivered in increasingly challenging contexts against a backdrop of protracted crises with varying levels of government capacity and support. Seasonal patterns are being disrupted by climate change and more systemic issues such as supply chain breakdowns as well as security and economic factors disrupt health seeking behaviours and patterns in service delivery and uptake. With the Covid-19 pandemic pushing health systems to their limits and challenging our traditional way of delivering CMAM services, this stock-taking is even more timely.

This series of articles highlights the accomplishments and experiences of a wide range of CMAM Surge practitioners and other stakeholders. We begin by sharing experiences from Kenya, home of the original CMAM Surge pilot, where scale-up and innovations in CMAM Surge continue. We then turn to francophone West and Central Africa where CMAM Surge was rapidly scaled up by NGO implementing partners across the Sahel from 2018-2019. We examine the cost-effectiveness of the approach in light of its aim to optimise the efficiency of treatment service delivery, particularly during peak periods. The potential elements of a Health Surge that seeks to apply CMAM Surge principles to a broader set of child illnesses is then outlined. Finally, we reflect on key lessons learned through both formal evaluations and diverse field experiences to help guide the way forward for the continued refinement and scale-up of the approach. We hope that this series is a useful consolidation of many years of rich learning that can contribute to the ongoing effort to bring wasting treatment services to scale, even in the most challenging of contexts.

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<sup>4</sup> Concern has implemented/is implementing CMAM Surge in Burundi, Chad, Ethiopia, Kenya, Niger, Pakistan and Uganda.



References

Hailey, P. and Tewoldeberha, D. (2010). Suggested New Design Framework for CMAM Programming. *Field Exchange* 39, September 2010. p41. [www.ennonline.net/fex/39/suggested](http://www.ennonline.net/fex/39/suggested)

Kopplow, R., Yishak, Y., Appleford, G. and Erasmus, W. (2014). Meeting demand peaks for CMAM in government health services in Kenya. *Field Exchange* 47, April 2014. p3. [www.ennonline.net/fex/47/meeting](http://www.ennonline.net/fex/47/meeting)

Kueter, AM., Prudhon, C., Keane, E. and Gayford, M. (2018). Report on innovations in CMAM. *Field Exchange* 58, September 2018. p41. [www.ennonline.net/fex/58/reportoninnovationsincmam](http://www.ennonline.net/fex/58/reportoninnovationsincmam)

McGrath, M. and Shoham, J. (2019). Editorial perspective on the continuum of care for children with acute malnutrition. *Field Exchange* issue 60, July 2019. p2. [www.ennonline.net/fex/60/extendededitorial](http://www.ennonline.net/fex/60/extendededitorial)

State of Acute Malnutrition. Accessed on 14/12/2020. <https://www.acutemalnutrition.org/en/countries>

UNICEF. 2014. *Nutridash 2013: Global Report on the Pilot Year*. New York: UNICEF. <https://unicefapronutritionwashtoolkit.files.wordpress.com/2017/09/unicef-global-nutridash-report-2013.pdf>.

# Implementing the IMAM Surge approach - experiences from Kenya

By Weldon Ngetich, Grace Gichohi, Francis Wambua, Tewoldeberhan Daniel, Yacob Yishak and Patrick Codjia



High levels of malnutrition afflict Kenya's poorest people in the arid and semi-arid areas



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## KENYA

**What we know:** The Arid and Semi-arid Lands (ASAL) of Kenya are prone to frequent droughts and floods and seasonal spikes in malnutrition, resulting in nutrition emergencies.

**What this article adds:** Following a successful Integrated Management of Acute Malnutrition (IMAM) Surge pilot in Marsabit County 2012-2014, Concern Worldwide (Concern), UNICEF and the Ministry of Health (MoH) scaled up the approach in 10 priority ASAL counties to improve health system shock-responsiveness. A national IMAM Surge toolkit was developed and training cascaded from national to health facility level. Data was shared at sub-county, county and national levels through an online 'dashboard'. By June 2020, IMAM Surge was implemented in 63% of targeted ASAL county health facilities. The approach has enabled timely decision-making and planning of supplies and human resources in response to surges in demand, as demonstrated by a case study of Turkana county. Success factors include early and sustained government leadership and the involvement of decision-makers at sub-national level, the integration of IMAM Surge into key national and sub-national strategic planning documents, facility-level mentoring and on-the-job training, the empowerment of staff to appraise and react to data and online compilation of data. Challenges include the prioritisation of drought response over health system strengthening in acute situations, weak community-facility linkages and resource constraints which limited capacity for surge action. Plans include further scale-up in more health facilities and counties, the development of more formal linkages with broader early warning systems, the use of facility data to trigger seasonal preventive actions and trials of an IMAM Health Surge model.

## Background

The Government of Kenya, as one of the signatories of the Alma Ata Declaration of 1978 and 2018,<sup>1</sup> has a vision for the provision of sustainable Primary Health Care (PHC) services that are high-quality, safe, comprehensive, integrated, accessible, available and affordable for everyone, everywhere. In 2018, the president of Kenya declared Universal Health Coverage to be a national priority under the 'Big Four Agenda' for national sustainable development and has committed to make strategic investments in health to ensure that all residents of Kenya can access

the essential health services they require by 2022 (MoHK, 2019). Unfortunately, frequent, large-scale disasters regularly challenge the realisation of this vision, leading to disruption of health service delivery and the frequent derailing of longer-term health system strengthening efforts.

Integrated Management of Acute Malnutrition (IMAM) in Kenya, adopted by the Ministry of Health Kenya (MoHK) in 2009 (previously supported by non-gov-

<sup>1</sup> Global Conference on Primary Health Care (October 2018). Declaration of Astana.

ernmental organisations (NGOs)), has proven to be a high-impact and cost-effective approach for the treatment of wasting, enabling children with uncomplicated wasting to be treated as outpatients in the community (Collins, 2004). Treatment services for severe and moderate wasting are two of 11 High Impact Nutrition Interventions (HINI)<sup>2</sup> (Lupao and Mogusu, 2019) that are integrated into routine health services for rollout via community health workers (CHWs) in areas with high burdens of malnutrition. In the past, the Kenyan health system responded to nutritional emergencies by mobilising external resources. This often led to a delayed, disjointed and inefficient response that negatively affected the quality, coverage and effectiveness of the services offered (Hailey & Tewoldeberha, 2010). It is increasingly recognised that health system strengthening (HSS) is needed in Kenya to improve the shock-responsive of the system to enable it to expand and contract in response to changing needs (Newton-Lewis *et al.*, 2020).

The Arid and Semi-arid Lands (ASAL) of Kenya are spread across 23 of Kenya's 47 counties. Historically marginalised and underserved, Kenya's ASALs are particularly prone to frequent droughts and floods, and nutrition emergencies and seasonal spikes in malnutrition are common. Consequently, the Kenyan government, with support from partners, has made significant investments to develop the capacity of county and sub-county authorities to manage emergencies. In an effort to build shock-responsiveness from within the ASAL health system, Concern Worldwide (Concern) and the Marsabit County Health authorities developed and piloted the IMAM Surge approach in 14 health facilities over two years from May 2012 to mid-2014.

A 2015 evaluation of the Marsabit pilot found the IMAM Surge to be feasible, effective and highly acceptable. As a result, MoHK endorsed the approach for implementation in other areas of Kenya with a high wasting burden. This article documents and shares lessons learned on the resulting scale-up of IMAM Surge in Kenya, highlighting the process, key successes and challenges to date.

### Process for the rollout of IMAM Surge

There were several key phases in the rollout of IMAM Surge in the Kenyan context that contributed to its success, as follows:

#### Government leadership and development of IMAM Surge guidelines/tools

For any new initiative, a clear national policy and guideline is critical to ensure government ownership at all levels and to steer implementation. One of the first steps in the IMAM Surge rollout in Kenya was therefore to support the government to develop an IMAM Surge guide and toolkit, drawing from the experience of the Marsabit pilot. The toolkit was developed under the umbrella of the Emergency Nutrition Advi-

**Figure 1** The IMAM Surge approach steps



sory Committee (ENAC) which hosted consultation meetings with key stakeholders to inform the process. A final guide/toolkit for health workers and a facilitator's guide for trainers were ready for rollout by July 2016.<sup>3</sup>

A core team within ENAC was formed with representation from UNICEF, the MoHK and Concern to lead the rollout process in 10 ASAL counties with the highest burden of child wasting (Baringo, Garissa, Isiolo, Mandera, Marsabit, Samburu, Tana river, Turkana, Wajir and West Pokot). This was guided by a roadmap outlining the key steps and timelines for scale up at both national and county level. Key steps included the training of trainers, engagement with county/sub-county health management teams and other implementing partners, set-up at health facilities (Steps 1 to 4 of the IMAM Surge approach) and the development of a basic set of monitoring and reporting tools. The IMAM Surge toolkit was later integrated into county strategic planning documents including the County Nutrition Action Plan (2019-2023) and the County Integrated Development Plan (2018-2022). This has given IMAM Surge formal endorsement and a better chance for resource allocation during annual county budgeting processes.

#### Capacity development of key stakeholders via on the job training

A training of trainers (ToT) based on the IMAM Surge toolkit/guide and facilitators' guide was conducted in September 2016. Course facilitators were drawn from MoHK national level, UNICEF and Concern and participants (IMAM Surge trainers) came from seven of the 10 target ASAL counties. These 15 national trainers subsequently went on to train 53 county/sub-county trainers from county health departments and implementing partners (including Save the Children, Action Against Hunger (AAH), Kenya Red Cross Society, World Vision Kenya, International Rescue Committee (IRC) and Concern). The county/sub-county trainings followed a standard four-day

curriculum and focused on mentoring skills (to use with health facility staff) and the technical skills necessary to use the IMAM Surge toolkit. During the training, each county developed a detailed one-year roadmap for implementation and these have subsequently been revised annually based on learning and contextual changes.

Before rolling out to health facilities, partners and national MoHK representatives engaged key decision/policy makers at county level, including County Health Management Teams (CHMT), the Chief County Officer in the Department of Health and the Director of Health, to build ownership of the approach and the rollout process.

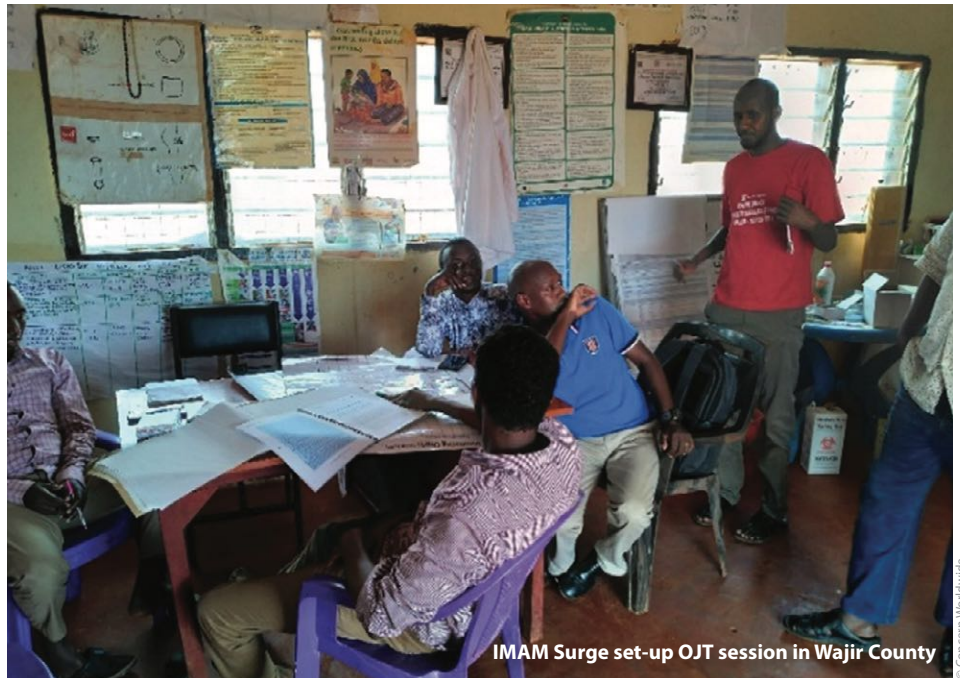
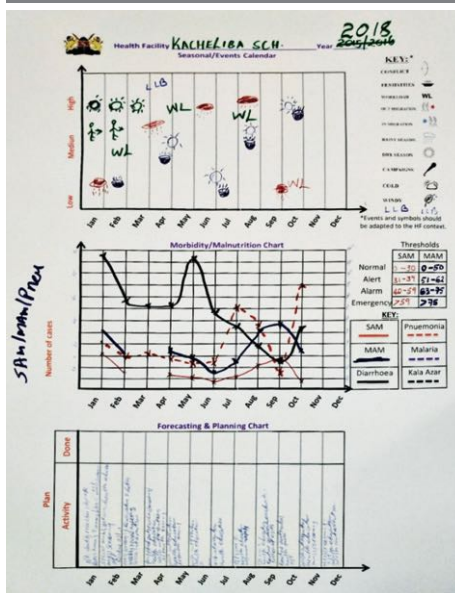
#### Practical support to set up IMAM Surge at health facility level

Most of the counties adopted a mentorship/on-the-job training (OJT) approach whereby health staff were taken through each step of the IMAM Surge process at facility level. Others adopted a classroom training approach whereby health workers were trained centrally then moved to their respective facilities to set up IMAM Surge. Analysis from different counties showed that the mentorship/OJT approach was more successful because it allowed all health workers to participate in the process, provided adequate time to address individual facility issues and enabled the immediate development of clear,

<sup>2</sup> HINI package: High-Impact Nutrition Interventions (HINI) include: 1. Promotion of exclusive breastfeeding in the first six months of age, 2. Promotion of complementary feeding after six months of age, 3. Promotion of improved hygiene practices, 4. Vitamin A supplementation, 5. Zinc supplementation for diarrhoea management, 6. Deworming for children, 7. Iron-folic acid supplementation for pregnant women, 8. Iron fortification of staple foods, 9. Salt iodization, 10. Multiple Micronutrient Supplementation for children under five years, 11. Prevention or treatment of moderate acute under nutrition and 12. Prevention and treatment of severe acute malnutrition.

<sup>3</sup> The Facilitators' Guide provides step-by-step guidance on how to lead training participants through the IMAM Surge Guide and Toolkit. It provides a draft training agenda, guides the trainer on how to prepare for the training, provides a training methodology for all the IMAM surge steps.

**Figure 2** Kachelibasub county hospital monthly monitoring chart



IMAM Surge set-up OJT session in Wajir County

context-specific implementation and monitoring plans. The OJT set-up process was conducted in two to three sessions at each facility. A total of 469 health workers have received OJT to date. Once thresholds were defined and surge actions identified, health facilities were provided with monthly monitoring charts for real-time monitoring of thresholds and the tracking of planned surge action.

**Active engagement of health staff in real-time monitoring of IMAM Surge data**

Monitoring caseloads and factors that may influence caseloads is an ongoing process throughout IMAM Surge implementation. At facility level, admissions of wasted children and activities that might affect care-seeking are monitored through facility registers and wall charts (Figure 2). Wall charts help health facility teams to visualise seasonal factors that affect caseloads (top chart in Figure 2), current monthly trends in moderate and severe child wasting admissions and child illness consultations compared to thresholds (middle chart in Figure 2) and identify actions that will be triggered if a threshold is passed (bottom chart in Figure 2). At the end of every month, health facility staff review

their data to understand if either severe or moderate (or both) child wasting admissions are normal or have passed their respective alert, alarm or emergency thresholds. Actions are initiated accordingly and further actions planned for the coming three months if increases in cases are expected.

After summarising facility-level information, data on admissions and any thresholds crossed are shared with the sub-county Records Officer who enters the data into the online health information system. This data is used to update the IMAM Surge dashboard, a key monitoring tool of the Sub-County Health Management Team (SCHMT) (Figure 3) that uses colour codes to clearly show the proportion of health facilities that have passed their alert, alarm or emergency threshold. This provides a clear and quick overview of the nutrition situation across all the health facilities implementing IMAM Surge to support a timely response to increases in wasting levels. In general, more moderate acute malnutrition (MAM) cases than severe acute malnutrition (SAM) cases are observed across the sub-counties and MAM cases rise before SAM cases (although this is not always

consistent and depends on the level at which thresholds have been set).

During the IMAM Surge scale-up in the ASALs, partners such as Concern scheduled regular joint follow-up visits to health facilities with the SCHMT followed by review meetings to support the real-time monitoring and analysis of data. Partners supporting rollout paid frequent visits to health facility teams during the initial stages to ensure that all the steps were well understood and correctly taken, particularly around the setting of thresholds. This has been essential to motivate and empower staff to understand when and why caseloads are increasing and to trigger action and communication on additional support needed.

**Key successes**

*IMAM Surge is now in roughly two-thirds of health facilities in 10 priority ASAL counties*

Within the 10 high-burden ASAL counties targeted for IMAM Surge scale-up, a total of 750 health facilities provide IMAM services. Of those, 469 facilities (63%) were implementing IMAM Surge as of June 2020.<sup>4</sup> All facilities implementing IMAM Surge in the 10 counties monitor the nutrition situation through monthly wall charts while 29 sub-counties out of the total 45 located in seven of the 10 counties have active IMAM Surge dashboards. This high level of scale-up is largely due to the cascading of training from national to county level and health facility levels which enabled wide reach of health staff at multiple levels.

**Increased demand for and use of local nutrition data in decision making**

The IMAM Surge training and mentoring component has been effective in creating a culture

**Figure 3** IMAM Surge dashboard, example from Turkana South sub-county

HEALTH FACILITY	ADMISSION TYPE	THRESHOLDS SET (admissions per month)			ACTUAL MONTHLY ADMISSIONS AND IMAM SURGE PHASE					
		Alert Threshold	Alarm Threshold	Emergency Threshold	Jan-19	Feb-19	Mar-19	Apr-19		
		# new admissions	IMAM Surge Phase	# new admissions	IMAM Surge Phase	# new admissions	IMAM Surge Phase	# new admissions	IMAM Surge Phase	
Kainuk	SAM	9	15	25	2	0	2	0	6	0
	MAM	11	19	30	10	1	2	0	7	0
Nakwamoru	SAM	11	21	30	1	0	4	0	0	0
	MAM	16	26	35	1	0	0	0	6	0
Kasuroi	SAM	6	12	18	2	0	3	0	7	2
	MAM	11	22	33	0	1	2	0	29	0
Nakabosan	SAM	6	12	18	0	6	3	24	3	0
	MAM	11	22	33	0	35	91	3	7	0
Lokichar Gok	SAM	11	22	34	5	3	0	0	14	1
	MAM	16	32	48	2	0	0	0	3	0
Kaneakior	SAM	11	22	33	0	5	8	1	8	1

<sup>4</sup> Data from the IMAM Surge dashboard, MoH Kenya (June 2020)

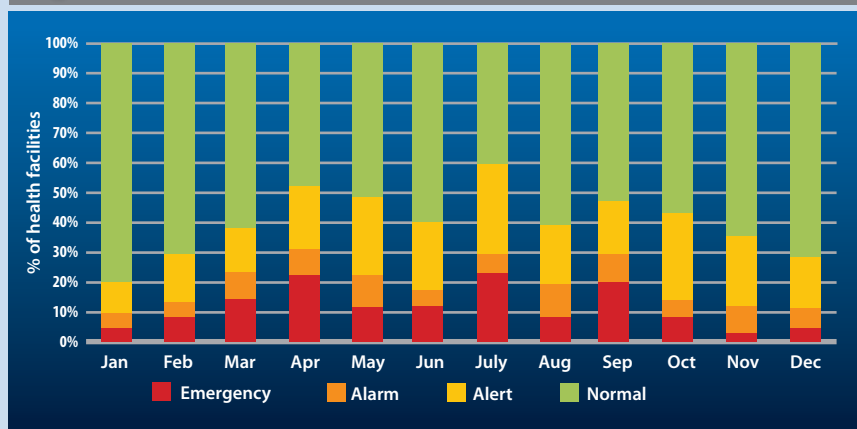


**Box 1** Case study: Predicting nutritional emergencies, the case of Turkana County

Since the IMAM Surge scale-up began, Kenya has experienced two drought episodes, in 2017 and 2019. Turkana County, one of the most vulnerable counties in Kenya, was particularly affected. Data from SMART survey reports revealed global acute malnutrition (GAM) prevalence rates across the sub-counties of Turkana from 32% to 37% in 2017 and 20% to 31% in 2019. These were similar GAM prevalence rates to those of the 2011 crisis, however, unlike in 2011, IMAM Surge had been scaled up to the majority of health facilities and by 2018 IMAM Surge dashboards were in place for most sub-counties.

By March 2019, county stakeholders were detecting a deterioration of the nutrition situation via IMAM Surge dashboards. This raised an early alarm at different levels – even as other early warning indicators such as the Vegetation Condition Index (VCI) and prices of livestock and crops remained relatively normal or inconclusive (NDMA, 2019). Figure 3 shows the percentage of health facilities at ‘normal’, alert, alarm and emergency caseloads based on new admissions per month for 2019. The blue line marks the point at which 50% or more of health facilities are above their ‘normal’ thresholds – a warning to the County Health Management Team that health facilities are becoming critically overloaded by cases of child wasting. This state of alert for Turkana County mirrors very closely the VCI warning that the county was ‘moderately below normal vegetation’ for April, May and June. It also provided a sign of trouble as early as February and March while the VCI was still reported as ‘normal vegetation’<sup>5</sup>

**Figure 4** Percentage of health facilities in Turkana County above Surge thresholds 2019



The IMAM Surge early warning allowed Turkana County to put in place preparedness actions to manage increasing caseloads. Guided by IMAM Surge data and tools, the county developed an emergency response plan that included the mapping of outreach sites as well as budgeting for emergency actions and heightened coordination.

By July/August 2019 – normally the peak period for malnutrition – Turkana County was managing caseloads of child wasting better than during previous droughts. The IMAM Surge dashboards not only detected the emergency but helped to activate timely surge support packages from the County and Sub-county Health Management Teams and partners to prevent further deterioration. Some of the actions initiated by the county to address the situation included the scale-up of outreaches, mass screening, scale-up of household visits and active case finding. These activities were initiated earlier compared to previous emergencies.

of real-time analysis at facility, sub-county and county levels. It has developed an appetite for both data and the skills to use them for decision making. This has helped to improve, for example, the forecasting of therapeutic and supplementary feeding products and medical supplies needed monthly – as a result the majority of facilities reported zero stock-outs of ready-to-use therapeutic foods by 2018, aside from those resulting from national level supply chain gaps (MoHK, 2018). Health facility staff also use facility data to plan leave days during periods of low caseloads and in some cases to prompt CHWs to increase nutrition screening when data shows lower than expected caseloads.

Use of the dashboard by sub-county and county health teams has supported timely decision making and more evidence-based response planning. For example, the dashboard has been used to identify malnutrition ‘hotspots’ and direct appropriate monitoring and supervision. Surge data has also been used to advocate for the recruitment of additional staff for health facilities with higher caseloads, improving their ability to manage essential services during peak periods (MoHK, 2019). For example, when the Laisamis sub-county dashboard indicated health facilities were becoming overwhelmed, the county and sub-county allocated additional resources with support from partners to increase mass screening

and referral (including paying for allowances for CHVs to work extra hours), expand service delivery through outreach services and increase monitoring and supervision to health facilities. At facility-level, health staff used the data to re-structure their leave plans, recall staff on leave and provide direct support to CHVs for screening. The case study on Turkana provides a more detailed example of this (Box 1).

**Mentoring and technical support**

During the rollout process, MoHK, UNICEF and Concern have continued to provide close technical support for monitoring and technical backstopping through field visits, remote technical discussions and annual reviews. The ASAL counties implementing IMAM Surge share their dashboards with the emergency focal person at the national MoHK monthly for review and to inform an update to the ENAC. This enables close engagement between national and regional government and the initiation of timely technical support when needed, including field visits for mentoring and monitoring. Periodically, the core team conduct monitoring support at county level on behalf of ENAC to ensure that the approach is implemented as per national guidelines and to provide any additional technical support needed.

Annual IMAM Surge reviews are conducted both at county and national level to generate and share learning. County level review meetings enable local stakeholders to share specific learning to help to refine the approach in context and national level review meetings draw participation from all 10 high-burden ASAL counties for broader learning and to inform guideline updates. For example, it was noted that the IMAM Surge dashboard automatically classified the nutrition situation using the number of new admissions (as per national guidelines) but this was not moving swiftly enough back to a ‘normal’ classification once the situation had stabilised. Based on this feedback, national IMAM Surge guidelines were revised so the dashboards use total enrolled cases (not new admissions) when deciding if/when a facility should return to a normal classification. This allows more resources to be more efficiently allocated to where they are most needed.

**Lessons learned**

Early and continued government leadership of the process, with support from other stakeholders familiar with IMAM Surge, was critical for the sustainability of the approach, supported by the joint development of a national IMAM Surge guideline, toolkit and roadmap to guide the initial rollout at each level. The engagement of decision makers at county and sub-county levels in the development of the roadmap was crucial in driving implementation forward. Integration

<sup>5</sup> Vegetation Condition Index (VCI) is a measure of the state of plant health relative to the same period during the previous year. It is expressed as a % and gives an idea where the observed value is situated between the extreme values (minimum and maximum) in the previous years. Lower values (dark red, red and yellow) indicate bad and good vegetation state conditions, respectively.

of IMAM Surge into key strategic planning documents, including the Kenya National and County Nutrition Action Plans and County Integrated Development Plans, resulted in the allocation of resources and further strengthened government ownership and leadership by key decision-makers. Ownership of the approach has been clearly demonstrated at all levels of health service delivery and management (CHMT, SCHMT, health staff, CHVs, Health Facility Management Committee (HFMC)) and is one of the key drivers of the success of the approach.

Another important lesson was the effectiveness of OJT and ongoing mentoring to support IMAM Surge at health facility level. Classroom-based trainings were less effective, largely because it was not possible to use local data from the participants' own facility and due to a lag time between training and actual set-up.

A final key to the success of the approach was the use of IMAM Surge dashboards at county level. This enabled the aggregation of child wasting admission data set against context-specific caseload thresholds to enable the rapid identification of deteriorating nutrition. This was critical for initiating early action and preventing the situation from worsening and the dashboards seem to have functioned at least as well as, if not better, than some standard early warning indicators used in Kenya. IMAM Surge, and particularly the dashboards, have clear potential to be leveraged further and linked more formally to wider early warning/early action mechanisms at county and national level.

### Challenges

While IMAM Surge implementation has been largely successful in Kenya, some challenges have arisen that hinder full scale-up. Firstly, frequent drought episodes in the ASALs have affected scale-up plans. This has resulted in counties shifting focus to immediate drought

response and away from longer-term health system strengthening approaches. It is essential that IMAM Surge set-up is prioritised before drought periods become acute.

Secondly, weak community-facility linkage in areas with non-functional community units (where CHVs are not actively involved in preventive activities or screening and referral) meant that a deteriorating nutrition situation could not be detected early at health facility level as children were not being referred or seeking treatment, resulting in low coverage of services. Strengthening of community units and linking them more firmly into the IMAM Surge process could help to trigger more effective active case finding and referrals of children with acute malnutrition. The national government recently released its Community Health Policy (2020-2030) and the county governments are at different stages of adopting legislation to support this.<sup>6</sup>

Lastly, resource constraints have affected the ability of health facilities to trigger IMAM Surge actions when a threshold is breached with Surge support largely coming from partners. The planning and costing of Surge actions should be further streamlined into sub-county/county planning and budgeting processes with a greater focus on the actual utilisation. Inclusion of Surge actions in the local government's disaster risk financing mechanisms will ensure early action is not constrained.

### What next for IMAM Surge in Kenya?

IMAM Surge is already an important approach for monitoring and responding to the nutrition situation in Kenya's ASALs. The next steps are to further scale up the approach in the 10 counties and beyond with support from UNICEF and Concern. Integration of IMAM Surge processes, tools and outcomes into MoHK and

sub-county/county mechanisms will further improve its relevance, effectiveness and sustainability. Another important next step is the linking of IMAM Surge dashboards with early warning systems. This is especially important in vulnerable counties such as Turkana. UNICEF is currently exploring possible linkages, particularly the linking of IMAM Surge with the National Drought Management Authority (NDMA).

Under the leadership of the MoHK, UNICEF and Concern in Kenya are already innovating and adapting the IMAM Surge approach to further improve its effectiveness. Moving forward, research and learning processes are crucial for supporting the future refinement, development and adaptation of the IMAM Surge approach in this country. In 2021, Concern will examine and document and barriers (including cost) across CMAM Surge programmes where thresholds have been exceeded but where surge was not triggered. Concern are also planning to trial two new IMAM Surge components in Kenya, including the expansion of the IMAM Surge approach to improve management of critical child illnesses alongside wasting management (Health Surge)<sup>7</sup> and the use of facility-level IMAM Surge data to identify and trigger seasonal actions at community level to prevent spikes in wasting and related morbidities in critical months.

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<sup>6</sup> <https://nurturing-care.org/kenya-community-health-policy-2020-2030>  
<sup>7</sup> See article in this special section of Field Exchange entitled 'CMAM Health Surge'

### References

Collins, S. (2004). Community-based therapeutic care; A new paradigm for selective feeding in nutritional crises, Network Paper. <https://odihpn.org/wp-content/uploads/2004/12/networkpaper048.pdf>

Hailey, P. and Daniel, T. (2010). Suggested New Design Framework for CMAM Programming. Field Exchange 39, September 2010. p41. [www.ennonline.net/fex/39/suggested](http://www.ennonline.net/fex/39/suggested)

Lupao, K. and Mogusu, E. (2019). Scale up of high-impact nutrition interventions in the informal settlements of Nairobi, Kenya. Field Exchange 59, January 2019, p2. [www.ennonline.net/fex/59/informalsettlementsnairobi](http://www.ennonline.net/fex/59/informalsettlementsnairobi)

Ministry of Health Kenya (2019). Surge Approach for Integrated Management of Acute Malnutrition. [https://www.alnap.org/system/files/content/resource/files/main/IMAM%20Surge\\_operational%20guide\\_Near%20final.pdf](https://www.alnap.org/system/files/content/resource/files/main/IMAM%20Surge_operational%20guide_Near%20final.pdf)

Ministry of Health of Kenya (2019). Refocusing on quality of care and increasing demand for services; Essential elements in attaining universal health coverage in Kenya. <http://www.health.go.ke/wp-content/uploads/2019/01/UHC-QI-Policy-Brief.pdf>

MoH Kenya (2018). IMAM Surge review report. September 2018

MoH Kenya (2019) IMAM Surge review workshop report. October 2019.

National Disaster Management Authority (NDMA) Kenya (2019). The 2019 Long Rains Season Assessment report. <https://www.ndma.go.ke/index.php/resource-center/category/68-2019>

Newton-Lewis, T. et al., (2020). Working Paper: What is a shock responsive health system?. June 2020. Accessed at: [https://reliefweb.int/sites/reliefweb.int/files/resources/MaintainsSRHSConceptualModel\\_08062020\\_GK.pdf](https://reliefweb.int/sites/reliefweb.int/files/resources/MaintainsSRHSConceptualModel_08062020_GK.pdf)



High levels of malnutrition afflict Kenya's poorest people in the arid and semi-arid areas

# The role of coordination in CMAM Surge scale-up in West and Central Francophone Africa



A baby is being weighed and measured in a health center in Maradi, in the center of Niger

By Diane Moyer, Amanda Yourchuck and Patricia Hoorelbeke



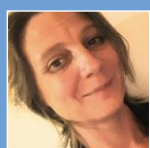
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## WEST AND CENTRAL AFRICA

**What we know:** Frequent food crises in countries in the West and Central Africa (WCA) region lead to surges in levels of child wasting that require health systems to respond rapidly to changing needs.

**What this article adds:** Following the inclusion of community-based management of acute malnutrition (CMAM) Surge in the Directorate-General for European Civil Protection and Humanitarian Aid Operations (DG-ECHO) 2017 Humanitarian Implementation Plan (HIP) for West Africa, the partners included the approach in proposals across the region. A regional CMAM Surge Taskforce was developed, led by Save the Children International (SCI) in close collaboration with Concern Worldwide (Concern), to coordinate and support regional scale-up. Country-level coordination mechanisms were necessary in Mali and Niger. In Mali, SCI implemented a CMAM Surge pilot in the Mopti region in 2017 and was funded by DG ECHO to coordinate and provide technical support to other Surge implementing partners. Key facilitators towards scale include coordination mechanisms set up at multiple levels of the health system, focused capacity building of national staff with technical support from SCI and Concern Niger, harmonised monitoring and evaluation and a focus on accountability and government leadership. Across the region, enablers for the scale-up of the CMAM approach have been donor leadership and engagement, development of a common, country-level vision for the approach and accountability mechanisms to track progress. Barriers include inadequate planning time to facilitate country-level leadership and ownership, short-term funding that constrains a long-term systems strengthening approach and fragile health systems. CMAM Surge is now being implemented and scaled up in six countries in WCA with commitment by the Taskforce to document and share learning. Multi-year funding has been accessed in Niger and Mali. Purposive coordination and collaboration in the region remain necessary for current and emerging surge approaches.

### The need for a responsive health system in West and Central Africa

In July 2020, it was anticipated that more than 15 million children in West and Central Africa (WCA) would become wasted over the course of the year.<sup>1</sup> All countries in the region have national community-based management of acute malnutrition (CMAM) protocols with

countries continuing to scale up geographic coverage of CMAM services. Yet, in 2018, only an estimated 30% of children in need of treatment received it (Woodhead *et al.*, 2019).

Nearly two decades of insecurity, marked by political instability and the emergence and spread of armed groups, alongside increasing climate vul-

<sup>1</sup> <https://www.unicef.org/press-releases/west-and-central-africa-more-15-million-cases-acute-malnutrition-expected-2020>

nerability have only exacerbated the nutrition situation. The region has experienced several successive food crises with vulnerable households unable to sufficiently recover between shocks. Several WCA countries have been recently identified as 'hotspots' at risk of significant deterioration of the food security situation caused by the above drivers as well as the secondary effects of the COVID-19 pandemic (FAO & WFP, 2020). The persistently high levels of child wasting and unpredictable operating environment require that the region's health systems be prepared to respond rapidly to changing needs.

### Scale-up of CMAM Surge

The CMAM Surge approach was designed with many of the challenges facing WCA in mind – to build the capacity of health systems to trigger rapid responses to deteriorating nutrition situations. Niger was the first country to implement CMAM Surge in the region where Concern Worldwide (Concern) had been supporting CMAM service delivery in the Tahoua Region since 2005 beginning with direct service provision in response to a food security crisis. The focus later shifted to supporting the health system to integrate wasting treatment into the package of basic health services for children under five years of age. Following subsequent food crises in 2009 and 2011, the CMAM Surge approach was introduced in 2014 to better respond to recurring shocks. In 2016, several francophone regional trainings and consultations orientated a wider pool of stakeholders to the concept of CMAM Surge.

During this same period, the Directorate-General for European Civil Protection and Humanitarian Aid Operations (DG ECHO) prioritised finding better ways to respond to an increasingly volatile context and growing humanitarian needs in the West Africa region. The 2017 DG ECHO Humanitarian Implementation Plan (HIP) for West Africa included a specific focus on the development of national capacities to ensure an adequate level of preparedness. This included a focus on improved capacity for quality data collection and dissemination for early warning and early action and support for comprehensive and participatory risk assessments. For the nutrition sector, DG ECHO urged its partners to strengthen nationally and locally appropriate systems and strategies, responsive to seasonal trends and risks. DG ECHO specifically referred to the CMAM Surge approach in its Disaster Risk Reduction strategy as a means to strengthen local capacity to understand risks and design shock-responsive mechanisms that would allow continuity of quality essential treatment services in the face of surges in demand. As a result, several different partners included CMAM Surge in proposals to DG ECHO as part of their nutrition programmes in intervention areas in Niger, Mali, Burkina Faso and Mauritania.

### Coordination mechanisms

Given the large number of DG ECHO partners implementing CMAM Surge in the region, the value of strong coordination mechanisms, both within countries and at regional level, was quickly recognised. This was particularly important given

the newness of the CMAM Surge approach to most implementing partners. At regional level, a WCA CMAM Surge Taskforce was established in 2017. This group was led by Save the Children International (SCI) from the regional hub of Dakar in close collaboration with the Concern Worldwide Niger and headquarters teams. Members included non-governmental organisation (NGO) implementing partners, United Nations (UN) agencies and donors. The objective of this group was to convene CMAM Surge implementing partners on a monthly, and later quarterly, basis to support the sharing and harmonisation of good practices and tools and ensure a consistent understanding of the approach amongst all actors while driving the continued contextualisation and growth of the approach to meet the specific regional needs and challenges. Terms of reference for members and a workplan were developed that aimed to develop guidance and tools in response to the needs identified by its members. The Regional Taskforce also provided support to a regional CMAM Surge review workshop held in Niamey, Niger in September 2018 which many Taskforce member organisations and government staff representing country programmes from across the region and other francophone CMAM Surge implementing countries attended. This workshop allowed for in-person, cross-country exchanges about the experiences and challenges encountered when introducing CMAM Surge into a new operating context and for taking stock of regional experience to date.

Coordination was also required at country level where several DG ECHO partners were simultaneously working to scale up the approach in different regions and districts. This was particularly important in Niger and Mali, both of which had high numbers of implementing partners operating in each country. In Niger, coordination was initially fairly informal and organic. As the number of CMAM Surge implementing partners grew, the DG ECHO Nutrition Alliance, a forum that brings together DG ECHO's nutrition partners in-country, was used to keep implementing partners informed of CMAM Surge activities. Coordination for the approach has since evolved into a more formal mechanism, embedded in the national nutrition technical working group. In Mali, a more purposive approach to coordi-

nation was taken from the beginning of scale-up. The following section shares the key enabling factors and challenges to coordination in Mali as the approach was rapidly scaled up by partners between 2017 and 2019.

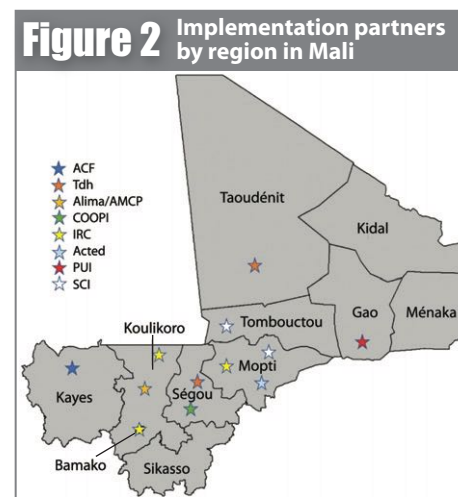
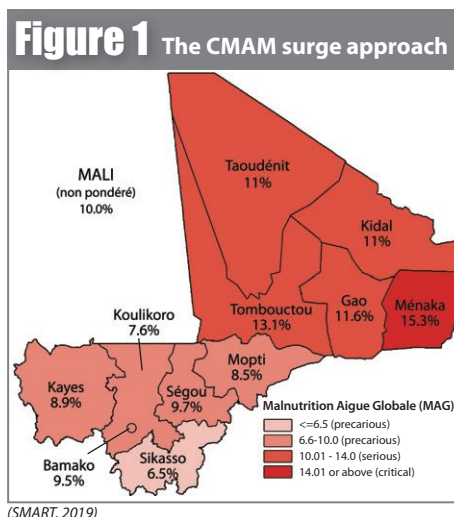
### Scale-up of CMAM Surge in Mali: A case study

The situation in Mali has become one of the most complex crises in the world with a population that faces growing humanitarian needs. Many regions experience a volatile security situation, leading to population displacement and additional strain on an already fragile health system that struggles with weak governance, lack of funding and trained human resources and frequent shortages of drugs and nutrition inputs. Regular seasonal outbreaks of malaria, acute respiratory infection (including pneumonia) and diarrhoea combined with chronic poverty, food insecurity and poor caring practices lead to surges of child wasting that increase burdens on already stretched health facilities. Mali continues to have one of the worst health situations in the world with child mortality exceeding 101 deaths per 1000 live births. Global acute malnutrition (GAM) rates commonly reach the serious and emergency thresholds, particularly in the northern part of the country (Figure 1).

CMAM has been implemented in Mali since 2006 with the first national guidelines finalised in 2007. Early funding for CMAM in Mali was provided primarily by emergency donors which led many implementing partners to adopt an emergency-style implementation model that was often in parallel with other health services (Deconinck *et al.*, 2010). Humanitarian and development actors have since advocated for and supported the better integration of wasting treatment within the basic package of services offered by the health system. The CMAM Surge approach was a natural next step to continue to support this integration process through a concerted health system strengthening approach and by specifically helping health facilities to better prepare for and respond to frequent shocks and stresses.

#### From pilot to scale-up

SCI implemented a CMAM Surge pilot project as part of its broader nutrition programme in the Mopti Region in 2017 with financial support



**Box 1** Mali CMAM Surge scale-up by numbers

Time period: 2017-2019

NGO implementing partners: 8

Districts: 17 across 6 regions (Kayes, Koulikoro, Ségou, Mopti, Tombouctou and Gao)

Government health staff trained: 591

Health facilities with Surge response plans: 238

from DG ECHO. Given this experience with the Mopti pilot, in 2018 SCI was given additional financial support by DG ECHO to coordinate and provide technical support to DG ECHO's other implementing partners who were just initiating the CMAM Surge approach in their programme areas. This was done to strengthen their technical capacities for a smooth, harmonised scale-up of the approach.

**Key implementation components**

SCI put in place four key components that helped to facilitate the scale-up process as follows:

**Set up of coordination mechanisms at multiple levels of the health system**

Coordination mechanisms were put in place at multiple levels, each with clearly defined roles and responsibilities. A technical working group was first formed by SCI and other DG ECHO implementing partners to agree on ways of working, objectives and the sharing of lessons learned. As government capacity increased, this group evolved into a National Taskforce chaired by the Ministry of Health (MoH) CMAM Surge focal point and expanded to include participation from other relevant stakeholders such as the United Nations International Children's Fund (UNICEF). Through regular technical working group and subsequent National Taskforce meetings, good practices, challenges and recommendations were shared amongst actors.

Part of the process of setting up the implementing partner technical coordination mechanism was the signing of memoranda of understanding between DG ECHO's NGO implementing partners. While this process took time and delayed the start of activities in the field, it was critical for ensuring clarity around roles and responsibilities, establishing consistent ways of working and enabling the cascading of coordination down to sub-regional and local levels when implementation began.

Sub-regional and local level coordination mechanisms were set up by the implementing partners in their regions of operation and included participation from sub-regional MoH focal points. This was particularly important to ensure the smooth coordination and harmonisation of approaches in areas where more than one implementing partner was operating (Figure 2). The objective was also to share common costs across partners, particularly those of the trainings and stakeholder sensitisation activities that took place early on.

**Focused joint capacity building**

The capacity building component was essential to the success of scale-up and aimed to ensure

that all stakeholders, both new implementing partners and local actors, had the same understanding of the approach and how to implement it. Special attention was given to the transfer of competencies to the MoH to support the future sustainability of the approach. A standard training of trainers (TOT) model was used with the first TOT involving national and regional level MoH actors with technical support from SCI and the Concern Worldwide Niger team.

The step phase of CMAM Surge training took place in two parts. Firstly, traditional classroom training was provided to identified health facility focal points. This was followed by on-site support from the trained CMAM Surge focal points at health facilities to implement the CMAM Surge set up steps. Halfway through the two-year scale-up period, a review was undertaken to improve the content and make it more appropriate for target trainees. More emphasis was placed on on-site training and coaching and learning by doing which was found to be more effective than the classroom-style multi-day trainings.

However, during the capacity building process, some implementing partners found they had not allocated adequate resources to build local capacity on CMAM Surge. Most implementing partners planned for one initial five-day training that only covered the setting of thresholds and Surge action plan development. Additional costs such as communication with stakeholders, validation of responses plans and follow-up support were not included in initial budgets. This meant that these activities had to take place at a smaller scale with SCI providing some support for key activities such as Surge action plan validation, pulling from resources allocated to their coordination resources.

**Harmonised monitoring and evaluation**

Monitoring and evaluation mechanisms were intentionally harmonised at several levels. All NGO partners, and therefore all implementation sites, used a common CMAM Surge supervision tool that was jointly developed by the implementing partners and validated by the MoH Nutrition Directorate. Supervision visits were also undertaken jointly between implementing partners and government actors and involved all partners working in the same operating area whenever possible. Quarterly workshops attended by both implementing partners and government focal points provided an opportunity to review processes, identify bottlenecks and share best practices. Shared monitoring and evaluation standards also helped to ensure that the scale-up was done to the same standard across regions according to the CMAM Surge Operational Guide. This common CMAM Surge monitoring framework was eventually adopted by the government as part of the national CMAM protocol.

**A focus on accountability and government leadership**

MoH focal points identified at each health system level (national, regional, local) were intended to ensure government leadership and ownership at all steps of the scale-up process. To ensure accountability across system levels, stakeholder meetings were held to disseminate information

on progress and results, such as the number of health facilities implementing CMAM Surge or sharing experiences on the efficiency of a triggered Surge response. Dissemination activities took place via CMAM Surge-specific coordination mechanisms and other existing national platforms such as the Cadre Commun de Sante – a group of DG ECHO-funded implementing partners delivering emergency health interventions across the northern regions of Mali. Implementation updates were also shared through a 'WhatsApp' group which created friendly competition between local stakeholders seeking to highlight their achievements and an incentive for active participation, thus reinforcing local level accountability. The sharing of progress and positive results via these platforms helped to facilitate the adoption of the CMAM Surge approach by the government at the end of the initial scale-up period.

Due to implementation delays in some districts, less time was available to gain full government buy-in to the approach and coordination mechanisms before the start of implementation. Communication and sensitisation among regional and local stakeholders were done shortly before the start of facility-level implementation. This led to the perception that CMAM Surge was an NGO-led approach and created an expectation that the implementing partners would provide all the relevant inputs when Surge actions were triggered, rather than health facilities and districts first looking to their own internal capacities. While government leadership was still present in terms of buy-in and interest in the approach, government ownership in terms of financial or in-kind contributions to Surge responses was compromised.

Despite these challenges in some geographic areas, the interest of the local authorities that began during the initial 2017 pilot continued to grow during scale-up. The ongoing engagement of government at all levels throughout the pilot and scale-up process helped to facilitate ownership of the approach at the policy level. The government has since integrated the CMAM Surge approach within the national CMAM protocol and has formally adopted the joint supervision and monitoring tools developed as part of the coordinated scale-up process. As a next step, the leadership of the National Taskforce and regional bodies should be fully transitioned over to the MoH with implementing partners stepping back into a technical assistance role. This will require an increase in government ownership and a gradual shift towards national actors stepping into resource Surge actions.

Momentum around the Surge approach continues to grow with UNICEF investing in a pilot of the Health Surge approach<sup>2</sup> which applies CMAM Surge principles and steps to a broader range of morbidities. This pilot will also be implemented with support from SCI beginning in 2021.

**Regional lessons for scale-up**

Three enablers of successful scale-up have been identified from the country and regional coor-

<sup>2</sup> See field article in this special section of Field Exchange entitled "Expanding CMAM Surge beyond nutrition – towards a broader Child Health Surge approach"

dination experiences. Further opportunities to leverage or build from this experience are highlighted below.

### *Donor leadership and engagement*

DG ECHO's interest in the CMAM Surge approach was the catalyst for scale-up in the region. As well as including CMAM Surge in its HIP, DG ECHO called for and directly invested in purposeful coordination to ensure that all partners worked together to develop adequate tools which was key to delivering coordinated quality action. In addition, DG ECHO's nutrition technical team actively engaged in the regional scale-up process, participating in the Regional Taskforce, undertaking field visits and engaging in CMAM Surge technical discussions with implementing partners.

However, despite DG ECHO's active leadership and engagement in the scale-up process at the proposal stage, not all implementing partners had the necessary information and technical reference materials to fully understand the requirements of the approach in terms of the time commitment and resources required. At the time, there were very few publicly available technical resources – the CMAM Surge Operational Guide was available online and had been circulated to partners but it included limited information on planning for approach start-up and scale-up. It was difficult for some implementing partners to estimate the required human, financial and logistical resources for all the steps of the approach. In some instances, this led to inadequate planning of both time and resources, resulting in implementation delays and some steps not being adequately addressed. To avoid these issues in the future, donors could support their partners with more information about suggested approaches prior to the proposal development process and support them during the proposal review to ensure plans are achievable and budgets are sufficient. This could include generic budget and activity guidance and suggested performance indicators. More experienced partners could also be leveraged to support during the activity inception and start-up stages, as was done in Mali where Concern provided initial training to SCI staff at the start of their pilot project.

### *Including time to build a common understanding of the approach*

Without a common understanding of the approach, scale-up may be inconsistent, leading to confusion among stakeholders and limiting success. When introducing a new approach such as CMAM Surge it is important to allow adequate time for sensitisation and the creation of a common vision for the approach at national and sub-national levels. This vision needs to be shared by government actors and across implementing partners. This process can take several months and must be allowed for in the implementation timeline. While this can be challenging when working under the short-term timeframes of emergency funding mechanisms, it is critical to establish expected ways of working, shared responsibilities and accountability mechanisms as part of the CMAM Surge start-up and scale-up processes.

The importance of a common understanding of the CMAM Surge approach at the regional

and global level was identified early in the scale-up process and is what drove the creation of the regional CMAM Surge Taskforce. This was done to minimise the possibility of a fracturing of the CMAM Surge approach as less experienced actors sought to adapt the approach for their different operating contexts. While contextualisation is critical, it is important that all actors understand the core components of the approach before adjustments are made. Omission of key steps or their incorrect application could lead to inappropriate interventions that may affect sustainability or be damaging to the health system. The CMAM Surge Taskforce has played a key role in ensuring that the quality and integrity of the approach has been maintained across actors and contexts.

### *Importance of a clear, agreed accountability process*

Common understanding builds a foundation for accountability. Stakeholders can then be held accountable to a set of common expectations and a shared understanding of roles and responsibilities. In the case of Mali, a formalised coordination framework and the signing of MOUs facilitated a faster, smoother and more harmonised scale-up. The formality of the process, including the engagement and interest of the donor in these partner discussions, also helped to ensure that commitments were taken seriously and adhered to. Through regular meetings, partners were able to share best practices, alert each other to bottlenecks and seek advice from their peers and thus generate an in-country community of practice. This regular engagement also brought to light challenges much earlier than may have happened if communication was limited to standard reporting timelines and processes, giving more flexibility to implementing partners as a group to think creatively in response to unexpected issues.

### **Next steps in the region**

In 2017, only Niger and Mali were implementing CMAM Surge in the region with the support of Concern Worldwide and SCI. Today CMAM Surge is being implemented in an estimated 900 health facilities across 70 districts in six countries (Niger, Mali, Burkina Faso, Mauritania, Chad and Senegal) with ongoing scale-up in each.

There is a continuing need for coordination and collaboration among Surge actors in the region. DG ECHO has included Health Surge as a proposed activity in the region's 2021 HIP. The growing stakeholder interest in the emerging Health Surge approach has led to a reinvigoration of the CMAM Surge Regional Taskforce which is guiding regional discussions in coordination with the CMAM Surge Global Technical Working Group around Health Surge to ensure stakeholders have a common understanding of how to pilot and expand this new version of CMAM Surge. Lessons learned from the rapid regional scale-up of CMAM Surge will need to be integrated into new Health Surge operational guidance that will also need to include details on if and when facilities that are currently implementing CMAM Surge should transition to the broader Health Surge approach.

Finally, for both CMAM Surge and the emerging Health Surge approach, there is a need to better

communicate the long-term commitment to health systems strengthening that is integral to implementing Surge approaches. While the approach appeals to emergency donors and actors, given its aim is to improve response to shocks, the approach requires the time investment more commonly seen in development-focused activities. Both donors and implementing partners need to understand that CMAM Surge is a long-term investment in capacity and systems strengthening. This means that emergency donors should look at longer funding timelines for Surge efforts but also that development donors should integrate Surge into their long-term systems strengthening efforts. Surge approaches present an opportunity to bring emergency and development actors together to strengthen coordination within the humanitarian-development nexus and develop creative solutions to meet the unique and dynamic needs of shock-prone areas of protracted crises. Some shifts in funding timelines have been seen in the region with CMAM and Health Surge activities in Niger and Mali receiving multi-year funding to integrate the approaches into the health system.

Coordinated efforts between donors and their implementing partners will also better facilitate the eventual transition of Surge activities fully over to government. It is important to bear in mind that CMAM and Health Surge operate within the spectrum of health systems strengthening; in some contexts implementing partners will need to play a substitution or support role while building system and government capacity to eventually take on more direct investment in the resourcing of Surge actions. Complementary support to sustainable financing, planning and appropriate revenue-generating mechanisms is required to enable the eventual transition of Surge and other health systems strengthening efforts fully over to governments.

The regional and global coordination mechanisms aim to continue documenting and disseminating learning as scale-up continues within WCA and globally. Moving forward, a more concerted effort will also be made to ensure coordination and sharing across regions via these mechanisms so that eastern and western African counterparts can learn from each other, as well as from colleagues implementing Surge in other parts of the world.

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Concern resources on CMAM Surge in French are available at <https://www.concern.net/insights/cmam-surge-approach>

### References

Deconinck, H., Paluku, B. and De Bernardo, D. Review of Community-Based Management of Acute Malnutrition Implementation in Mali, November 18–December 3, 2009. Washington, D.C.: Food and Nutrition Technical Assistance II Project (FANTA2), AED, 2010.

FAO and WFP. 2020. FAO-WFP early warning analysis of acute food insecurity hotspots: July 2020. Rome. <https://doi.org/10.4060/cb0258en>

Woodhead, S., Rio, D. and Zagre, N. (2019). Regional perspectives on simplified approaches for the management of children with acute malnutrition: West and Central Africa. *Field Exchange* issue 60, July 2019. p33. [www.ennonline.net/fex/60/simplifiedapproachesinafrica](http://www.ennonline.net/fex/60/simplifiedapproachesinafrica)

Mothers bring in their children for nutritional support at a health centre in Angoual Denia village, Allakaye, Niger



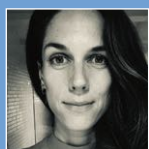
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# CMAM Surge: understanding costs and potential contribution to CMAM's cost-effectiveness

By Kate Golden and Simone van Dijk



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Simone van Dijk is a freelance consultant with over 12 years of experience in the humanitarian and development sector at the intersection of research and policy development. Simone has worked for the Red Cross Movement (Netherlands, Colombia, International Federation of the Red Cross), Save the Children (UK and International) and other smaller international non-governmental organisations.

The authors would like to acknowledge Concern Worldwide's Ethiopia and Niger teams who carried out data collection for the Concern community-based management of acute malnutrition (CMAM) Surge cost-effectiveness studies and Jean Christophe Fotso of EVIDAF and Mark Myatt for leading the studies.

## ETHIOPIA, NIGER

**What we know:** Evidence demonstrates that community-based management of acute malnutrition (CMAM) is a cost-effective approach; little is known so far about the cost-effectiveness of CMAM Surge.

**What this article adds:** To evaluate the cost-effectiveness of CMAM Surge, Concern Worldwide first developed a Value for Money (VfM) framework, using the UK Foreign, Commonwealth and Development Office (UK FCDO)'s VfM approach. This was applied in cost-effectiveness analyses of CMAM Surge in both Ethiopia and Niger (2018/19). In Ethiopia, comparison of CMAM Surge and routine CMAM showed that both were highly cost-effective (USD21.58 and USD10.75 per disability adjusted life years (DALY) averted respectively – well within the World Health Organization (WHO) cost-effectiveness benchmark) but routine CMAM was more cost-effective, possibly due to the additional costs of CMAM Surge set-up as a new approach (training, supervision, data collection) and low caseloads. In Niger, a comparison between districts that had been implementing CMAM Surge since 2016 and recent adopters showed that CMAM Surge was highly cost-effective at USD26 per DALY averted (also well within the WHO benchmark). Experiences highlighted challenges in assessing CMAM Surge cost-effectiveness including the use of different analysis methods and assumptions making comparisons difficult, additional benefits of CMAM Surge often being less quantifiable and more qualitative (e.g., improved morale and skills of health facility staff) and difficulties creating emergency response comparison scenarios. The authors question whether more robust evidence demonstrating the cost-effectiveness of CMAM Surge is currently needed, given that this is a variation of an already demonstrated cost-effective approach (CMAM). Instead, resources should for now be invested in practically focused cost analysis, the strengthening of the costing component of the CMAM Surge process and the development of user-friendly costing tools to pave the way for more robust, longer-term cost-effectiveness studies.

### Introduction

The community-based management of acute malnutrition (CMAM) Surge approach aims to optimise the efficiency of the delivery of wasting treatment services over time by helping health systems better anticipate and prepare for peak periods of service demand. The approach builds on the premise that appropriate, early action is generally more cost-effective than a traditional, large-scale response launched once an emergency is underway (Idris, 2018). As part of a broader effort to evaluate the added value of CMAM Surge, Concern Worldwide (Concern) developed a Value for Money (VfM) framework to help examine whether CMAM Surge is likely to be more cost effective than routine delivery modalities for CMAM and conducted two cost-effectiveness analyses (CEA) in contexts where CMAM Surge was being implemented.

Many different approaches to CEA and terminology exist. Concern used the widely recognised definitions of VfM and CEA outlined by the United Kingdom's Foreign, Commonwealth and Development Office (UK FCDO)<sup>1</sup> as the basis for this analysis.<sup>2</sup> Recognising some limitations of the model, UK FCDO emphasises the importance of using qualitative methods alongside quantitative ones to contextualise and understand VfM results (DFID, 2013).

This article outlines key factors to consider when assessing the cost-effectiveness of the

CMAM Surge approach, shares results and some challenges from the two CMAM Surge CEAs carried out to date and suggests priorities for future cost analysis related to CMAM Surge.

### What we know about CMAM's cost-effectiveness

A recent review of five CMAM cost-effectiveness studies suggests that CMAM is cost-effective (AAH & SCI, 2020). Several limitations, however, must be considered when interpreting the results including some inconsistency in methods across studies and contextual aspects that were not always well accounted for but likely influenced cost-efficiency and cost-effectiveness. Box 1 defines the CMAM CEA measures commonly used. The review found that the cost per disability adjusted life year (DALY)<sup>3</sup> averted by the five CMAM programmes assessed ranged from USD23 to USD53. This is within the international benchmark for a highly cost-effective intervention set by the World Health Organ-

<sup>1</sup> Formerly the UK Department for International Development (DfID)

<sup>2</sup> <https://icai.independent.gov.uk/html-report/dfids-approach-to-value-for-money-in-programme-and-portfolio-management/>

<sup>3</sup> Disability adjusted life year (DALY) are useful when comparing different types of health interventions as a metric to quantify the total burden of disease due to mortality and morbidity. One DALY can be thought of as one lost year of a 'healthy' life.

**Box 1** CMAM CEA measures explained

**Cost per child treated** is how much it costs to treat each child, usually regardless of the treatment outcome (although in some cases, including in the studies below, children who defaulted were excluded).

**Cost per child cured/recovered** represents the cost for each child who reached the criteria for recovery/being cured of acute malnutrition.

**Cost per DALY averted** is the cost of averting loss of one life year that has been adjusted for any additional disability incurred. These can be compared to a) the single fixed standard of less than USD100 at the time of analysis and/or b) the per capita GDP of the country in which the intervention is implemented.

**Cost per death averted** is the cost required to avert a death in the population of interest. Unlike DALYs, this does not take into account morbidity and associated disability.

isation (WHO), i.e., the cost per DALY was less than the national annual Gross Domestic Product (GDP) per capita for that country (Marseille *et al.*, 2015).<sup>4</sup> Other cost effectiveness metrics generated by the studies include cost per child treated, cost per child cured and cost per death averted for children with severe acute malnutrition (SAM) and the values for these measures (such as cost per DALY) were also broadly similar.

The review concluded that more cost-efficiency and cost-effectiveness analyses of CMAM using standardised methods are needed, particularly for large-scale and longer-term community-based programmes as well as for new approaches to delivering SAM treatment services. It also recommended that future studies better account for the influence of key contextual aspects including the scale of the programme, population density, wasting burden and health system factors.

### What we know about CMAM Surge's cost-effectiveness

We are in the early stages of understanding if and how the CMAM Surge approach can improve the cost-effectiveness of CMAM itself and the cost-effectiveness of health systems in preventing under-five mortality. To date, Concern has tried to frame how CMAM Surge could improve CMAM cost-effectiveness in the form of the VfM framework and carried out two cost-effectiveness analyses of the approach in Ethiopia and in Niger in 2018/19. Learning from these studies is outlined below.

### The CMAM Surge Value for Money (VfM) framework

The CMAM Surge VfM framework was developed in 2016 using UK FCDO's approach to VfM which focused on economy, efficiency and effectiveness (see Box 2). The VfM framework suggested two main comparisons to focus on when assessing the cost-effectiveness of CMAM Surge: 1) CMAM Surge versus routine CMAM service delivery via the government health system and 2) CMAM Surge versus a more traditional, non-governmental organisation (NGO)-led emergency nutrition response. The VfM framework also outlines the key costs and effects that need to be measured to make these two comparisons. The first comparison is more straightforward, given how widely available wasting treatment services now are within government health systems. The second comparison requires finding (and seizing) an opportunity to assess the cost and outcomes of a more traditional, external emergency CMAM response, ideally in the same context and at the same time that CMAM Surge is being implemented. Alternatively, it requires building a theoretical picture of what such a traditional response would look like and cost. Based on the experience of trying to implement the VfM framework, as outlined below, the framework is currently being updated by Concern and will be available soon.

### CMAM Surge cost-effectiveness study in Ethiopia

This study was carried out as part of a broader evaluation of a CMAM Surge pilot in the Amhara Region of Ethiopia in 2018/2019 with funding from the United States Agency for International

Development (USAID) (Fotso & Myatt, 2019). The study followed the logic of the VfM framework and was designed to compare the cost per child cured and the cost per DALY averted by treatment services for wasting delivered via CMAM Surge with the standard intervention in two woredas over a 12-month period. The outcomes of the study were the number of children cured, the number of deaths averted (i.e., the number of lives saved) and the number of DALYs averted. The CMAM Surge approach was implemented in one woreda (Bati – the 'intervention woreda') and a more traditional emergency nutrition response was expected to be triggered in the second woreda (Dewa Cheffa – the 'comparison woreda'). The expected emergency response included a six-month support package of staff, transport, supervision and a strengthened supply chain for ready-to-use therapeutic food (RUTF).

In practice, the expected emergency response was not triggered in the comparison woreda as planned. This was because the situation was not classified as a 'hot spot 1' woreda by the government but rather a 'hot spot 2' woreda, meaning it was not prioritised for the full emergency response package via central humanitarian funding.<sup>5</sup> Thus, Concern provided a more basic package that included refresher CMAM training and some basic logistics support. As such, the study reverted to a more basic comparison between CMAM Surge and 'routine CMAM'.

The study found that the CMAM Surge and routine CMAM arms were both highly cost-effective at USD21.58 and USD10.75 per DALY averted respectively – well within the WHO benchmark of three times the national per capita GDP which, for Ethiopia, was USD772 in 2018 according to the World Bank. CMAM Surge, however, turned out to be less cost-effective than the routine CMAM package delivered via government health services (USD21.58 (95% confidence interval: 16.38 – 28.20) for CMAM Surge and USD10.75 (95% confidence interval: 8.47 – 14.88) for 'normal' CMAM). The same was true for the cost per child cured – CMAM Surge was more expensive at USD349.55 (95% CI: 324.28 – 377.30) versus USD135.56 (95% CI: 127.11 – 144.40).

There were several limitations to this study that are important when interpreting the findings. Firstly, there were additional costs directly associated with the set-up of CMAM Surge, such as trainings, that were not required for routine CMAM, given that CMAM Surge is a new approach. Secondly, because the CMAM Surge set-up and the study itself required closer supervision and data collection, Concern undertook many of the programme support activities in the Surge woreda that would usually be covered

**Box 2** Value for Money and cost-effectiveness definitions

**Efficiency:** How much do you get out in relation to what you put in, measuring the efficiency in delivering the expected outputs.

**Effectiveness:** The optimal use of resources to achieve intended outcomes.

**Cost analysis:** Cost analysis is a broad category that evaluates the cost of delivering an intervention and the components of the cost to help identify major cost drivers, e.g., the cost of ready-to-use therapeutic food (RUTF).

**Cost-efficiency analysis:** A type of cost analysis that analyses cost per programme output. In the context of treatment of wasting, this is usually cost per child admitted for treatment, regardless of the outcome.

**Cost-effectiveness analysis:** Cost-effectiveness analysis combines cost data with a programmatic outcome, e.g., the cost per child who recovered following treatment. This is usually expressed in a cost to effectiveness ratio.

<sup>4</sup> Two of the seven studies reviewed were less traditional CMAM with community health workers delivering SAM services outside of the health facility and/or an alternative (combined) protocol delivered for SAM/moderate acute malnutrition (MAM).

<sup>5</sup> Ethiopia: Hotspot Priority Woredas (as of July 2018): Emergency Nutrition Coordination Unit. [https://reliefweb.int/sites/reliefweb.int/files/resources/11\\_hs\\_sector\\_092418\\_a4.pdf](https://reliefweb.int/sites/reliefweb.int/files/resources/11_hs_sector_092418_a4.pdf)



by the woreda health office. Finally, the number of children treated for SAM in the CMAM Surge woreda (891) was lower than in the routine CMAM (1,286) during the study period and caseloads were relatively low across both woredas during the study period (four admissions per month versus three admissions per month for routine and Surge CMAM respectively).

**CMAM Surge cost-effectiveness study in Niger**

This study was conducted across two health districts in the Tahoua Region of Niger as part of the wider evaluation of the CMAM Surge approach in Niger and Ethiopia with funding from USAID (European Civil Protection and Humanitarian Aid Operations (ECHO) supported most of the programme implementation costs). The aim of the Niger study was to assess the cost-effectiveness of the CMAM Surge approach across the two health districts in relation to the WHO benchmark – no comparison arm was planned. The analysis also sought to observe any differences in costs or cost-effectiveness measures between health facilities that had been implementing CMAM Surge longer (since 2016) versus more recent adopters (2018). Similar to the Ethiopia CEA, the Niger study found that CMAM Surge was highly cost-effective at USD26 per DALY averted – well within the WHO benchmark of three times the national per capita GDP which, for Niger, was USD378 in 2017 according to the World Bank.

**Comparing CMAM Surge cost-effectiveness with CMAM cost-effectiveness**

The results from the Concern CMAM Surge CEA studies in Ethiopia and Niger were quite similar to the results of the CEA studies included in the recent review of cost-efficiency and cost-effectiveness of the management of wasting in children (AAH & SCI, 2020) in terms of cost per child recovered, cost per DALY averted and cost per death averted (Table 1). This is true for both the CMAM Surge intervention and the ‘normal’ CMAM arm in Concern’s study in Ethiopia although the comparison also highlights

the particularly low cost per DALY and low cost per death averted seen in the normal CMAM arm in the Ethiopia study.

**Challenges in measuring CMAM Surge cost-effectiveness**

Several challenges have emerged during our efforts to assess the cost-effectiveness of CMAM Surge relative to other, more routine modalities of wasting service delivery. Some of these challenges stem from the nature of the CMAM Surge approach itself and others reflect broader challenges inherent in cost-effectiveness and VfM evaluation methods. While the DFID VfM framework offered a useful foundation for outlining the main comparisons and data needed to assess CMAM Surge cost-effectiveness, a number of limitations exist that DFID/FCDO has recognised and is working to overcome. These include a tendency to prioritise short-term results over longer-term change and a limited ability to include the outcomes of a programme or intervention that are important for impact but harder to quantify (DFID, 2013). Three main challenges have arisen in the process of trying to evaluate the cost-effectiveness of CMAM Surge that are important to consider when planning any future studies:

*Cost-effectiveness analysis is a very general science*

Given the variation in CEA methods and assumptions and the influence of contextual factors, comparisons across studies and implementation settings can be challenging. While DALY was devised to make comparisons across interventions and contexts easier by creating a more relative measure, they must still be compared with caution and with strong consideration of contextual aspects. The WHO benchmark for a highly cost-effective intervention – that the cost per DALY averted should be less than the country’s per capita GDP – is useful for general guidance. However, given that even a low-income country like Ethiopia has a per capita GDP of USD858, many different interventions will be considered highly cost-effective and prioritising remains a challenge.

*CMAM Surge is a process, not strictly an intervention, and its unique outcomes are not yet quantifiable*

CMAM itself – although it has many components – can be classified as an intervention for the purposes of comparison because it has standard treatment outcomes that are quantifiable. CMAM Surge, on the other hand, is an enhanced process that helps to deliver quality wasting treatment services (CMAM) in certain contexts. However, many of its additional benefits can be difficult to discern if using only standard effect outcomes, such as the number of children treated or cured. The additional benefits of CMAM Surge often lie in less quantifiable, more qualitative improvements seen within the health system, such as the improved morale of health facility staff as they gain the skills to better manage their workload and deliver quality services throughout the year. Because CEA focuses specifically on assessing the quantifiable impact of an intervention, such positive spill-over effects are often left unaccounted for. As outlined above, this is a widely recognised challenge when using standard CEA approaches such as DFID’s VfM framework, particularly when assessing interventions with societal outcomes and impacts.<sup>6</sup> Defining costs that are unique to CMAM Surge as opposed to general CMAM costs can also be challenging. A more detailed analysis of the cost categories, using a refined theory of change for CMAM Surge, will help to reflect on the cost related to the processes.

*CEA generally requires a comparison scenario which is often difficult to create and capture in real-time*

CMAM Surge was designed to move the nutrition community away from more traditional emergency nutrition responses that are expensive, often come late and are not adapted to existing local capacities. Such traditional emergencies are often difficult to predict and might not happen during the study period or in a comparable context. As the humanitarian and development sector are gradually shifting to more early warning and disaster preparedness strategies, comparing the cost-effectiveness of CMAM Surge with a full-blown nutrition emergency response may not be as pertinent as it was 10 years ago. It would, nonetheless, strengthen the argument for more preventative than reactive humanitarian action. The only alternative to a real-time comparison would be to build a hypothetical traditional nutrition response scenario which would require a large number of assumptions and compromise comparability. In addition, it is critical that CEA it is done over several years as one of the main advantages of the approach is its ability to help health systems cope with caseload surges over time.

**Priorities for cost analysis of CMAM Surge going forward**

The main question that has emerged from the experience so far is whether more robust evidence

**Table 1** Cost-effectiveness results of CMAM Surge versus those available for CMAM

Type of programme	Study	Country	Cost per child recovered (USD)	Cost per DALY averted (USD)	Cost per death averted (USD)
CMAM Surge (outpatient treatment of SAM)	EVIHDAF/ Concern, 2019	Ethiopia (intervention woreda)	350	22	39
	EVIHDAF/ Concern, 2019	Niger	165	26	1,567
Routine CMAM (outpatient treatment of SAM)	EVIHDAF/ Concern, 2019	Ethiopia (comparison woreda)	136	11	768
	Bachmann, 2009	Zambia	-	53	1,170
	Wilford <i>et al.</i> , 2011	Malawi	-	42	1,365
	Tekeste <i>et al.</i> , 2012	Ethiopia	145	-	-
	Frankel <i>et al.</i> , 2015	Nigeria	219	30	1,117
	Ali <i>et al.</i> , 2017	Nigeria	114	48	1,778

(Adapted from the Cost-efficiency and cost-effectiveness of management of wasting in children (AAH & SCI, 2020)

<sup>6</sup> <https://icai.independent.gov.uk/html-report/dfids-approach-to-value-for-money-in-programme-and-portfolio-management/>



Hawaye Ahmat, mother of 4, sits with one of her two twins, both of which were admitted for treatment of wasting in a Concern support health centre in Koutoufou Village, Chad 2018

demonstrating that the CMAM Surge approach is more cost-effective than standard CMAM is actually needed. More specifically, do we need to demonstrate that CMAM Surge is more cost-effective than the predominant delivery system for wasting treatment services via government health services or a traditional emergency response? Our emerging conclusion is – probably not. Recognising that CMAM itself appears to be broadly cost-effective (although more research is needed to strengthen this evidence) and that CMAM Surge is a variation on the original CMAM model, we feel it would be more worthwhile to invest resources to improve our understanding of how the costs and the process of costing surge activities could be improved for more effective CMAM Surge implementation. We therefore suggest that the following areas are prioritised in relation to the cost analysis of CMAM Surge:

*Focus on strengthening the step of costing CMAM Surge activities within the approach rather than on broader cost-effectiveness analysis for now*

Defining and costing surge actions to be triggered when a caseload threshold has been crossed is a critical step (Step 4) of the CMAM Surge approach. Understanding how this step is currently being implemented and how it could be improved will help to improve the effectiveness of the approach and the design of future CEA studies. In 2021, Concern plans to engage with partners in a review of the specific actions that are being identified in Surge Action Plans across countries, how they are being costed, how much they cost and, finally, if cost is a barrier to triggering agreed actions when caseload thresholds are crossed (Steps 6 and 7).

Experience to date has shown that the costing process (Step 4) is often not being carried out in sufficient detail. This is likely because costing is set to take place at the health facility level in the current CMAM Surge guidance. This makes sense for smaller surge actions, as health facility teams are very able to determine the ‘cost’ of activities that only require time or minimal monetary inputs. Costing of the more significant

surge actions, however, such as additional health staff or more support/cash for transporting additional RUTF can really only be done well by the District Health Management Team (DHMT) who, ultimately, will be the those who provide such support. In the revised CMAM Surge global guide (due at the end of 2021), this costing step must be more explicitly placed with the DHMT within the eight CMAM Surge steps and more extensive tools and guidance provided.<sup>7</sup> This will help to ensure that the costs associated with each action are accurately calculated and, most importantly, will facilitate the inclusion of critical costs within the district health budgets or other contingency budgets at district level or higher. This, in turn, will provide health facilities with greater assurance that support will be delivered when caseloads rise, motivating them to invest in more detailed planning.

*Continue to refine the costs and more quantifiable outcomes that are unique to CMAM Surge*

There are several standard cost categories specific to CMAM Surge including additional training and mentoring on the CMAM Surge steps and potentially additional staff time required to set-up the approach and monitor caseloads – these are beyond what a health facility team might do normally. These need to be captured more systematically in any cost analysis for CMAM Surge going forward. At the same time, we should continue to improve monitoring and evaluation tools to better capture the ‘softer’ impact of CMAM Surge. This will enable us to better measure the positive (or negative) effect of the approach on the capacity of the health system to deliver essential services and, in time, allow us to better measure its cost-effectiveness. This will require working closely with health system experts who routinely measure health worker and health user satisfaction, health worker capacity and health system functionality.

*Develop a set of practical tools to capture CMAM Surge costs as part of implementation*

For the reasons outlined above, a set of easy-to-use tools for collecting data on the costs associated

with CMAM Surge is needed to improve implementation and lay the groundwork for potential cost-effectiveness studies in the future if and when we feel they would add value. This set of tools should build on those that already exist for CMAM costing and planning, such as those developed by FANTA (2012) and those developed as part of the two CMAM Surge cost-effectiveness studies in Niger and Ethiopia (Fotso and Myatt, 2019; AAH & SCI, 2020). These tools, however, must be adapted to include costs that are unique to CMAM Surge and to collect data at the critical steps in the CMAM Surge process at health facility and district level. This will require an inherent level of flexibility and iteration to capture both the cost of activities that were planned and agreed if/when thresholds were crossed and the costs that were finally incurred for the activities and support actually delivered. Such a prospective and retrospective costing process will be required as part of the annual CMAM Surge process in each setting to learn and to improve efficiency for the next Surge implementation cycle.

## Conclusion

Cost-effectiveness is a critical consideration in assessing the added value of a new approach such as CMAM Surge. To produce meaningful results, we must distinguish how CMAM Surge differs from routine CMAM and how to quantify outcomes and costs that are unique to the new approach. We consider that more practically focused cost analysis, a strengthening of the costing component of the CMAM Surge process and the development of experience-informed user-friendly costing tools related to CMAM Surge are the priorities.

Such developments would allow for more robust, comprehensive and longer-term CMAM Surge cost-effectiveness studies.

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<sup>7</sup> See field article in this special section of Field Exchange entitled “CMAM Surge: lessons learned on the journey so far”

## References

- Action Against Hunger and Save the Children International for No Wasted Lives (2020). The cost -efficiency and cost-effectiveness of the management of wasting in children: a review of the evidence approaches and lessons.
- Cost-effectiveness analysis of CMAM Surge approach in Niger. Final Report. EVIHDAF Consultants and Concern Worldwide. September 2019.
- DFiD (2013) Value for Money in the business case DfiD, 2013. Available from: [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/307348/Value-Money-Business-Case-Small-Arms-Survey1.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/307348/Value-Money-Business-Case-Small-Arms-Survey1.pdf)
- Fotso and Myatt (2019). Cost-effectiveness analysis of CMAM Surge approach in Ethiopia. Final Report. EVIHDAF consultants and Concern Worldwide. September 2019.
- Idris, I. (2018). Cost-effectiveness in humanitarian work: preparedness, pre-financing and early action. K4D.
- Marseille et al., (2015). Thresholds for cost-effectiveness of interventions: alternative approaches. Bulletin of the World Health Organization, 2015; 93:118-124. doi <http://dx.doi.org/10.2471/BLT.14.138206>

## Expanding CMAM Surge beyond nutrition – towards a broader Health Surge approach

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Rafaida, one and a half years old, having her MUAC taken in Doroti, Chad, 2018

## GLOBAL

**What we know:** Demand for treatment services for childhood diseases (particularly malaria, diarrhoea and acute respiratory infection (ARI)) surge in response to seasonal changes and shocks.

**What this article adds:** A broader Health Surge approach is emerging, prompted by health facility staff beginning to apply community-based management of acute malnutrition (CMAM) Surge principles to other childhood disease services. Lessons learned from implementing countries to date (Sierra Leone, Burkina Faso, Chad, Niger, Ethiopia and Mauritania), including during the COVID-19 response, have informed working definitions, key elements of a package and key principles of an approach currently modelled on the CMAM Surge steps. Health Surge can be viewed as a quality improvement approach that empowers health workers to better anticipate, prepare for and manage fluctuations in demand for essential nutrition and child health services at facility-level in real-time, in complement to wider disease surveillance and response mechanisms. Health facility staff set specific thresholds for single diseases of public health importance in their catchment area to inform decisions and action on health facility capacity; information can be aggregated at district or regional levels to reveal rising stress on the health system. Adaptability of the approach is key and should always consider the context, effectiveness, local and national ownership, process transparency and sustainability. Experiences indicate that the Health Surge approach should protect services for the most vulnerable and will benefit from local prioritisation of illnesses, the tailoring of threshold setting methods according to how local health services are organised and disease-specific surge actions. Digital monitoring approaches will help real-time monitoring. Existing global and regional technical working groups on CMAM Surge are now coordinating Health Surge efforts. Tools and guidance are currently being developed by Concern and will be piloted in Niger, Kenya and Mali by Concern and Save the Children from early 2021.

### The evolving Health Surge approach

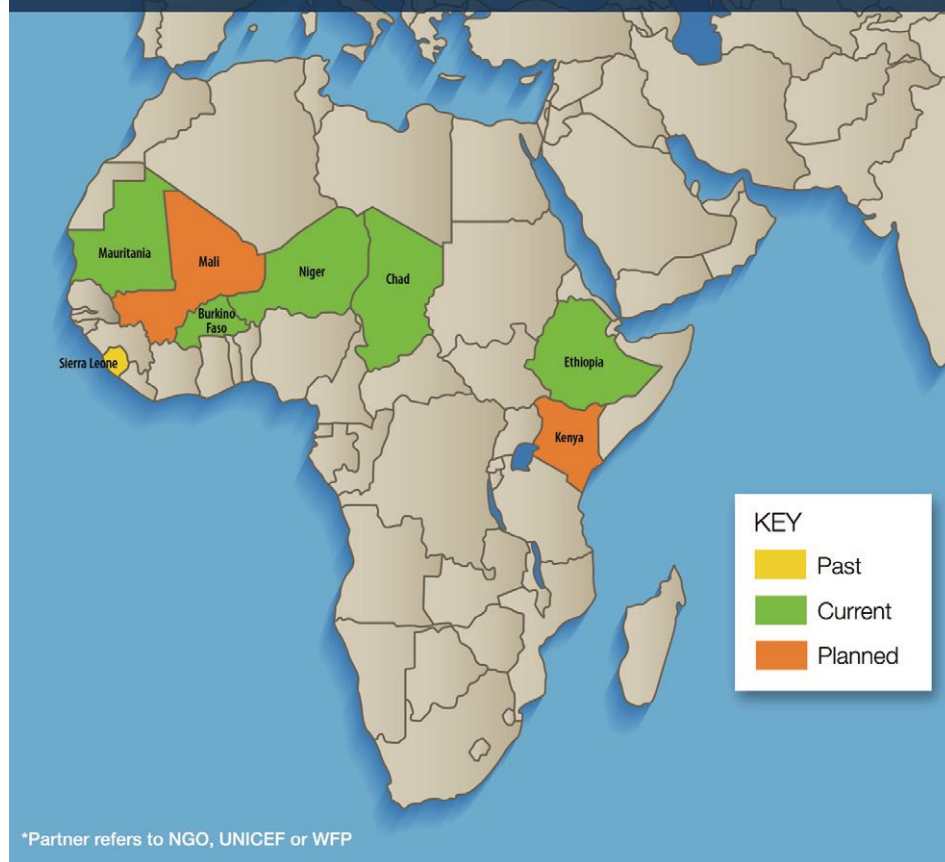
Seeing the value of applying community-based management of acute malnutrition (CMAM) Surge to their nutrition tasks, many staff and supporting non-governmental organisations (NGOs) have begun to apply its principles to other areas of their workload, most often to services for common childhood diseases (malaria, diarrhoea and acute respiratory infection (ARI)). Disease surveillance and response mechanisms exist – at least in theory – in most countries.

The emerging Health Surge approach aims to complement these mechanisms by supporting real-time monitoring of key illnesses so that the planning and allocation of resources to address caseload fluctuations can occur before a health facility is overwhelmed.

The concept of Health Surge was originally tried by health authorities in Sierra Leone in 2018 with support from Concern Worldwide (Concern) where existing CMAM Surge guidance was adapted for use in a malaria programme. Since the beginning of 2019, other stakeholders

**Figure 1** Countries where elements of a Health Surge approach have been initiated with partner support

**Health Surge** | Status of implementation based on known partner\* support as of end 2020



have been innovating and adapting CMAM Surge to the broader health agenda (Figure 1).<sup>1</sup> Partners from Francophone West Africa came together recently to share early experiences from their Health Surge adaptations via the CMAM Surge Regional Taskforce (October 2020).<sup>2</sup> The experiences shared highlighted the diversity of approaches taken and further underscored the need to agree on a common vision for the Health Surge approach while promoting further innovation and structured documentation and learning across contexts. Based on this experience, working definitions were developed by Concern in consultation with the Global CMAM Surge Technical Working Group (TWG) for both CMAM Surge and the emerging Health Surge approach (Box 1).

Within the broader landscape of health system strengthening, Health Surge is best viewed as a

quality improvement initiative because it focuses specifically on refining the process of service delivery at health facility level, particularly during periods of peak demand. Quality improvement has been defined as “systematic, data-guided activities designed to bring about immediate improvement in healthcare delivery in particular settings” (Baily *et al.*, 2007). Health Surge focuses on how services are organised and delivered to ensure that the correct services are provided where and when they are required. Health Surge aligns with the five principles of quality improvement activities (as outlined in Massoud *et al.*, 2017):

- **Client focused:** Health Surge aims to protect the consistent delivery of services for patients, especially the most vulnerable, precisely at a time when quality is at risk of being compromised (health workers overwhelmed).

- **Understanding work as processes and systems:** Health Surge analyses existing capacity and processes for dealing with peaks in service demand and it looks to improve these to produce better results for clients and reduce the stress placed on health workers.
- **Teamwork:** Health Surge promotes collaboration between a health facility and health district management to foster ownership of the process. It also supports identification of key stakeholders for task shifting purposes during peak service demand periods such as community workers (health and other), cleaners, guards, etc.
- **Testing changes using real-time data:** Health Surge supports real-time data interaction and use, tracking changes in patient visits for different services against the capacity of the facility to cope, thereby ensuring service availability and quality when it is needed. Health facility teams should revise surge thresholds regularly based on any changes in their capacity which impact on their ability to manage caseloads.
- **Shared learning:** A learning review is built into the Health Surge approach on a monthly, annual and post-Surge basis.

This article provides a framework for Health Surge based on learning to date. The approach and related tools are still being developed and consolidated and will be shared throughout 2021.

**Health Surge and existing disease surveillance and response systems**

Since 1998, the World Health Organization (WHO) has been supporting Integrated Disease Surveillance and Response (IDSR) systems to ensure that diseases of public health significance are identified and responded to as needed.<sup>3</sup> This system includes three categories for surveillance: epidemic prone diseases (e.g., Ebola), diseases targeted for eradication or elimination (e.g., measles) and other conditions of public health importance to a specific country. The first two disease categories require immediate notification to health authorities and have standard (usually national) thresholds that should trigger immediate action from the country’s outbreak response system. Health Surge is not intended to address these two categories of ‘notifiable diseases’ and replace their existing emergency response mechanisms. This was underscored and clarified by the experience of trying to adapt the CMAM Surge approach to COVID-19 which has now become a notifiable disease in most countries (see Case Study from Niger in Box 2).

**Box 1** Working definitions of CMAM Surge and Health Surge

**CMAM Surge:** The goal of the CMAM Surge approach is to support the health system, and empower health workers, to better anticipate, prepare for and manage fluctuations in the demand for wasting treatment services. It is the original surge approach and largely follows the Global CMAM Surge Operational Guide developed by Concern and the tools adapted for use in different countries.

**Health Surge:** The goal of the Health Surge approach is to support the health system, and empower health workers, to better anticipate, prepare for and manage fluctuations in the demand for essential nutrition and child health services. The modalities of this approach are currently being developed.

<sup>1</sup> As per Figure 1, this includes Ministry of Health (MoH) staff in Niger and Chad with support from the Croix Rouge Française (CRF) and Concern, in Mauritania with support from FRC, in Burkina Faso with support from Terre des Hommes and in Ethiopia and Sierra Leone with support from Concern.

<sup>2</sup> Partners who participated in the webinar included NGO representatives, UNICEF staff and donor organisations.

<sup>3</sup> <https://www.afro.who.int/publications/technical-guidelines-integrated-disease-surveillance-and-response-african-region-third>

The Health Surge approach is much more focused on helping health facilities to manage their workload during periods of increased caseload than on alerting health authorities to a possible outbreak. Health Surge is therefore more suited to the third category – major diseases, events or conditions of public health importance. These diseases are country-specific, based on a given epidemiological context, and reported on a monthly basis through the Health Management Information System (HMIS). Most countries have defined thresholds for this category of diseases, however, this is often “an observed increase in cases over time” or something more specific such as a doubling of caseloads compared to a five-year average. Such a vague definition is often difficult to act on in practice and, when applied, thresholds are often set as absolute case numbers at an aggregated level (district/regional/ national) that do not allow for variations across health facilities. The thresholds also do not consider the health system’s capacity to respond at different levels. By the time an outbreak is declared at an aggregated level, the situation at individual health facilities may already be very serious.

The value of the proposed Health Surge approach is that it works to define specific thresholds for single diseases of public health importance appropriate to a given catchment area and within the context of health facility capacity. It does not interfere with standard reporting for these diseases but it does initiate earlier action at local level to protect service quality in the face of rising caseloads. As seen with CMAM Surge, when information on the number of health facilities passing their context-appropriate surge thresholds is aggregated at a district or regional level, it provides a powerful visual of not only the rising caseloads of malnourished children but the real stress the rising caseloads have on the health system.<sup>4</sup> The Health Surge approach has the potential to introduce the same tailored approach to monitoring and managing increased caseloads of child illness in light of a health facility team’s own capacity to cope.

### Health Surge in practice

The value and potential of a Health Surge approach has been in evidence for years at the Tahoua Regional Hospital in Niger. The improved utilisation of monthly CMAM and other morbidity data by staff in the paediatric ward following engagement with the CMAM Surge approach led to a better understanding of the pressure that severe wasting and malaria both exert on the health system during the annual malaria spike (September/October). As a result, the hos-

<sup>4</sup> See field article in this special section of *Field Exchange* entitled, “Implementing the IMAM Surge approach – experiences from Kenya”

## Box 2 Case Study: COVID-19 and CMAM Surge in Niger

In the early stages of the COVID-19 pandemic, it quickly became clear that even strong health systems in well-resourced countries had trouble coping with rapid increases in workload due to an influx of COVID-19 cases. In an effort to better prepare for and limit the risk of a similar scenario unfolding in Concern’s nutrition programme areas, Concern attempted to adapt its CMAM Surge guidance to the COVID-19 context. The pandemic served as an unexpected catalyst for defining a broader Health Surge approach that had already been under development for several years. Concern’s experience adapting CMAM Surge to the COVID-19 context in Niger provides the most practical learning. Ultimately, the adaptation of CMAM Surge raised more questions than answers but the experience has helped shaped thinking on the Health Surge approach, particularly what it can and cannot address.

Concern has been supporting CMAM Surge implementation in two health districts in the Tahoua Region of Niger since 2016, alongside other partners in other regions. From the outset of the pandemic, it was clear that COVID-19 had high potential to negatively affect wasting treatment services by a) increasing the number of individuals seeking treatment at health facilities, b) creating longer CMAM treatment consultation/review times due to heightened infection prevention and control (IPC) measures and c) reducing human resources due to staff being infected or re-prioritisation/ task shifting for certain services.

The main aim of adapting CMAM Surge to the COVID-19 context in Tahoua was to help health teams maintain quality treatment services for severe wasting while taking into consideration the additional challenges COVID-19 presented. However, given that health staff were likely to be overwhelmed by demand for services beyond just child health and nutrition, a new approach to tracking caseloads and assessing capacity was needed. Lastly, given the low testing capacity in Tahoua, the team saw potential for the new set of data they planned to track to be used to alert health authorities of possible spikes in COVID-19 cases.

The most immediate questions were: what data should be collected, how often and how should the data be used? The government’s disease surveillance system was already tracking and reporting confirmed COVID-19 cases where testing was available. Given the low testing capacity in Tahoua, however, the Concern team began exploring the feasibility of using fever, diarrhoea and/or acute respiratory infection (ARI) as a proxy marker for COVID-19 and setting some broader workload thresholds that would define when health facility teams needed to take additional measures or seek external support. Diarrhoea and ARI data are routinely collected on a monthly basis to feed into the Health Management Information System (HMIS) and are monitored (usually on wall charts) as part of CMAM Surge. Of these, data on ARI seemed to be the most relevant and accessible, as diarrhoea was not considered a reliable sign of possible COVID-19 infection and fever data was not readily available and/or not reliable unless combined with malaria testing results. Given COVID-19 cases are more prevalent in adults, the programme decided to track ARI cases for all age groups – not just in children under five years, as is done routinely in CMAM Surge.

However, there were practical challenges in the collection of ARI data that made it impossible to collect reliable data frequently enough to monitor the situation (weekly). The working definition of ARI data also varied between health facilities (pneumonia, severe pneumonia or cough and cold). Given these challenges, and the fact that the worst-case scenarios of COVID-19 were not fully realised in Niger, the Ministry of Health (MoH) and the Concern team decided the data was not reliable enough to inform surge actions. The health facilities therefore reverted to implementing normal CMAM Surge while the MoH continued to scale up IPC measures and expand testing to the degree possible.

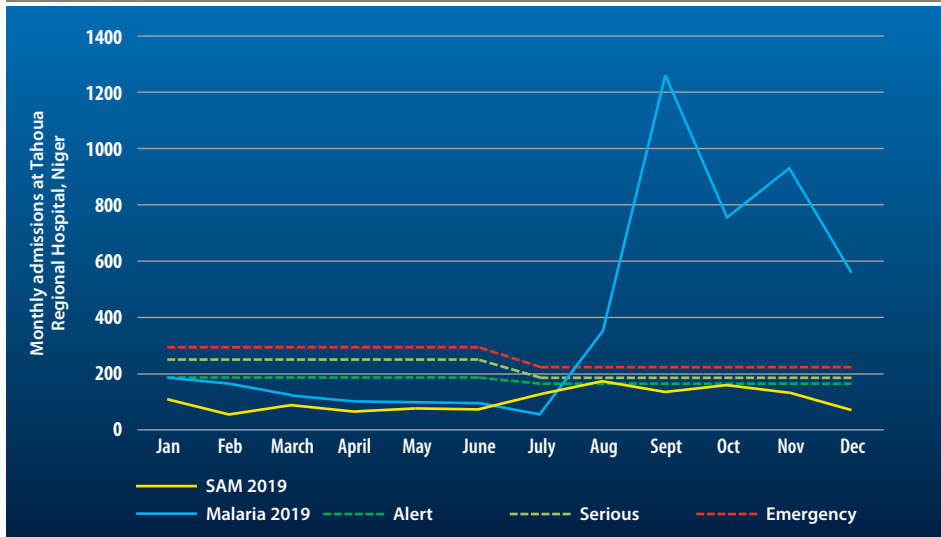
While CMAM Surge did not prove to be a perfect fit for the COVID-19 context, the experience has helped to more clearly define the parameters required to adapt CMAM Surge to a broader health context and refine the development of Health Surge. This includes a better definition of the types of morbidities that are appropriate for threshold setting, the frequency of data collection, the feasibility of including multiple age groups and how to define appropriate action plans. More on these lessons is shared throughout this article.



A mother holds her son while waiting for him to be vaccinated, at Gamkalé health centre in Niamey, Niger

© UNICEF/Juan Haro

**Figure 2** Severe wasting admissions and CMAM Surge dual thresholds, Tahoua Regional Hospital, Niger (2019)



pital’s inpatient therapeutic centre now tracks malaria cases alongside malnutrition cases and lowers its CMAM Surge thresholds for the second half of the year to account for the reduced capacity of the facility due to the influx of malaria cases. Figure 2 shows wasting/oedema admissions (2019) and CMAM Surge thresholds, contrasted with 2019 malaria admissions data.<sup>5</sup>

In some contexts, seasonal peaks in wasting may not always materialise but other morbidities may still cause facilities to have increased workloads. In Ethiopia, severe wasting caseloads in the CMAM Surge pilot facilities were very low (most facilities saw fewer than 10 severely wasted children over the course of a month) with the majority of pilot facilities never passing thresholds or triggering Surge response actions. Instead of deciding that CMAM Surge was not helpful or relevant to them, health facility staff revised the approach and designed thresholds for diarrhoea cases instead. Bati woreda, where the Surge pilot took place, is particularly vulnerable to diarrhoea outbreaks and health facility workers have found the Surge process helpful for planning and bouncing back from outbreaks.

“CMAM surge has helped me understand and monitor the events in the community [that] affect the number of SAM cases coming here [to the health post]. I also monitor diarrhoea cases... knowing the events of this specific department helps us to prepare beforehand like securing... resources. For example, this is a rainy season with a lot of rain...it is common to have more diarrhoea, so this CMAM Surge will help us prepare for diarrhoea beforehand” Health Worker – Bati Health Post, Ethiopia

**Towards a common vision of the Health Surge approach**

The Health Surge approach is currently evolving but several lessons can be drawn from the early experiences of those currently adapting CMAM

Surge to address broader child health services. This includes the initial efforts to adapt CMAM Surge to support the COVID-19 response. This learning can move stakeholders towards a more coherent vision of a Health Surge approach. This will be essential to support the development of common programming tools, minimum quality standards and evaluation criteria which will be needed to refine and scale up the approach if it proves successful.

A key advantage of a Health Surge approach will, no doubt, be its adaptability. However, it is important that, wherever implemented, the Health Surge support package should foster:

**Contextualisation:** The approach should focus on severe wasting and the other illnesses in a given catchment area that contribute most to

under-five mortality that place stress on the health system, exhibit fluctuations within or between years and are reasonably predictable. In addition, it should support and never duplicate existing outbreak response mechanisms where they exist.

**Effectiveness:** As a quality improvement initiative, support should be tailored to the needs and capacities of the health system to protect the continuity and quality of these services during periods of peak demand and/or reduced health facility capacity.

**Ownership:** Health workers, governments and the community should be empowered and should determine when and how they require additional external support to better manage services.

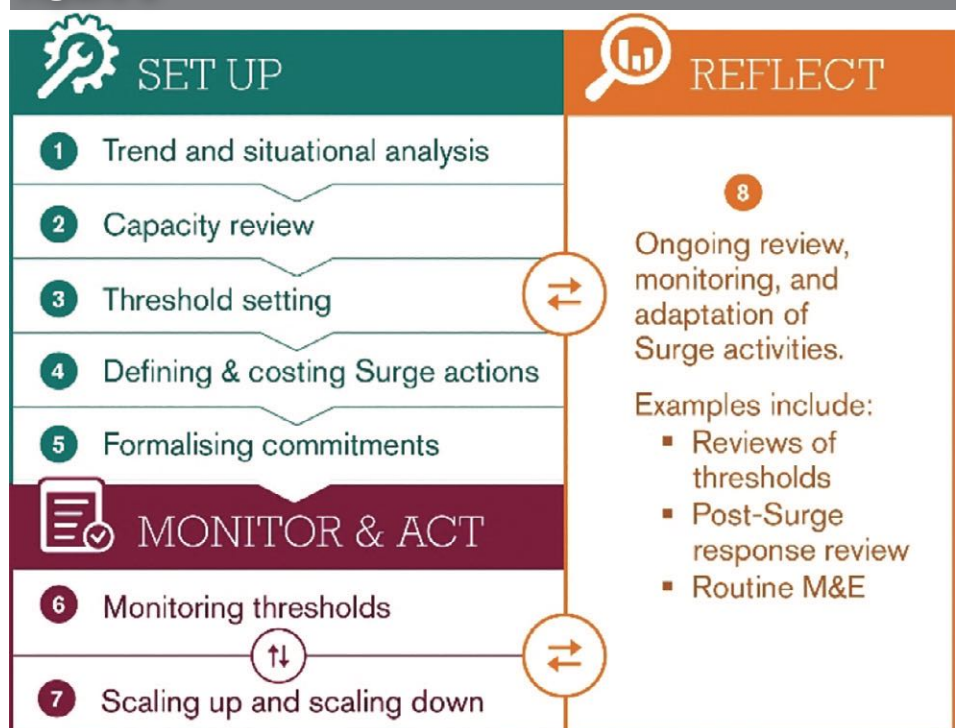
**Transparency:** Thresholds, support packages and delivery modalities for the response should be agreed with all relevant parties.

**Sustainability:** The package of support should strengthen the health system in a way that accounts for and prepares for better management of emergencies, allowing for greater long-term resilience.

**CMAM Surge or Health Surge?**

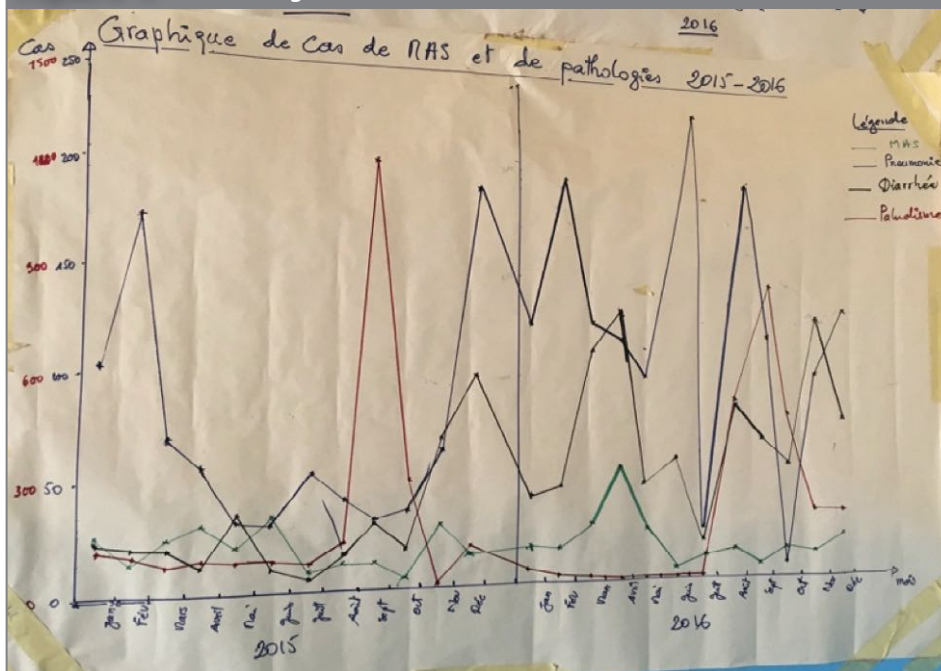
Many practitioners now trialling Health Surge have a solid background in CMAM Surge which has made the shift to include other child morbidities smoother. Others, however, have started directly with Health Surge and any new health facility or health district team may choose to do the same if they face significant surges of child wasting and common childhood illnesses. Some countries or areas may opt to simply continue with CMAM Surge or potentially start with CMAM Surge and introduce additional morbidities as their experience grows. In all cases, it is useful to move gradually through each of the eight steps of the CMAM

**Figure 3** CMAM Surge steps



<sup>5</sup> 2019 malaria admissions data demonstrate an illustrative malaria admission trend.

**Figure 4** Monthly wasting and morbidity consultations, Inkarkada Health Centre, Tahoua, Niger (Concern Worldwide 2018)



In this figure the green line represents severe acute malnutrition, the red line malaria, the blue line pneumonia and the black line diarrhoea

Surge approach (see Figure 3) consolidating experience after each.

### What have we learned that can inform development of a Health Surge approach?

#### Nutritionists must engage more with our health sector colleagues

CMAM Surge, while founded on shared health system strengthening and quality improvement principles and implemented by health facility staff and District Health Teams, was developed largely by nutrition experts. Developing the full Health Surge approach will require deeper engagement with a wide variety of health system actors and government departments including those responsible not just for child health (which may in fact cut across multiple departments) but for disease surveillance and response. The MoH in each country must be engaged and lead the development of a Health Surge approach. The fact that so many health facility staff in various countries have already initiated or embraced a shift from CMAM Surge to a more holistic Health Surge approach is a good sign but further engagement across all levels of the health system is now needed to solidify the approach.

#### Keep the focus on child survival

Many factors can drive health facility workload and capacities. There may be a temptation to try to address all health facility and health system challenges via a single approach but it is important to stay focused on protecting services for the most vulnerable: children under five years of age who are most vulnerable to wasting and illness and where interventions can have the most significant impact on mortality levels.

While some programmes may set thresholds that consider services for a variety of age groups to account for their contribution to overall workload, the CMAM Surge and Health Surge are best suited to services to ensure continuity and quality of child health and nutrition services.

#### Determine priority illnesses to monitor

Which illness to track should be determined at health facility level based on the catchment population's main burden and seasonal trends. It might be helpful, however, to first create a master list of morbidities that are of public health concern within a given district or region based on historical analysis of health data and seasonal trends.<sup>6</sup> Health facilities could then select from this master list, based on the epidemiology of their catchment area. Many health facilities are already following key illnesses, as can be seen in Figure 4. It may also be useful to track an overall indicator of total consultations as a general indicator of workload fluctuations (see below). The availability and reliability of data via the existing HMIS and any other data collection mechanisms must also be taken into consideration when selecting which morbidities to consider, as highlighted in the COVID-19 case study.

#### The setting of thresholds needs to consider how health services are organised at facility level and how they realistically link to action

As articulated elsewhere,<sup>7</sup> setting thresholds is a complex process that already poses challenges within the standard CMAM Surge model. Those who have already started Health Surge pilots have experimented with different threshold types. These fall into four main categories:

1. **Several single thresholds:** facilities set and follow a maximum of three illnesses (severe wasting and two morbidities), creating separate thresholds for each.
2. **A multi-morbidity threshold:** facilities create an index that aggregates severe wasting and several selected morbidities into a single threshold. Together they are meant to reflect both the illnesses that are the biggest risk to child survival as well as workload.
3. **A total consultations threshold:** facilities simply track total consultations coming into the facility, generally regardless of age or service, to serve as an overall reflection of workload.
4. **Combination model:** facilities track two of the above, usually several individual illnesses (severe wasting and maybe one or two other morbidities) and a total consultations threshold.

These threshold approaches are still a work in progress but may provide a helpful starting point for stakeholders embarking on the Health Surge approach who could then adapt to their context and share learning as they proceed. As above for the focal morbidities, it is recommended that a common approach to threshold setting is established for at least one district and ideally a whole country. This will allow for easier aggregation of Health Surge data to district, province and national levels.

An important factor when deciding which type of threshold approach to use is how the various services are organised at a health facility which determines patient flow and staff workload. In scenarios where a few staff are providing all services at a health facility, the 'total consultations' threshold may be most relevant. In scenarios where facilities have a larger, more varied group of staff with specific responsibilities and/or where wasting treatment services are still not well integrated into other outpatient services (and are delivered by different staff), 'several single thresholds' may be more appropriate. Health facility patient flow is usually determined by national guidelines for primary healthcare. These policy documents can help Health Surge practitioners decide on a common threshold approach for all facilities of the same type in a given country or district. A standard approach through an administrative region will be necessary, otherwise aggregation into district level dashboards will not be possible.

However, when determining how to set thresholds, it is important to think through how thresholds link to action planning and funding. While some actions may be the same regardless of morbidity (e.g., the need for additional staff), others will be disease-specific (e.g., buffer stocks of ready-to-use therapeutic food (RUTF) for increases in severe wasting, more malaria tests

<sup>6</sup> In most cases, this list likely already exists under Integrated Disease Surveillance and Response (IDSR) protocol.  
<sup>7</sup> See field article in this special section of Field Exchange entitled "CMAM Surge – lessons learned on the journey so far"

and drugs ahead of the peak malaria season or hygiene messaging during a diarrhoeal outbreak). If multi-morbidity or total consultation thresholds do not identify and/or account for which services are driving workloads up, then it may be difficult to trigger appropriate action based on Surge action plans. The ideal scenario may be to identify and set individual thresholds for the key conditions and morbidities that fluctuate and impact on staff workload while at the same time monitoring total consultations. If key conditions and morbidities have been properly defined then fluctuations in total consultations during the year are mostly likely due to these. Following total consultations will help to clarify this and indicate if a major cause of health system stress has been missed.

*Digital data solutions are even more vital when monitoring multiple indicators that include illness*

As thresholds become more complex – beyond solely child wasting admissions (as in CMAM Surge) – digital systems for data gathering and synthesis become even more important. While monitoring several thresholds at health facility level will be feasible, monitoring the number of facilities that have passed their multiple thresholds at a higher level, such as district or region, to detect a more system-wide emergency may be challenging. Digital, cloud-based data systems that are linked into governments’ District Health Information Systems (DHIS), disease surveillance and early warning systems will be critical to ensure real-time monitoring. However, digitisation of data collection must not compromise a core component of the Surge approach which is to engage health staff at facility level to interact

with and use their data for local decision making. Digital data systems should optimise data-driven decision making at all levels as CMAM Surge evolves further into the Health Surge approach.

**Where to begin?**

The development and implementation of the Health Surge approach must be grounded in the national and local health systems and embedded within or synchronised with other health system strengthening and quality improvement efforts and be based on a strong understanding of the capacity of the health system at different levels. On a practical level, it can borrow heavily from the tools and guidance that have successfully supported the scale-up of CMAM Surge. Therefore, revisions to the existing CMAM Surge Operational Guide will form the basis for the Health Surge approach. All eight steps from CMAM Surge will remain the same for Health Surge for the time being, although this may be adjusted as we learn. The main changes occur at the planning stage and in steps 1 to 4 (Figure 3).

Where steps are adapted, this will involve expanding the data collected, the thresholds set and monitored, capacities assessed and surge activities identified. More guidance on this is forthcoming in early 2021 from the Global CMAM Surge Technical Working Group which is currently led by Concern and includes representation from the United Nations Childrens Fund (UNICEF), MoH Kenya and other agencies engaged in implementing or funding CMAM Surge.

**Next steps**

A Health Surge approach holds great promise for complementing ongoing health system

strengthening efforts by increasing the shock-responsiveness of health systems at certain times of the year and beyond those for the treatment of child wasting. The approach still needs to be fully elaborated through engagement with a wide range of partners and its overall acceptability and effectiveness in improving the management of health services must be tested and further documented. The West Africa CMAM Surge Regional Taskforce<sup>8</sup> will continue to facilitate its members to share the experience of trialling different aspects of the Health Surge approach. Meanwhile, the Global CMAM Surge TWG, led by Concern, will develop and support a co-ordinated plan to gather, document and share evidence and experience from the implementation of the Health Surge approach during the course of 2021. In addition, the Global CMAM Surge TWG is actively seeking to expand health sector representation throughout 2021.

In coordination with the Global TWG, Concern is working to develop a set of practical Health Surge tools that will be piloted in a coordinated fashion in Niger, Kenya and Mali by Concern and Save the Children from early 2021. These tools will be adapted from the existing CMAM Surge Operational Guide and toolkit and will be available to any health authorities or organisations looking to expand on the success of CMAM Surge. Learning from the pilot and other country experiences will be documented and shared throughout 2021 and will result in the revision of the current CMAM Surge Operational Guide into a global guide and toolkit for Health Surge by the end of 2021. Ministries of Health and other partners could then use this as a basis to develop their own tools and guidelines for their own country contexts based on their needs and wider health system strengthening activities.

For more information please contact Kate Golden at [kate.golden@concern.net](mailto:kate.golden@concern.net)



The wereda 5, Nefase silk community and nurses conducting measles vaccination campaign in Addis Ababa

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**References**

Liu, L., Johnson, H.L., Cousens, S., Perin, J., Scott, S., Lawn, J.E., *et al.*, Global, regional, and national causes of child mortality: an updated systematic analysis for 2010 with time trends since 2000. *Lancet*, 2012;379:2151-61. Medline:22579125 doi:10.1016/S0140-6736(12)60560-1

Lynn, J., Baily, M.A., Bottrell, M., *et al.*, The ethics of using quality improvement methods in health care. *Ann Intern Med*. 2007;146:666-73. [PubMed], quoted in Patient Safety and Quality: An Evidence-based handbook for nurses. Hughes RG, editor.

International Vaccine Access Center (IVAC), Johns Hopkins Bloomberg School of Public Health. (2015). Pneumonia and Diarrhea Progress Report 2015: Sustainable Progress in the Post-2015 Era. Retrieved from [www.jhsph.edu/research/centers-and-institutes/ivac/resources/IVAC-2015-Pneumonia-Diarrhea-Progress-Report.pdf](http://www.jhsph.edu/research/centers-and-institutes/ivac/resources/IVAC-2015-Pneumonia-Diarrhea-Progress-Report.pdf)

Massoud, M.R., Gutierrez, R., Ottosson, A. (2017). Improving Health Care eLearning Course. Published by the USAID Applying Science to Strengthen and Improve Systems (ASSIST) Project. Chevy Chase, MD: University Research Co., LLC.

Massoud, M.R., Kimble, L. (2018). The USAID ASSIST Project’s approach to improving health care in low- and middle-income countries. Technical Report. Published by the USAID ASSIST Project. Chevy Chase, MD: University Research Co., LLC (URC).





A Nutrition Officer reviewing CMAM Surge charts at a health centre in Bati Woreda, Ethiopia, 2019

Concern Worldwide

# CMAM Surge: lessons learned on the journey so far

By Erin McCloskey, Amanda Yourchuck and Peter Hailey



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systems, empowered communities and an improved understanding of the nutrition and water, sanitation and hygiene (WASH) intersect.



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wasting treatment and prevention activities. Amanda was previously a Nutrition and Health Advisor with Concern Worldwide and served as the technical focal point for global CMAM Surge activities.

Peter Hailey is a humanitarian nutritionist who has lived and worked in emergencies and fragile areas of Central Europe and Africa for the last 25 years. Peter is now Director of the Centre for Humanitarian Change based in Nairobi with a focus on adaptive learning, resilience, nutrition and health information systems and famine.

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## Global

**What we know:** Community-based management of acute malnutrition (CMAM) Surge aims to enable wasting treatment services within health systems to respond quickly and effectively to surges in demand.

**What this article adds:** This article synthesises lessons learned from eight years of CMAM Surge programming across multiple countries. Findings from independent evaluations show the key strengths of the approach to be its relevance and acceptability to staff and institutions from national to facility levels, its ability to empower health facility staff, improved understanding and use of data for decision-making, particularly at health-facility level and of the causes of severe wasting and the integration of wasting management into health services and systems. Wasting admissions data have been used to manage community health services and better understand and respond to spikes in other morbidities in different locations. Areas to strengthen include the monitoring and use of data to inform decision-making at district-level, the systematic involvement of community stakeholders and the testing of a community-level Surge process and more frequent review and revision of Surge thresholds in response to contextual changes. Consensus on the next steps include testing, documenting and developing guidance for a Health Surge approach (expanding CMAM Surge beyond wasting management), capturing CMAM Surge’s contribution to health system strengthening and resilience, evaluation and adaptation of the approach for fragile contexts and embedding CMAM Surge data in early warning and to inform early action and wasting prevention efforts. The Global CMAM Surge Technical Working Group, led by Concern Worldwide, will continue to drive an active learning and development agenda.

Eight years on from the first community-based management of acute malnutrition (CMAM) Surge pilot in Kenya, a wealth of experience and learning across a variety of contexts has been generated. During this time, independent evaluations have been undertaken of four of Concern Worldwide (Concern)’s CMAM Surge programmes in East and West Africa and several regional and global CMAM Surge learning and consultation meetings have taken place (Table 1). This article synthesises themes that have emerged from these evaluations and consultations, identifying the approach’s strengths, country-led innovations and areas to develop. It also proposes key areas for further exploration.

the country experiences. The following sections highlight a selection of those commonalities that emerged from the publications and events listed in Table 1.

### Significant relevance and acceptability of the approach

All three evaluations across different implementation contexts concluded that the CMAM Surge approach is highly relevant and acceptable. This is likely because the CMAM Surge approach places leadership at health facility level with health facility staff driving the identification of and response to surges in demand for services. Facility staff also recognise the relevance of the approach beyond the management of wasting and see how they can extend its principles to a broad range of health services.

*“This approach is very important not only to certain disease entities but also to strengthen the overall health systems”*

Health Centre staff member, Bati Woreda, Ethiopia

The acceptability and relevance of the CMAM Surge approach is further evidenced by the national-level support it has garnered from various governments. For example, based on the success of the pilot in Kenya, the Kenyan Ministry of Health (MoH) has demonstrated a clear commitment to the

### Strengths of the CMAM Surge approach

- Significant relevance and acceptability of the approach
- Empowerment of health facility staff to make decisions about their work
- Improved understanding, utilisation and appreciation of data for decision making
- Strengthened relationships with local authorities

Evaluations that have taken place to date highlight several strengths of the CMAM Surge approach that are consistent across

continued scale-up of the CMAM Surge approach by developing its own national Integrated Management of Acute Malnutrition (IMAM) Surge Operational Guidance in 2016.<sup>1</sup> It has also prioritised its roll-out in Kenya’s vulnerable arid and semi-arid lands (ASAL) with the support from UNICEF, Concern and other international non-governmental organisations (INGOs).<sup>2</sup> CMAM Surge has also been incorporated into the national IMAM Guidelines for Uganda<sup>3</sup> and Afghanistan<sup>4</sup> and is noted in global CMAM training guidance.<sup>5</sup> The success of Concern’s initial CMAM Surge activities in Niger has spurred the expansion of the approach across Francophone West and Central Africa with many different partners adapting CMAM Surge to their countries and contexts.<sup>6</sup> National-level CMAM Surge guidance and scale-up plans are currently under development in Niger and Mali. Endorsement by European Civil Protection and Humanitarian Aid Operations (ECHO) through the inclusion of CMAM Surge in their Humanitarian Implement Plans (HIP) has encouraged partners and facilitated the expansion of CMAM Surge.

**Empowerment of health facility staff to make decisions about their work**

One of the most significant findings from all countries was a change in the mindset of health facility staff in terms of their ability to identify and address challenges without necessarily calling on external support. Within hierarchical health systems that are often dependent on external support during a shock, facility staff can feel disempowered in decision-making processes. In contrast, the CMAM Surge approach puts health facility staff in charge of deciding when and what measures are required to cope with changing caseloads. Results from all the evaluations clearly show that health facility staff find this aspect of CMAM Surge empowering; they mention feeling significantly more confident, self-sufficient and more able to take initiative.

*“[The CMAM Surge approach] allows us to always know where we are and what to expect. If we did not have it, we would feel less confident in our work. It really helps us to plan our activities”*

Nurse-in-Charge at Barmou Facility, Tahoua, Niger

*“In regard to the supplies, I am more alert than before about having more or having reserve of supplies for those [clients] who need medicine, those who need plumpy nut [RUTF] and others...”*

Health Extension Worker, Bati Health Post, Ethiopia

**Improved understanding, utilisation and appreciation of data for decision making**

In many developing health systems, the collection and transmission of data for child wasting is undertaken as a reporting requirement. Health facility staff do not always see the value in the

**Table 1** CMAM Surge learning events and documentation

Geographic Focus	Event/Publication	Year
Kenya	Publication of an article about Kenya CMAM Surge experiences in <i>Field Exchange</i> issue 47: <a href="http://www.enonline.net/fex/47/meeting">www.enonline.net/fex/47/meeting</a>	2014
Kenya	Independent evaluation of CMAM Surge model in Kenya: Concern Worldwide and Centre for Humanitarian Change (2015) Independent Evaluation of The CMAM Model Surge Pilot in Kenya <a href="https://www.concern.net/insights/evaluations-cmam-surge">https://www.concern.net/insights/evaluations-cmam-surge</a>	2015
Uganda	Review of the CMAM Surge Programme in Karamoja, Uganda (unpublished)	2016
East Africa	CMAM Surge Approach East Africa Consultation Workshop (report unpublished)	2016
Francophone West Africa	West Africa Dissemination Workshop for the CMAM Surge Approach (report unpublished)	2016
Global	Consolidation of learning to date in a document: The CMAM Surge Approach: An introduction and learning to date (unpublished)	2017
Francophone Africa	CMAM Surge Review Workshop - Francophone Africa Experience (report unpublished)	2018
Global	CMAM Surge Guidance Review Workshop Report available from: <a href="https://www.concern.net/insights/cmam-surge-approach">https://www.concern.net/insights/cmam-surge-approach</a>	2019
Ethiopia	Final Evaluation Report of the Concern Worldwide CMAM Surge Pilot Project, Ethiopia. Available from: <a href="https://www.concern.net/insights/evaluations-cmam-surge">https://www.concern.net/insights/evaluations-cmam-surge</a>	2019
Niger	Final Evaluation Report of the Concern Worldwide CMAM Surge Pilot Project, Niger. Available from: <a href="https://www.concern.net/insights/evaluations-cmam-surge">https://www.concern.net/insights/evaluations-cmam-surge</a>	2019
Niger	Cost Effectiveness Analysis of the Community-based Management of Acute Malnutrition (CMAM) Surge Approach, Niger. Report available from: <a href="https://www.concern.net/insights/evaluations-cmam-surge">https://www.concern.net/insights/evaluations-cmam-surge</a>	2019
Ethiopia	Cost Effectiveness Analysis of the Community-based Management of Acute Malnutrition (CMAM) Surge Approach, Ethiopia. Report available from: <a href="https://www.concern.net/insights/evaluations-cmam-surge">https://www.concern.net/insights/evaluations-cmam-surge</a>	2019

numbers because they are not linked to decision-making around issues affecting service quality, context changes or capacity. The collation and review of historical trends for wasting and other illnesses does not commonly take place at health facility level. According to the evaluations, after implementing the CMAM Surge approach, health workers indicated that they were far more interested in their own data and diligent about reviewing it because they now had the skills and tools to understand and use it productively. Several health workers mentioned that prior to CMAM Surge they did not notice fluctuations in their monthly data. The CMAM Surge process has ensured that health facility staff now not only know if their caseloads are changing but make decisions based on what the data is telling them.

*“[When asked the difference between a centre that has the Surge approach and one does not] Oh! They are not the same at all. They are not the same in terms of how they work and how to do self-evaluation and organise their own activities... Now I can solve my own problems.”*

Nurse-in-Charge at Kalfou facility, Tahoua, Niger

In the evaluations, some health facility staff stated they did not view wasting like other morbidities, as wasting often does not receive as much emphasis in pre-service training. However, an increased understanding of the data and how those numbers impact workload has led to

changing perceptions around wasting treatment services. The Uganda evaluation revealed that CMAM Surge has led to better appreciation of the human resource support required for nutrition services. In this way, it has created a more positive perception of the importance of wasting treatment services that were previously viewed as a non-governmental organisation (NGO)-driven ‘add on’ activity rather than an integral part of the basic service package. Discussions about wasting and how its fluctuations impact the health facility led to better integration of severe wasting treatment services into regular health services.

*“The Surge approach has made staff familiar with and appreciate the importance of IMAM.”*

District Health Officer, Nakapiripirit, Uganda.

CMAM Surge data and analysis can be a powerful tool to improve early warning systems. Currently, health and nutrition information

<sup>1</sup> In Kenya, the approach is called IMAM Surge to align with the naming of the integrated management of acute malnutrition (IMAM) approach used in the country.

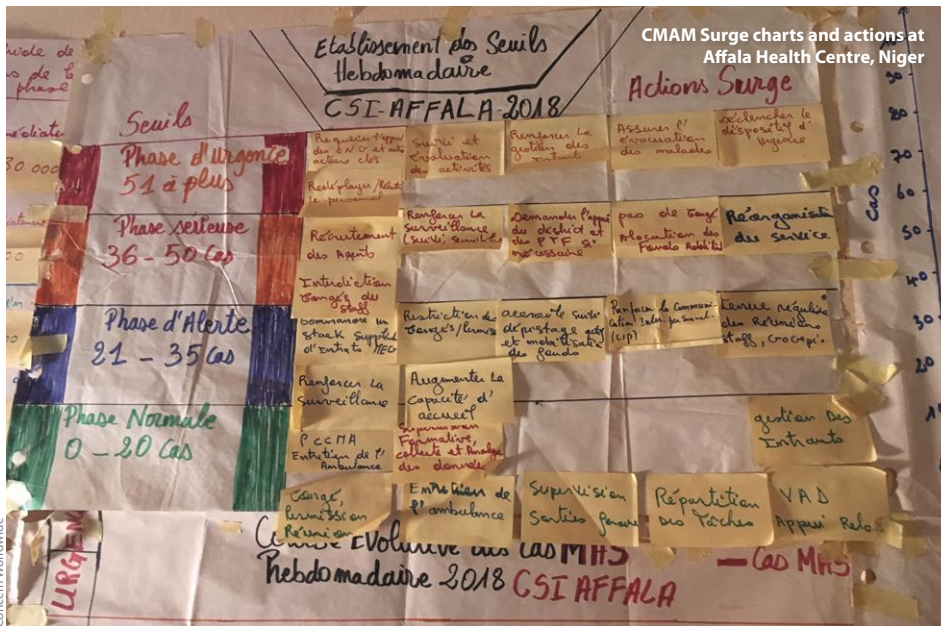
<sup>2</sup> See article in this special section of *Field Exchange* entitled “Implementing the IMAM-Surge Approach - experience from Kenya”.

<sup>3</sup> <http://library.health.go.ug/download/file/fid/672>

<sup>4</sup> [https://www.humanitarianresponse.info/sites/www.humanitarianresponse.info/files/documents/files/afg\\_imam\\_guideline\\_2018\\_final.pdf](https://www.humanitarianresponse.info/sites/www.humanitarianresponse.info/files/documents/files/afg_imam_guideline_2018_final.pdf)

<sup>5</sup> <https://www.fantaproject.org/focus-areas/nutrition-emergencies-mam/cmam-training>

<sup>6</sup> See article in this special section of *Field Exchange* entitled “The Role of Coordination in CMAM Surge Scale-up in West and Central Francophone Africa”



Data-informed management of community health services

In Niger and Kenya, CMAM Surge has led to improved dialogue and expectation setting with community-based volunteers. If caseloads are below or above expectations for a certain time of year, some health workers have initiated discussions with the community volunteers to trigger additional active case finding or an investigation into why there is an unexpected decrease or increase in caseloads. This process has improved the health workers' relationship with volunteers and their understanding of the local context, and community volunteers have reported feeling more valued and included in the health system. There is potential to take this engagement a step further and empower community-based volunteers in data analysis to better understand the story their data is telling. This would allow community health workers and volunteers to adapt their community-level activities and plans in line with real-time, seasonal data.

incorporated into early warning systems is limited to prevalence data from surveys or absolute and aggregated admission numbers/caseloads. CMAM Surge data and dashboards provide a snapshot of caseloads set against locally appropriate thresholds that are based on historical trends and relative to the actual capacity of each health facility. These contextualised thresholds provide a much more accurate and sensitive measure of stress on the health system than static prevalence estimates or absolute caseloads alone. The article on CMAM Surge scale-up in Kenya included in this series shows how CMAM Surge data aggregated from health facilities to the sub-county level provided a better indicator of a deteriorating nutrition situation than other early warning indicators.<sup>7</sup> The use of CMAM Surge data to improve early warning systems and early response warrants further development (see below). A key priority, however, is to streamline data systems and the existing CMAM Surge dashboards, linking better with the Health Information Management System (HMIS) to support real-time analysis and to inform early action.

Strengthened relationships with local authorities and communities

In the evaluations from Niger and Ethiopia, there were noted changes in the social capital of health facility staff. Staff reported that the process of implementing the CMAM Surge approach in conjunction with a wide variety of stakeholders improved the relationship of health facility staff with both district health management teams and with various community structures.

*“Now we [district and facility staff] are together and we work better as a team. Before, they were like the big Chiefs, we were scared of them but now we are like friends as we are together more.”*

Nurse-in-Charge at Edir Facility, Tahoua, Niger

CMAM Surge includes a specific step to formalise commitments (Step 5) that is meant to

ensure the necessary support to Surge action plans will be available if and when requested. However, even in the absence of formalised commitments (such as a memorandum of understanding that can be hard to produce and get approved), relationships with the district have often still been strengthened. If stakeholders are engaged in the Surge planning process, the absence of formalised commitments does not appear to have had negative consequences. In some contexts, however, especially those where the health system is weaker and/or demands on health facilities might be higher, these relationships may benefit from formal agreements to solidify the partnership and secure external support when required.

In order to improve the ownership, efficiency and sustainability of the CMAM Surge approach, however, Surge actions and budgets should be integrated into the planning and budgeting process of the health facility as well as the local health and administrative authorities. A positive example of this is provided by Kenya whereby CMAM Surge actions have been incorporated into the County Nutrition Action Plans (CNAPs) to some degree.

Innovations in CMAM Surge to date

- More data-informed management of community health activities
- Using CMAM admissions to better understand and react to spikes in other morbidities

The CMAM Surge evaluations and learning consultations uncovered several interesting adaptations to the standard approach. In most cases, these innovations were driven by health facility staff and not by the supporting partners. The examples detailed below have pushed the boundaries of the original scope of the approach and should be considered for integration into the standard Surge model.

Using CMAM Surge to respond to spikes in other morbidities

The original CMAM Surge approach hinges on the premise that high quality wasting treatment takes more time than consultations for other childhood illnesses and therefore an influx in cases of wasted children may quickly push health facilities beyond their capacity. However, CMAM Surge practitioners are increasingly recognising that caseloads of wasted children may not always be the primary driver of health facility workload. This has catalysed an emerging ‘Health Surge’ approach that is gaining momentum, such as in Niger where it was applied to co-manage annual malaria spikes with wasting treatment and in Ethiopia to plan for and respond to diarrhoeal outbreaks.<sup>8</sup>

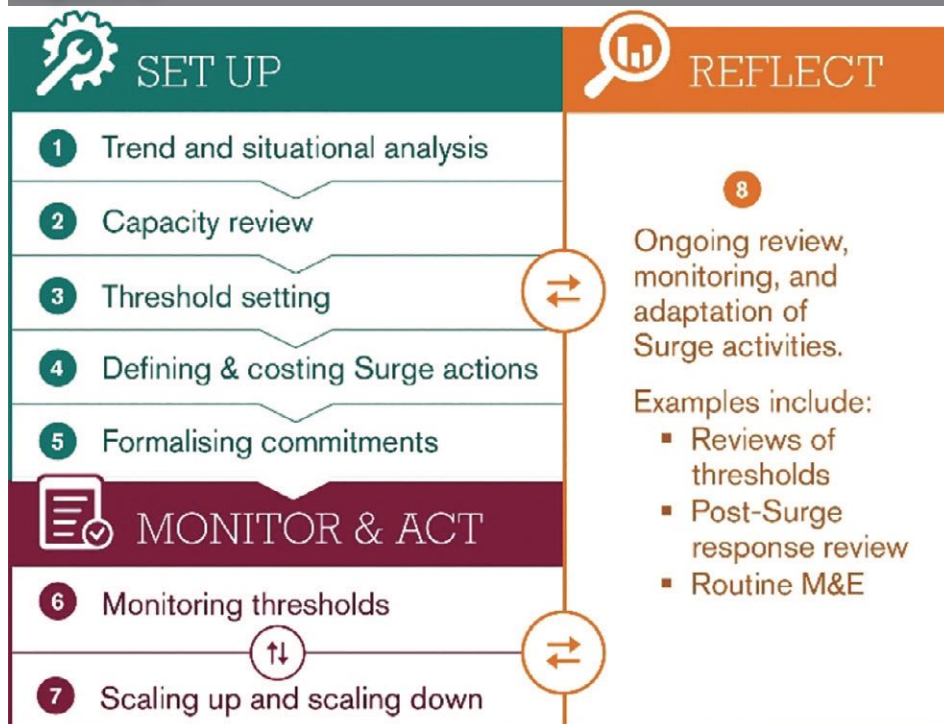
Priority areas to improve within existing CMAM Surge guidance and programming

- Strengthen CMAM Surge management at district level
- Involve communities more systematically in the CMAM Surge steps
- Ensure more frequent revision of Surge thresholds

Several priority areas to improve the existing approach have emerged via multiple channels as well as new areas for further development (below). Almost all were clearly articulated during a well-attended CMAM Surge review meeting held in Nairobi, Kenya in May 2019.<sup>9</sup> The purpose of this meeting was to determine

<sup>7</sup> See article in this special section of *Field Exchange* entitled “Implementing the IMAM-Surge Approach - experience from Kenya”  
<sup>8</sup> See field article in this special section of *Field Exchange* entitled “Expanding CMAM Surge beyond nutrition – towards a broader Child Health Surge approach”  
<sup>9</sup> The meeting included representatives from UNICEF, GOAL, Save the Children, The Centre for Humanitarian Change, ECHO, Kenya MoH, FFP Somalia and Kenya, as well as Concern Worldwide teams from Global, Chad, Burundi, Ethiopia, Kenya, Niger and Pakistan

**Figure 2** CMAM Surge steps



which aspects of the global CMAM Surge guidance and tools required updates based on experience and what aspects still required further learning and documentation – a first step in gathering consensus on future directions for CMAM Surge. Key areas prioritised included a review of the threshold setting process, how to introduce CMAM Surge into a new country and health system, applying the CMAM Surge to different – particularly very fragile – contexts and a more practical set of monitoring and evaluation tools, particularly for district level.

**Strengthen CMAM Surge management at district level**

**Data management**

From the outset, CMAM Surge has primarily focused on health facilities and building their capacity to deliver a localised response to increases in wasting caseloads. Concern’s Operational Guidance for CMAM Surge includes district-focused Surge tools and advice; however, when the guidance was developed these actions were mostly untested. In many contexts, district-level CMAM Surge actions are limited to using the CMAM Surge dashboard and providing some support to health facilities when they cross thresholds. However, a holistic approach and practical tools to empower districts to use that data to better manage their own resources and/or request additional support needs further development.

The CMAM Surge dashboard is currently an Excel-based tool that captures, at a minimum, data on child wasting admissions against thresholds for each facility within a district health team’s management area. While there have been successes in using the dashboard – in Kenya, the CMAM Surge dashboard was

credited as being key in the initiation of an early response to growing drought conditions in 2019 (Maintains, 2020) – the dashboard is not always used to its maximum potential. This is due, in part, to the limitations of capturing district-wide CMAM Surge data in an offline spreadsheet. Currently, CMAM Surge data is not integrated into the HMIS as the usability of a district dashboard needed testing before attempting to link it to the formal national health information system. At present, the dashboard requires manual updating, increasing the opportunity for data-entry errors and delays, and limits the number of users who have access to the data. Various online district-level dashboards are already in use within the health sector (e.g., DHIS-2) and in other sectors (e.g., early warning systems for agriculture and food security).

There is a need to develop and test a dashboard that links directly into the HMIS and other relevant data sources, where they are functioning. For this, Kenya is a perfect example. Dashboards should, ideally, use a cloud-based platform so that data can be updated without manual entry. Better access to real-time data can and should be used to inform activity planning, the organisation of the health workforce and supplies and communication and advocacy upwards to the regional or national level if a large number of health facilities or the district health management team itself is showing signs of stress and requires additional support.

**Costing and financing**

The limited role of districts in providing support to CMAM Surge actions at facility level is linked, in part, to constraints in formalising

commitments (discussed earlier) as well as the costing and financing of the CMAM Surge action plans. At present, the CMAM Surge action plans should be developed and costed within a single step of the approach (Step 4) which occurs at health facility level (see Figure 2). However, because some Surge actions will require support from actors external to the health facility – such as districts or NGOs working through district health teams – it is important that all the relevant stakeholders play a more active role in this costing process, perhaps better placed within Step 5 of the process (formalising commitments). In this way, the role and accountability of the district and other relevant partners supporting bigger Surge support actions could be strengthened.

Additionally, the initial development and revision of CMAM Surge action plans should be better aligned to government planning and budgeting cycles and other financing mechanisms, such as disaster risk financing systems, to help ensure that promised resources are formally planned for and earmarked within these systems. More practical costing tools for this step are needed to support this process within the Operational Guide.<sup>10</sup>

**Involve communities more systematically in the CMAM Surge steps**

As noted above, some community-level engagement in the CMAM Surge process is taking place. However, this is often ad hoc and although community representatives are listed among CMAM Surge stakeholders, this aspect is not yet integrated as a core element of the approach. Community members should be consistently involved in the CMAM Surge set-up process, not only to provide important contextual and seasonal insights but also to identify how community members and structures might be able to contribute to Surge action plans.

The evaluations showed that health facilities that had reached out to and formed relationships with community and mayoral structures had stronger Surge responses and felt more confident that they had access to a variety of resources to handle atypical situations than did other facilities. However, guidance around the process of clarifying and structuring relationships with community stakeholders seems to be overlooked. In the initial stages of the CMAM Surge start-up, all stakeholders that can support the Surge process should be identified and invited to participate in the establishment of Surge thresholds and the development of formalised, costed action plans. However, non-financial contributions, such as in-kind support or other community-based resources, should be more systematically identified and included in these plans so that the support can be detailed and predictable.

<sup>10</sup> See field article in this issue of *Field Exchange* entitled “CMAM-Surge: understanding costs and potential contribution to CMAM’s cost-effectiveness”

The CMAM Surge approach at community level can be innovated even further to include a community-level Surge process whereby community workers monitor screening numbers against thresholds and develop Surge action plans for when thresholds are passed. Bringing the CMAM Surge process down to the community level will provide an even more timely alert and early action system, especially in areas with poor coverage of health facilities. Using CMAM Surge data to inform and initiate seasonally appropriate actions to better manage acute malnutrition at the community level will be piloted in Kenya in 2021.

### *Ensure more frequent revision of Surge thresholds*

A nearly universal issue that emerged from the evaluations and ongoing consultations was the lack of regular threshold review and revision. It was felt that this could and should happen as part of an annual CMAM Surge review, in response to changes in health facility capacity or operating context or after a surge response but this was generally not being done. Across the evaluations, the setting of thresholds was noted as a complex and theoretical exercise that takes place in the initial set-up stage and is rarely ever revisited or revised. As per the CMAM Surge Operational Guidance, thresholds should be viewed as dynamic and reviewed at least annually and ideally each time a Surge response has been triggered. To address this gap, teams in Niger and Kenya have developed processes to ensure reviews are happening in both these instances.

Collectively reviewing thresholds also gives health facility staff a chance to reflect on whether the thresholds triggered actions that were appropriate to needs and if the thresholds were a true reflection of workload stress experienced by the staff. This is especially important in the context of staff turnover or operating context changes that impact on the ability of the health facility to cope with normal caseloads (e.g., during an acute outbreak or due to increased COVID-19 infection prevention and control measures). Conversely, the inappropriate triggering of Surge actions when the health staff are not in fact overwhelmed can also damage confidence in the system.

In both Niger and Uganda, evaluations found that thresholds were not altered despite changing human resources situations brought about by strikes or frequent staff turnover. A CMAM Surge review workshop for Francophone Africa found that advice based on local experience is needed when first establishing and then reviewing thresholds and that threshold setting should rely on data and on-the-ground experience rather than a formula, as is currently provided in the global Operational Guide. During the Ethiopia pilot, the same standardised thresholds were set for all health facilities, rather than allowing health facilities to adapt to their own capacity. Changes to thresholds at some facilities were noticed during follow-

up visits. Essentially, the appropriate setting of thresholds requires experienced support and revision based on learning.

### **New areas for developing the CMAM Surge approach**

- Test, document and develop guidance for a Health Surge approach
- Capture CMAM Surge's contribution to a wider health system strengthening agenda
- Explore the applicability of CMAM Surge across different contexts
- Use CMAM Surge data to inform early warning/early action and strengthen prevention

A number of significantly new areas of development for CMAM Surge are included in the global learning agenda being finalised by the Global Technical Working Group (TWG). These new areas will require more substantial piloting and documentation but, to the degree possible, will inform the update of the Global CMAM Surge Guide in 2021 and the generation of additional learning papers.

### *Test, document and develop guidance for a Health Surge approach*

There is a great deal of interest by health workers to expand CMAM Surge beyond the management of child wasting into a more holistic Health Surge approach. Some adaptations have already happened spontaneously, as noted in the earlier section on CMAM Surge innovations and in the Health Surge article.<sup>11</sup> Other more formal Health Surge pilots are also planned or already taking place in West and Central Africa and Kenya.<sup>12</sup> However, to ensure generation of good evidence and learning, a common vision for the approach is needed and key questions must be asked in the different pilots, allowing broader conclusions to be drawn about its effectiveness.

### *Better articulate and capture how CMAM Surge complements broader health system strengthening initiatives*

CMAM Surge – and potentially a broader Health Surge once it is developed – is meant to complement and not replace or detract from any existing health system functions or health system strengthening initiatives. A stronger articulation is needed of how CMAM Surge (and Health Surge) can and should complement different health system functions and be integrated into health system strengthening activities. This will require more in-depth analysis of the health systems in each context as well as the broader landscape of health system strengthening initiatives. As a starting point, however, there are two areas where CMAM Surge can add value to traditional health system strengthening efforts. Firstly, CMAM Surge leverages the compilation and review of historical data in light of those caseload fluctuations – something that is possible from existing HMIS data but often is not done. Secondly, the approach focuses on engaging and empowering the health facility staff. Evaluations have shown that the approach has been

particularly valuable in strengthening governance at the lowest level of the health system, the health facility, through improved data use, decision-making and relationship strengthening.

CMAM Surge likely adds the most value to health systems with regular fluctuations in case-loads – this is often in contexts with more seasonal trends in food security and morbidities and in challenging contexts where health system strengthening efforts are under-resourced and short-term. One of the main advantages of the approach is the seasonal lens to health system strengthening in those contexts: Action Against Hunger added modules on CMAM Surge within its organisational guide to health system strengthening to address this (AAH, 2017).

The CMAM Surge approach alone cannot address all health system challenges; it is one tool in the larger health system strengthening toolbox. The approach focuses on managing increased caseloads and is not designed to directly address more system-wide health shocks and stresses such as health staff strikes or widespread stock-outs of ready-to-use therapeutic food (RUTF). There are some signs, however, that CMAM Surge may be helping health facilities, and increasingly health districts, to be more resilient to these shocks. In addition, CMAM Surge could be more purposefully leveraged to support advocacy around these wider health system issues at higher levels through its documentation of on-the-ground capacity and workload.

Finally, as the CMAM Surge (and Health Surge) approach grows, it is becoming important to not only articulate but find ways to capture and measure how the approach contributes to health system strengthening – in particular, how it may help to address bottlenecks in service delivery of the six health system building blocks (WHO, 2010). Observations regarding the contribution of CMAM Surge to broader health system strengthening remain largely qualitative but quantitative data is also needed to track the longer term impact and to make a case for continued investment in the approach. This requires agreement on quantitative indicators and tools that can capture Surge-specific contributions to health system strengthening including the level at which they should be applied and the cost of related activities.

### *Explore if and how CMAM Surge can work in contexts with very weak health systems*

Current guidance suggests that CMAM Surge is appropriate when the health system has a minimum level of functionality, although how to define this minimum level is not elaborated in the current guidance. This reflects the element of caution taken during the early days of CMAM

<sup>11</sup> See field article in this special issue of *Field Exchange* entitled "Expanding CMAM Surge beyond nutrition – towards a broader Health Surge approach"

<sup>12</sup> The formal Health Surge pilots include the health authorities supported by Concern Worldwide in Kenya and Niger and the health authority of Mali supported by Save the Children.



CMAM Clinics are held wherever possible, here under the shade of an acacia tree in Sahgel, Chalbi District in Marsabit, Kenya

Concern Worldwide/Gideon Mendel

Surge when most experience was being drawn from Kenya where the MoH had taken a strong lead. Based on subsequent experience, the potential to apply the principles and steps to more fragile contexts, where government health systems may be weak or fractured, is clearer. In such contexts, the primary objective of improving capacity to respond to shocks and emergencies would not change but the context will likely be more complex than when the MOH is leading. Broader health system strengthening efforts will also look much different in these contexts and integrating with these requires careful planning.

In fact, health systems and health workers in fragile countries operating within the humanitarian-development nexus may stand to benefit most from the CMAM Surge approach. One of the successes of CMAM Surge is its ability to improve the confidence and self-sufficiency of health workers to assess and manage caseload fluctuations which is arguably even more important in contexts where more central support from government health resources is lacking. In fragile or weak health systems, the same analysis and planning can take place at health facility level and to some degree at health district level. However, Surge support when certain thresholds are crossed would be provided by an NGO, and likely at a much lower threshold than in a more capacitated health system.

The health systems in many of the countries where CMAM Surge has been implemented to date face numerous challenges and undoubtedly suffer from a low level of functionality at certain times. Adaptation and application of the approach in highly fragile contexts such as Somalia or South Sudan has not yet been tried but should be explored in the future. Many elements of the CMAM Surge may even be useful in NGO-led protracted emergency response as these more 'stand-alone' interventions are also prone to shocks, stresses and resourcing delays and constraints. An important caveat, however, is CMAM Surge will likely not work in contexts where

treatment services for wasting are regularly not available due to the lack of health staff capacity or required resources.

### Use CMAM Surge data to inform early warning/early action

Supporting early warning/early action systems is critical to ensure that a deteriorating situation is identified and responded to in a timely manner. While systems exist for food security, agriculture and acute disease outbreaks, early warning/early action for nutrition-specific action remains weak and the contribution of nutrition data to these systems has not been optimised. Nutrition surveillance and detection of nutrition emergencies still relies quite heavily on cross-sectional anthropometric surveys (e.g., SMART surveys) that only show a snapshot of the situation at a given point in time or, where wasting treatment admissions are used in early warning data collection, they are usually aggregated and provided as absolute numbers without useful context

CMAM Surge data offers more dynamic and contextualised nutrition information for early warning/early action systems and can better represent the relative and changing need for nutrition and health system support. It improves on the aggregated and absolute wasting admission figures by presenting the number of wasted children admitted for treatment relative to historical trends in each facility and set against thresholds that take into account the capacity of health facilities to manage those caseloads. An early success was seen during the 2019 drought in the ASAL of Kenya where county health teams were able to detect a deteriorating nutrition situation via CMAM Surge dashboards even before more traditional early warning measures were signaling alerts.<sup>13</sup> This allowed county and sub-county authorities to react sooner. However, this valuable real-time information is not yet integrated into the early warning bulletin produced by the National Drought Management Authority. Similarly, in Ethiopia there is room to integrate CMAM Surge dashboard data into

information issued by the government's Public Health Emergency Management system. Integrating CMAM data into early warning/early action mechanisms would not only improve the specificity of the information but potentially ensure that early actions include health and nutrition activities. CMAM Surge data and thresholds monitoring needs to be linked more functionally to existing government disaster risk financing mechanisms at local, regional or national level to trigger rapid financial support when it is needed. Where governmental mechanisms do not exist or are already overwhelmed, external financial support can be sought. Work to better link CMAM Surge data to community level screening and referral will broaden the representation of data from those children seeking treatment from health facilities.

### Conclusion

The almost organic expansion of the CMAM Surge approach and the variety of adaptations in a wide range of contexts shows that those using it have found it adds value in their day to day management of wasting at health facility and health district level. Experience across 14 countries has led to rich learning. Some learning is context-specific while common lessons have also emerged. This article cannot do full justice to the depth of experience but identifies several priority areas of focus to build on which are now elaborated on by Kate Golden (Concern) and Sophie Whitney (ECHO) as they describe their vision and plans for the way forward on CMAM Surge.

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<sup>13</sup> See field article in this special section of *Field Exchange* entitled, "Implementing the IMAM Surge approach - experiences from Kenya"

### References

Action Against Hunger (2017). Health system strengthening: from diagnosis to planning. <https://www.actionagainsthunger.org/publication/2017/03/health-system-strengthening-diagnosis-planning>

FANTA (2018). Training Guide for Community-based Management of Acute Malnutrition. <https://www.fantaproject.org/focus-areas/nutrition-emergencies-mam/cmam-training>

Maintains (2020). Climate shock responsiveness of the Kenya health system. [https://maintainsprogramme.org/country/kenya/?post\\_type=rc\\_search](https://maintainsprogramme.org/country/kenya/?post_type=rc_search)

Ministry of Health Uganda (2016). Guideline for the Integrated Management of Acute Malnutrition in Uganda. <http://library.health.go.ug/download/file/fid/672>

Ministry of Public Health, Islamic Republic of Afghanistan (2018). Integrated Management of Acute Malnutrition National Guidelines. [https://www.humanitarianresponse.info/sites/www.humanitarianresponse.info/files/documents/files/afg\\_imam\\_guideline\\_2018\\_final.pdf](https://www.humanitarianresponse.info/sites/www.humanitarianresponse.info/files/documents/files/afg_imam_guideline_2018_final.pdf)

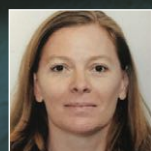
World Health Organization (2010). Monitoring the building blocks of health systems. A handbook of indicators and their measurement strategies. [https://www.who.int/healthinfo/systems/WHO\\_MBHSS\\_2010\\_full\\_web.pdf](https://www.who.int/healthinfo/systems/WHO_MBHSS_2010_full_web.pdf)

# CMAM Surge: the way forward

By Kate Golden and Sophie Whitney



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A Nutrition Officer reviewing CMAM Surge charts at a health centre in Bati Woreda, Ethiopia, 2019

Concern Worldwide/Darren Vaughan

## New capacity to support CMAM Surge learning and scale-up

To capitalise on the extensive learning from community-based management of acute malnutrition (CMAM) Surge implementation to date and on emerging opportunities to scale up the approach, sustained funding, technical expertise and strong coordination at local, country, regional and global level will be needed. Concern Worldwide (Concern), with support from Directorate-General for European Civil Protection and Humanitarian Aid Operations (DG ECHO) via the Enhancing Responses to Nutrition Emergencies (ERNE) programme, now has increased capacity to lead and coordinate implementation, adaptation and learning on CMAM Surge globally and to directly support its implementation in selected countries.<sup>1</sup>

Concern relaunched the Global CMAM Surge Technical Working Group (TWG) in late 2020 to provide strategic direction to this work. Members include representatives from non-governmental organisations (NGOs), United Nations (UN) agencies and the Kenyan Ministry of Health (MoH), and Concern is currently working to include more government health partners and health system strengthening actors. The aim of the TWG is to coordinate learning, promote best practice, identify opportunities for collaboration and support advocacy for the continued scale-up of the approach. The group will link closely with the West African CMAM Surge Task Force and other regional or country-level coordination mechanisms.

Concern also now has a dedicated CMAM Surge Adviser situated within its global technical assistance team. The CMAM Surge Adviser, with input from the Global TWG, will work to build the capacity of partners implementing CMAM Surge, coordinate the operational research planned in the global learning agenda, including pilots of adaptations such as Health Surge, promote cross-country experience sharing, synthesise best practice and revise and expand

the existing CMAM Surge guidance and tools.

The most important work, however, will happen at country level as governments and other health and nutrition actors engage more with the approach and determine if and how it can help to strengthen quality health service delivery in their contexts. CMAM Surge implementation is expected to continue across the 12 countries currently implementing the approach and will expand to at least two more.<sup>2</sup>

## What needs to be done

### *Coordinate learning and promotion of best practices via the Global CMAM Surge Technical Working Group (TWG)*

The Global TWG will provide strategic oversight of a global learning agenda for CMAM Surge over the course of 2021 and 2022.<sup>3</sup> Many adaptations and learning initiatives are already planned or underway across different countries. The aim of the learning agenda, which centres on five priority areas (see Box 1), is to bring coherence to those plans and coordinate tools, methods and sharing across initiatives. Concern's global CMAM Surge Adviser will finalise and share the specific research questions, methods and timelines for learning agenda priorities in coordination with the TWG in early 2021. The learning agenda will remain a living document and Concern will regularly share updates on

progress and changes via Concern's CMAM Surge webpage and other channels. Work under some of the research questions is already planned and funded. For example, Concern will work in partnership with the Kenyan health authorities in Marsabit County to explore how CMAM Surge data can be used to initiate community level actions to better manage wasting.

Concern will make updated tools, learning briefs and other CMAM Surge resources available via a dedicated website.<sup>4</sup> Concern, in coordination with the TWG, will also fully update the existing global CMAM Surge guide by the end of 2021, likely with the addition of Health Surge tools and guidance, if the approach proves useful. Online workshops and exchanges on key topics will also be held and the Concern team is available to provide technical support to CMAM Surge implementers, with a particular focus on (but not exclusive to) Niger, Ethiopia, Sudan, Kenya, Pakistan, Chad and Democratic Republic

<sup>1</sup> The ERNE programme supports integrated nutrition and emergency response programming in DRC, Ethiopia, Niger, South Sudan and Sudan. <https://www.concern.net/press-releases/concern-launches-major-eu-funded-programme-tackle-childhood-malnutrition>

<sup>2</sup> See field article in this special section of Field Exchange entitled "The 'CMAM Surge' approach: setting the scene"

<sup>3</sup> See Global CMAM Surge TWG description and terms of reference at <https://www.concern.net/insights/cmam-surge-approach>

<sup>4</sup> currently at <https://www.concern.net/insights/cmam-surge-approach> - dedicated platform coming soon

## Box 1 Key areas of the CMAM Surge global learning agenda

1. Assessing the overall value of CMAM Surge
2. Improving specific CMAM Surge steps (and guidance)
3. Shifting from CMAM Surge to a more holistic Health Surge
4. Integrating CMAM Surge into existing early warning/early action, outbreak response and the health system more generally
5. Using CMAM Surge to strengthen community level action and coordination

of Congo where Concern is or will be implementing the approach.

### *Secure multi-year funding for CMAM Surge*

Because the main advantages of CMAM Surge are expected to accrue over time, reliable, multi-year funding, ideally as part of broader support for health system strengthening initiatives, is needed. Usually, a minimum of one year – a full seasonal cycle – is required before the benefits of the approach become apparent. The DG-ECHO has been an early and continued champion of the CMAM Surge approach, promoting its uptake by endorsing CMAM Surge as a core approach to be funded in its annual Humanitarian Implementation Plans. DG-ECHO is now supporting Concern in CMAM Surge activities over three years in four countries via the ERNE programme. As a humanitarian donor, however, DG-ECHO typically focuses almost exclusively on emergency response, for which funding cycles are very short-term.

Greater engagement of development donors and actors, particularly within the health sector, to advocate more multi-year funding for CMAM Surge will be a key priority for the TWG and Concern. Other actors at global and country level should also advocate for this to help ensure that CMAM Surge is in place and functioning *before* an emergency strikes. Concern and the Global TWG will seek opportunities to pilot and document a partnership with development and humanitarian donors in a single country where development funds are used to support longer-term CMAM Surge set-up and monitoring and a humanitarian actor is poised to provide flexible and rapid funding when pre-agreed CMAM Surge thresholds are crossed to respond to a district- or region-wide emergency. This would be a very practical demonstration of cooperation across the humanitarian-development nexus but will require close coordination and an openness to new funding modalities by different actors.

### *Take time to build Ministry of Health (MoH) leadership of the approach and engage more with other health actors*

To date, partner support for CMAM Surge has predominantly focused on the health facility and health district level with the exception, perhaps, of Kenya.<sup>5</sup> This was appropriate during the early stages of trialling and adapting the approach. Now, however, with more experience behind us and as we look at the potential path to scaling up the approach, more structured engagement with higher levels of government within health systems is essential. More direct engagement with the UN agencies, NGOs, donors and other actors who support and fund broader health system strengthening initiatives will also be needed. Now is the time to bring more of the relevant national MoH departments and decision makers and other health actors into CMAM Surge design and planning processes to avoid CMAM Surge remaining a nutrition-centric approach. This is not a new lesson for the nutrition sector but a critical one. Hindsight around the

experience of scaling up CMAM itself over the past 20 years underscores the importance of understanding and integrating into health systems from the outset. This will be a priority for Concern and the Global TWG in 2021.

Such meaningful partnerships will take time, however – another reason to pursue longer-term funding cycles. While many supporting partners are well positioned to deepen their MoH partnerships around CMAM Surge, government decision makers and managers will only embrace the approach if and when they are convinced of its added value. In almost all contexts, therefore, more in-depth analysis of existing health systems and a clearer articulation of how the CMAM Surge approach (and eventually the Health Surge approach) fits within health system strengthening efforts should be a critical next step. We will need to borrow heavily from existing health sector tools for this purpose. Concern has initiated a health facility capacity assessment in the nearly 200 health facilities where they are supporting CMAM Surge in four countries under the ERNE programme.<sup>6</sup> This is just one example of the broader health system analysis tools that CMAM Surge practitioners will need and which Concern and the Global TWG will continue to collate and integrate into the CMAM Surge guidance and toolkit.

### **Further refine and pilot a more holistic Health Surge approach**

There is significant momentum behind the shift to a more holistic Health Surge approach. This must be a joint endeavour of government and non-governmental health and nutrition actors.<sup>7</sup> As a first step, Concern's health and nutrition teams, in coordination with the Global TWG, are drafting a set of simple Health Surge programming tools. The aim is to pilot these in a coordinated manner during 2021 in Kenya and Niger with support from Concern and in Mali with support from Save the Children International. The Global TWG and health practitioners will be engaged in the review, finalisation of tools and evaluation of the pilot experience.

### *Integrate CMAM Surge data into early warning/early action systems*

CMAM Surge data can provide existing early warning/early actions systems with more dynamic, contextualised nutrition information than that which is traditionally used.<sup>8</sup> More work is needed, however, to determine exactly how to integrate CMAM data into early warning/early action systems at country level, including both the early warning data systems and the mechanisms for triggering early action and rapid support/funding. Under the ERNE programme, Concern will trial ways to link CMAM Surge data to its vulnerability criteria for targeting and triggering timely cash transfers to communities and households. Concern will continue to work in partnership with government health teams in Kenya to refine sub-county and county CMAM Surge dashboards and explore how they can be better integrated into systems used by the National Drought Man-

agement Authority. The Global TWG will also actively engage with experts in early warning/early action to identify opportunities and strategies for better integration with CMAM Surge, focusing on up to three countries as case studies. Clearer guidance on how to assess existing early warning/early action systems and identify opportunities to link CMAM Surge data and support into them will be developed as part of the global CMAM Surge guide update by end of 2021.

### *Be practical: putting CMAM Surge into context*

As outlined above, CMAM Surge aims to support health system functions and complement health system strengthening activities. It is certainly not a panacea for all the weaknesses in the health system but it can be an important complement to ongoing initiatives in certain contexts. CMAM Surge likely adds the greatest value in contexts with regular fluctuations in caseloads by introducing simple steps and mechanisms to better manage nutrition and health services during peaks in demand. However, many secondary advantages have also been observed, including health worker empowerment and strengthened relationships between health facility teams, community agents and health district management teams. The Health Surge approach, still in its early development, also has potential to enhance the delivery of quality child health services throughout the year in similar contexts but more robust evaluation will be needed before expanding beyond the planned pilots.

### **Conclusion**

CMAM Surge has garnered a remarkable level of interest and expansion since its inception in 2012. Its appeal lies in its relative simplicity, ability to harness local data and knowledge for more effective planning of health facility activities and focus on empowering health staff to better manage their own workload. The way forward from 2021 is fairly well charted in the global learning agenda and workplan that will be overseen by the Global TWG and in the scale-up plans at country level.<sup>9</sup> Concern, with support from DG-ECHO, will strive to lead this process but, like the CMAM Surge approach itself, further development and scale-up will need to be adaptive and responsive to opportunities and challenges as they arise. Concern is ready and excited to work closely with government health teams and partners to support this process.

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<sup>5</sup> See field article in this special section of Field Exchange entitled "Implementing the IMAM Surge approach – experiences from Kenya"

<sup>6</sup> The health facility assessment tool is based on the WHO's Service Availability and Readiness Assessment manual <https://www.who.int/healthinfo/systems/sara-introduction/en/> and is available from Concern upon request.

<sup>7</sup> See field article in this special section of Field Exchange entitled "Expanding CMAM Surge beyond nutrition – towards a broader Health Surge approach"

<sup>8</sup> See field article in this special section of *Field Exchange* entitled, "CMAM Surge: lessons learned on the journey so far"

<sup>9</sup> See field article in this special section of *Field Exchange* entitled, "CMAM Surge: lessons learned on the journey so far"



## A review of the humanitarian nutrition response in North-East Nigeria

By Alison Donnelly, Joanne Chui and Arja Huestis



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\*MQSUN+ provides the UK's FCDO and the Scaling Up Nutrition (SUN) Movement with technical services to improve the quality of nutrition-specific and nutrition-sensitive programmes. The project is resourced by a consortium of five leading non-state organisations working on nutrition. PATH leads the consortium.

Beneficiaries of a Targeted Supplementary Feeding Programme in Yobe State, Northeast Nigeria



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## NORTH-EAST NIGERIA

**What we know:** Rapid response to nutrition crises must balance the demands of rapid scale up to meet urgent needs and support for existing systems and capacities; coordination is critical to achieving this.

**What this article adds:** The Maximising the Quality of Scaling Up Nutrition Plus (MQSUN+) programme undertook a review of the emergency nutrition response in North-East Nigeria (December 2018 to March 2019) to document strengths and challenges and inform future directions. Nutrition Sector scale-up is largely centred on wasting treatment. Successes included strong government leadership, the roll-out of training programmes, the provision of surge capacity for wasting treatment and rapid scale-up of ready-to-use therapeutic food (RUTF) provision. Challenges included the duplication of operations and bilateral funding streams, inadequate programming to support infant and young child feeding (IYCF) and mothers and infants under six months of age at nutritional risk, reliance on external support and technical assistance, challenges in community-based management of acute malnutrition (CMAM) data management and reporting and challenges with RUTF tracking and forecasting. The recommendations have informed the three-year Nutrition Sector strategy developed in 2020.

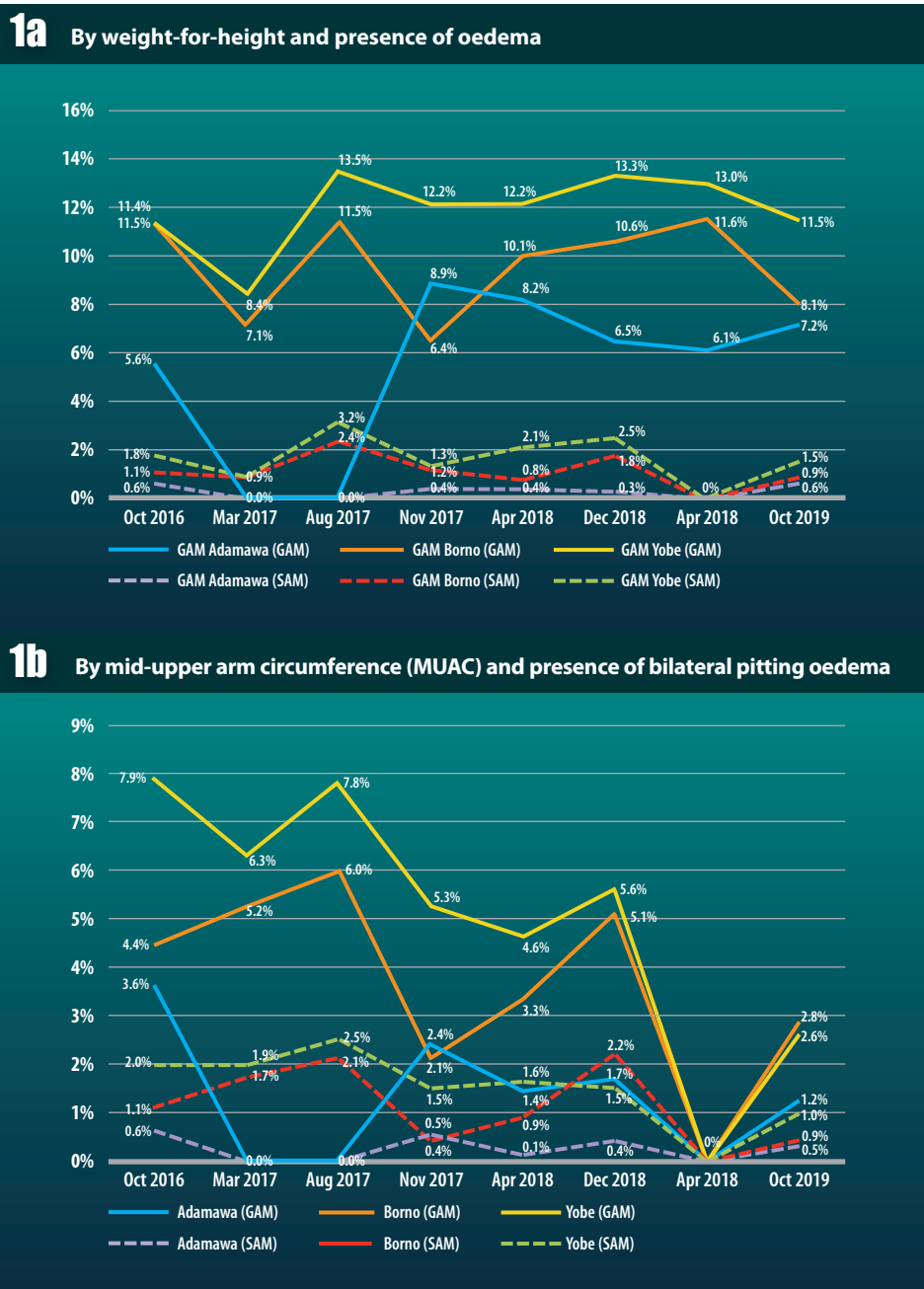
### Background

Since 2009, the Boko Haram insurgency has caused mass population displacement throughout North-East (NE) Nigeria. In 2016, previously inaccessible locations were granted humanitarian access for the first time in years. Communities were subsequently found to be facing a critical level of food insecurity, resulting in the Ministry of Health (MoH) declaring a "State of Nutrition Emergency" in June 2016 (International Organization for Migration, 2018). This prompted a rapid international response to prevent a famine that was extremely challenging to scale. In 2016, there were few non-govern-

mental organisations (NGOs) supporting nutrition services and many of those present were unable to operate in insecure locations. To help address this, the United Nations Children's Fund (UNICEF) engaged a consultancy firm to staff and supervise nutrition services to fill identified gaps in government staffing to scale up priority services such as the treatment of severe wasting.

Since then, the Nutrition Sector has continued to scale-up service provision. By 2019, the number of children admitted to outpatient therapeutic programme (OTP) services reached over 250,000, likely averting a large scale nutrition disaster (UNICEF 2019a).

**Figure 1** Trends in the prevalence of GAM and SAM amongst children 0–59 months of age in Borno, Yobe and Adamawa states (UNICEF 2019b)



However, the prevalence of global acute malnutrition (GAM) and severe acute malnutrition (SAM) has remained at around 7% to 12% and 0.6% to 1.5% respectively (Figure 1a). This suggests that the response has been successful in scaling up treatment but has made less progress in scaling up effective services for preventing malnutrition and reducing the overall caseload (UNICEF 2019b).

The Nigeria offices of UNICEF and the UK's Foreign, Commonwealth & Development Office (FCDO),<sup>1</sup> through the Maximising the Quality of Scaling Up Nutrition Plus (MQSUN+) programme, commissioned a review of the emergency nutrition response that the FCDO funds and UNICEF leads. The review aimed to document the strengths and challenges of the response in NE Nigeria to inform future

directions. This article discusses the review's findings, particularly those that may be applicable to other responses where rapid scale-up is warranted in fragile contexts.

### Methodology

The MQSUN+ project conducted the review between December 2018 and March 2019 through a desk review of key documents (strategies, tools and policies), analysis of available datasets, observation visits to nutrition sites and key informant interviews with Nutrition Sector partners. Based on this information, the review analysed the successes and lessons learned from the response, focusing on nutrition response coordination and partner performance. Recommendations were generated for improving Nutrition Sector coordination and response in this and other fragile contexts.

## Findings

### Nutrition Sector coordination

The Nutrition Sector benefits from strong government leadership, support from UNICEF and engagement with key stakeholders. The Nutrition Sector is coordinated through the Nutrition Sector Working Group which holds regular and well-attended meetings chaired by the Ministry of Health (MoH) with UNICEF's support. Furthermore, although there are still shortfalls, the external funding allocated to nutrition indicates that the MoH well understands and communicates the needs of the Nutrition Sector to donors.

The Nutrition Sector has significantly increased the number and quality of in-patient care facilities in the worst-afflicted state of Borno. Combining classroom training with on-the-job training and mentorship through the establishment, in 2017, of a Centre of Excellence in the University of Maiduguri Teaching Hospital likely helped to increase the number of functional stabilisation clinics from 19 in 2018 to 26 by early 2019 (Nigeria Nutrition Sector Partners 2018; Nutrition in Emergencies Sector Working Group 2019).

Hiring staff through a management company to provide services in the absence of NGO partners and government staff enabled rapid scale-up of out-patient nutrition services in challenging circumstances. Through this arrangement, consultant health staff were hired to quickly fill gaps where government services were available and NGOs were unable to quickly mobilise. Doing so likely averted a major crisis as staff were able to rapidly deploy and provide services.

Partners often duplicated operations in certain areas and did not necessarily coordinate amongst themselves. Borno State, for example, saw 214% more OTP admissions than forecasted in 2018 (UNICEF 2019a). This was despite surveys not indicating an increase in malnutrition and population movements being insufficient to explain this increase in admissions (UNICEF 2019a). Instead, in some cases, beneficiaries had accessed multiple sites and received duplicate rations due to a lack of sufficient coordination between partners. Site visits revealed that partner-managed "outreach" OTP clinics were often set up close to health facilities with existing treatment programmes.

There were issues with coordination and rationalisation, in part due to the inability of the Nutrition Sector to gain oversight on bilateral funding agreements. The pooled funding mechanism, the Nigeria Humanitarian Fund, was new and not widely used. As a result, many partners made agreements bilaterally with donors, informing the Nutrition Sector of the package of activities and locations of operation after receiving funding confirmation. As donors are based in Abuja and coordination meetings take place in Borno State, donors are often not present for the discussions. This limited the Nutrition

<sup>1</sup> previously UK Department for International Development (DFID)

Sector's ability to influence funding allocation, both in terms of location and the package of services and has resulted in a time-consuming rationalisation process which is unlikely to be fully completed until 2021.

### *Package of services included in the response*

There was early and strong recognition of the importance of supporting infant and young child feeding in emergencies (IYCF-E) as a critical component of the response. Surge deployments from the United States Agency for International Development (USAID)-funded Technical Rapid Response Team (TRRT) and the UNICEF Rapid Response Team supported the Nutrition Sector in establishing IYCF-E programming in 2016 at the start of the response. Save the Children's global technical leads also provided a five-day training programme to Nutrition Sector partners on IYCF-E including high-level representation from the MoH. By the end of the surge deployments, government, partners and the Nutrition Sector had developed a draft IYCF-E response plan with a set of minimum IYCF-E activities, IYCF-E indicators and an advocacy brief on preventing untargeted breast milk substitutes (BMS).

Despite early support, implementation of IYCF-E was not fully realised and the major focus of the response continued to be on treating severe wasting. The draft IYCF-E plan did not appear to have been endorsed or disseminated and most recommended actions had not been taken forward. Some Nutrition Sector partners established mother-to-mother support groups that provided nutrition education activities but one-to-one counselling to mothers was not consistently provided and skilled breastfeeding support was not routinely given as part of in-patient care. Furthermore, IYCF-E questions were not included in rapid assessment tools, nor was a BMS monitoring system in place. Following the departure of surge deployment, the Nutrition

## Box 1 Under-reporting of defaulters - major sources identified

**Filing:** Under the system used in most sites, there is one file for children currently in the programme, one for children who have exited and one for cases which have transferred out. At the end of the day in an OTP, the cards of the children who returned for follow-up are placed in the same file as the children who did not. The staff then need to look through each card at the end of the day to identify the absent children.

**Marking of absences:** Not all sites follow a standard process of reviewing the files at the end of the day to find absent children. Therefore, absences are often not marked on OTP cards, making it difficult to see when children have not returned for three consecutive visits, i.e., who have defaulted and should be recorded as an exit.

**Lack of data checks/validation process:** Processes for filing and checking records at the site level are not specified in the Nigeria CMAM guidelines and this does not appear to be standardised across the Nutrition Sector. There is also no standard process for validating daily and weekly reports. Supervisory staff may conduct spot checks of records but the methods used are also not standardised.

Sector did not identify an in-country focal person with relevant technical experience to take forward recommendations from these deployments. Although UNICEF and the FCDO, along with other partners, worked to stop the flow of BMS products, they still proliferated.

**Inadequate attention was given to infants under six months of age.** The response of the Nutrition Sector and its assessments largely focused on children aged 6 to 59 months with few services in place to screen for or treat wasting in infants under six months of age. Anthropometric surveys did not include this age group and the national Community Management of Acute Malnutrition (CMAM) guidelines, until recently, did not include guidance on in-patient management of SAM in that population. The response did not include services to manage uncomplicated cases of wasting in infants under six months of age in the community. Furthermore, while criteria for referral for in-patient care were included, guidance on how they should be managed was not provided. Moreover, population-level surveys do not include children under six months; the absence of this data makes it difficult to quantify the extent of the problem.

It may be noted that this is by no means unique to NE Nigeria and, in fact, this has also been documented in Somalia (Desie 2016).

### *Health systems strengthening Capacity-building and sustainability*

External support, while ensuring service delivery in the short-term, risked further weakening the health system. While the surge response addressed urgent needs, it was not designed to encourage long-term sustainability and government ownership. For example, partly to ensure timely payments of government health worker salaries, top-up payments were provided to ensure continued motivation to deliver nutrition services. Furthermore, when agencies recruited to fill resource gaps, staff were recruited from the government (and paid much more), further depleting the government workforce.

**Technical support to the health system beyond frontline workers was often provided in parallel to government structures and did not necessarily facilitate government ownership.** Training and supervision support provided by partners was largely aimed at frontline health workers, with most partners installing supervisory staff at district level and establishing their own supervision structures for these staff. Provision of technical support and capacity-building beyond health centre-level staff was limited. While supervision activities were often performed jointly with government to enhance capacity, for efficiency's sake tasks were also often divided, with much of the workload managed directly by someone recruited by UNICEF, the management company or NGO partners. While necessary for rapid start-up, these parallel structures risked undermining government ownership during what was ultimately a protracted response.

**Meetings of nutrition technical working groups (TWGs) were reactive instead of proactive.** While TWG meetings were frequent with active engagement from key stakeholders, feedback from partners indicated that the focus of the TWG meetings tended to be on addressing immediate issues rather than long-term priorities such as strategic areas to address technical gaps or develop guidelines.



A child being assessed at the Primary Health Care center in Binkola, Adamawa, Nigeria

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## CMAM data management and reporting

While significant progress was made in ensuring that patient records at facility level were completed correctly, there were discrepancies. An assessment of Nigeria's CMAM information system showed varied levels of accuracy and reliability along the reporting chain from data collection at health facilities to aggregated national data (Mezger *et al.*, 2018). Likewise, in Kenya, there is significant under-reporting of defaulted children when using a paper-based system (5%) compared to a mobile app (42%) (Keane *et al.*, 2018). In NE Nigeria, all OTP cards sit in one folder regardless of whether the child had been seen that week; in effect, "hiding" children who were supposed to be marked absent. While facility supervisors check monthly tallies against daily admissions, these quality checks are infrequent and often inconsistent. There are also many stages at which data is recorded, leaving multiple opportunities to introduce errors which may skew downstream interpretation and analysis (Mezger *et al.*, 2018).

Large discrepancies were also found between partner-reported data and site-level information. For instance, this review found that 25% of all sites were reporting cure rates of 99% and above, including in locations with a transient population. The review cross-checked records in a sample of these sites and found that many children had been admitted but never discharged. These "ghost" children continued to be counted as undergoing treatment.

Under-reporting of defaulters (or possibly even deaths) appeared to be an issue across the majority of partners in the Nutrition Sector. When partners reported lower cure rates, this was flagged as an indication of poor performance. In reality, the opposite may have been true, with lower reported cure rates being a reflection of accurate reporting and effective programme management. In some cases, partners felt that honest reporting threatened funding, especially when others were not reporting correctly and,

as such, there was little incentive to proactively seek out defaulters amongst patient records. As the cure rate is a key performance indicator that is routinely tracked, there is little incentive to seek out defaulters from register books and OTP cards. This results in lost opportunities to trace these children, risking recovery. Furthermore, unreported defaulters falsely elevate recovery rates. Additionally, data on the children currently enrolled on the programme may be incorrect, potentially affecting planning for staffing and procurement. More information on sources of under-reporting is provided in Box 1

## Ready-to-use therapeutic food (RUTF) supply chain

In Nigeria, UNICEF supports the government to procure and transport RUTF. The government and UNICEF each procure a portion of the supply. UNICEF is responsible for the management of forecasting, procurement, import and delivery at national level. Once imported, UNICEF transports supplies to three warehouses at subnational level. Based on requests, UNICEF then transports supplies to government-managed warehouses. This, in most cases, is the "handover point" where agencies or the government are responsible for managing the supply.<sup>2</sup>

There are successes in rapidly scaling up provision of RUTF to the entire Nutrition Sector. The UNICEF supply division in Copenhagen has recently honed its procurement procedures and diversified suppliers. As a result, UNICEF is able to negotiate reduced costs and successfully supply at a larger scale so that RUTF is successfully procured and distributed to meet increased demand/need.

Forecasting and ordering are likely not based on the most relevant data, potentially leading to overestimation or underestimation of supply needs at different points. The goal of supply chain management is to efficiently match supply with demand. As supply requests are based on numbers of children in the programme and forecasting is based on population-level

survey results, there is a risk of underestimating supply needs. Underestimation of supply needs could also have occurred as a result of the MUAC discharge criteria for OTP increasing from 11.5 to 12.5 cm which led to children remaining in the programme for longer. On the other hand, defaulters lowered the average amount required for each child as they dropped out of the programme early. Additionally, as mentioned, many sites had "ghost children" which may have also resulted in overestimating supplies.

Multiple risks of bottlenecks exist throughout the RUTF supply chain. The numerous steps involved in forecasting, purchasing, ordering, delivering and supplying the product to end-users often do not link well with one another. This review found that site-level gaps in RUTF supply are not consistently tracked across partners, making it difficult to understand where breaks occurred, the reason for these and which part of the supply chain was responsible. Furthermore, significant discrepancies between forecasted amounts and supplies actually used may indicate a worse than expected nutrition situation or could signal challenges with the management of supplies at the facility level. In the absence of a mechanism to track supplies along the supply chain, including at the health facility level, on an ongoing basis, it is difficult to make a distinction between the two scenarios, identify leakages and explain discrepancies between forecasts and amounts delivered.

Partner supply usage is not optimally tracked against forecasts. Partners based their forecasts on previous admissions for existing sites and a standard caseload calculation formula (prevalence + incidence) for new sites. Furthermore, RUTF orders are placed once funding is received, suggesting that supply is based on provisional estimations of 0.9 cartons per case. When funding contracts are delayed, the current unofficial buffer of 0.1 cartons per case may not be sufficient to prevent RUTF stock-outs. In addition, while forecasting for RUTF supplies is based on weight-for-height prevalence and nutrition surveillance data, admission to wasting treatment programmes in Nigeria is based on MUAC measurements. This creates a discrepancy between forecast and actual RUTF usage. The review also found significant differences across partners in the average amount of RUTF used per child with some using double or triple that of other partners. UNICEF began calculating supply needs on behalf of partners based on the monthly number of children enrolled on the programme but amounts against original forecasts were not tracked.

## Discussion and conclusions

This case study highlights the importance of standardising how to set up coordination early in a response to prevent duplication of services, ensure ownership by the government, improve data quality and management and move towards better tracking and forecasting of supplies. Crit-



A government hospital inpatient care unit after NGO technical support has ended

PATH/Alison Donnelly

<sup>2</sup> Where UNICEF was implementing CMAM through a third party, they managed the supply.

ically, governments should be consulted and supported by all actors, including donors, to adequately coordinate the response. If partners have secured resources for one geographic area, donors should allow the reallocation of resources to other areas if duplication occurs. Where pooled funding is not an option, the government and a cluster lead agency (e.g., a central coordination body) should prioritise geographic areas for intervention early in the response to prevent duplication and ensure services are provided in the locations where they are most needed. Donors, as part of the Nutrition Sector coordination, should consult this list prior to funding. A minimum package of services should be identified and supported by each partner delivering services. The Nutrition Sector coordination can identify capacity gaps and technically support partners to ensure delivery of the response including technically sound IYCF-E activities. While this review focused on NE Nigeria, similar issues have been documented in other emergency contexts (MQSUN+ and ENN 2018, Emergency Nutrition Network 2019, Desie 2016, UNICEF 2019c). Given the frequency of these challenges, it is important to understand why they are not addressed in new responses and what additional global efforts are needed to systematically address them.

Emergency responses often establish parallel structures that are unsustainable in the long run. In NE Nigeria, it is unlikely that any services to treat wasting would operate without technical, financial and logistical support being provided by external agencies. It is important to have guidance on how a coordinated commitment can truly support government-led services within a specific time period. Assessing health facility capacity to manage increases in case numbers could be very beneficial, not just for planning short-term surges, but to also assess the kind of support required over the medium to long term. Link the recommendations with TWGs for immediate implementation plans/ Sector Work Plan (5W)-Costing Monitoring Plans. Group 5

frontline health workers. Furthermore, as emergencies evolve into protracted, chronic crises with recurrent shocks, it is important for donors to provide longer term flexible funding to support greater integration of services (OCHA 2017). As handover to government may take several years, steps toward transition to full government delivery should be identified along with indicators to track progress. A review of humanitarian responses in Yemen and Somalia highlights similar issues and proposes the tracking of indicators for transitioning to government ownership (Global Nutrition Cluster and UNICEF Middle East and North Africa 2019).

In addition, the simplification of the CMAM approach should be explored to ultimately require less supervision and enable more streamlined data reporting. UNICEF is leading efforts to generate evidence around simplified protocols. However, more evidence is needed to evaluate the effectiveness and acceptable standards of these approaches and it will take time to build the required evidence for these to shift global and national policies and guidelines (No Wasted Lives Coalition 2020).

While these new approaches are receiving a lot of attention, less discussion is taking place around the management of standard CMAM programmes. Renewed efforts to simplify reporting, improve tools, supervision and ca-

capacity-building approaches for the existing model of CMAM could improve service delivery and support efforts to scale up coverage of services. Additionally, efforts to integrate nutrition services into government systems should take a phased whole-system approach where all levels of government are engaged in shifting responsibility for ensuring service delivery away from external actors with measurable milestones identified to track this process and to ensure that effective services are delivered and scaled up.

Recommendations from this review were incorporated into the three-year Nutrition Sector strategy developed in 2020. Recommendations to improve the NE Nigeria response have also been accepted by the Nutrition Sector including moving towards a model of one lead agency managing one local government area (LGA), requesting additional surge technical support for IYCF-E, ensuring the nutrition strategy includes a basic package of nutrition services and encouraging donors to consult the Nutrition Sector prior to making decisions on funding. Furthermore, in the new CMAM guidelines developed in 2020, in-patient care includes the management of infants under six months of age.

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A participant providing inputs during a stakeholder workshop

## References

Desie, Samson. (2016). "Changes to Nutrition Cluster Governance and Partnership to Reflect Learning and Operational Realities in Somalia." *Field Exchange*, no. 52. <https://www.ennonline.net/fex/52/nutritionclustergovernance>

Emergency Nutrition Network. (2019). "Special Issue on the Continuum of Care for Acute Malnutrition." *Field Exchange* 5080 (60).

Global Nutrition Cluster, and UNICEF Middle East and North Africa. (2019). "Report of the Global Nutrition Cluster Side Event on Yemen and Sudan." *Field Exchange*, no. 59: 6. [www.ennonline.net/nex/59/gncsideeventyemensudan](http://www.ennonline.net/nex/59/gncsideeventyemensudan)

International Organization for Migration. 2018. "Displacement Tracking Matrix Nigeria." <https://displacement.iom.int/nigeria>.

Keane, Emily, Natalie Roschnik, Joanne Chui, Ibrahim Ahmed Osman, and Hassan Mohamed Osman. (2018). "Evaluation of Mobile Application to Support the Treatment of Acutely Malnourished Children in Wajir County, Kenya." *Field Exchange*, no. 57. [www.ennonline.net/fex/57/mobileappsmalnutkenya](http://www.ennonline.net/fex/57/mobileappsmalnutkenya)

Mezger, Cora, Veronica Tuffrey, Charles Umar, Gloria Olisenekwu, and Esther Namukasa. (2018). "Community Management of Acute Malnutrition (CMAM) in Nigeria: Performance Assessment of the CMAM Information System." MQSUN+, and ENN. (2018). "The Current State of Evidence and Thinking on Wasting Prevention." Washington D.C. [https://mqsunplus.path.org/wp-content/uploads/2018/12/MQSUN\\_State-of-Evidence-and-Thinking-on-Wasting\\_7Dec2018.pdf](https://mqsunplus.path.org/wp-content/uploads/2018/12/MQSUN_State-of-Evidence-and-Thinking-on-Wasting_7Dec2018.pdf)

Nigeria Nutrition Sector Partners. (2018). "Stabilization Centers: Borno State, Nigeria, 22 May 2018." <https://www.humanitarianresponse.info/en/operations/nigeria/infographic/stabilization-centers-and-contact-details>

No Wasted Lives Coalition. (2020). "Simplified Approaches Across the Continuum of Care: An Introduction." 2020. <https://www.acutemalnutrition.org/en/Simplified-Approaches-Introductio>

Nutrition in Emergencies Sector Working Group. (2019). "Functional Stabilization Centers and Bedspace Capacity: Borno State, Nigeria, 2 April 2019."

<https://www.humanitarianresponse.info/sites/www.humanitarianresponse.info/files/2019/04/Stabilization-Centers--Borno-State.pdf>

OCHA. 2017. "New Way of Working." 2017). [https://www.agendaforhumanity.org/sites/default/files/20170228\\_NWoW\\_13\\_high\\_res.pdf](https://www.agendaforhumanity.org/sites/default/files/20170228_NWoW_13_high_res.pdf)

UNICEF. 2019a. "5W (Who, What, When, When, for Whom) Matrix for Nutrition, Nigeria." ———. 2019b. "Nutrition Surveillance Reports." ———. 2019c. "Wasting in South Asia: Consultation on Building the Evidence Base on the Policy and Programme Response." *Field Exchange*, no. 59: 8. <https://www.ennonline.net/fex/59/wastinginsouthasia>

United Nations. (2019). "Global Action Plan on Child Wasting: A Framework for Action to Accelerate Progress in Preventing and Managing Child Wasting and the Achievement of the Sustainable Development Goals." <https://www.who.int/publications/m/item/global-action-plan-on-child-wasting-a-framework-for-action>

Dear Editors,

Being a participant at the research conference organised by Action Against Hunger (AAH) at Nanterre, Paris in November 2019 was one of the most powerful experiences I have had so far as a nutrition researcher. This was my first experience of participating in an international nutrition related research conference such as this. One of the major observations I had was the incredible energy of the organisers, presenters and attendees of the conference over the two days. The programme was packed full of nutrition and nutrition related topics with an array of exciting teaching and lesson learning for better development. All the sessions were well attended by almost all the participants including high-profile scholars from different countries. I have no doubt that a lot of great learning experiences were achieved as a result. To highlight some of these among the many, I would like to mention the following points.

I found my participation at the conference to be *one of the most inspiring moments of my career so far as a nutrition researcher*. It was very exciting to find myself at such a high-class international conference surrounded by so many different scholars, both young and senior, all from different countries, institutions and backgrounds. Because of the fact that the participants represented multiple disciplines, the discussions and conversations were multidisciplinary in nature. Some of the subjects that caught my eye were nutrition in the context of climate change and social inequities, national scale-up, multisector collaborations, maternal mental health and nutrition, nutrition in humanitarian settings, implementation science and the link between nutrition and child health and development. Senior professors and researchers emphasised the holistic health and wellbeing of children as being a sign of success or achievement in nutrition interventions rather than the primary focus being anthropometric change. The long-term health consequences of accelerated growth and the 'capacity load' model were also discussed. All these exciting topics were extremely important lessons for someone like me who has had modest experience and exposure to such subject matters.



Research for Nutrition (R4Nut) conference, Nanterre, Paris, France

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The conference involved both oral and poster presentations that served to give participants such as myself *exposure to global thoughts and agendas* on nutrition related matters. Moreover, the experience of learning from and relating to experts and scholars was made to feel extremely relaxed with ample opportunity for discussions with these authorities on the subject during coffee breaks and lunch time. This provided a great opportunity to get to know, interact and share ideas with each other and to understand and learn from one another's experiences.

Conducting research or undertaking other scientific activity that is restricted merely to one's own institution and only to colleagues from one's own organisation causes researchers to feel isolated and sceptical and to lose vision. Attendance at conferences like this gives researchers a sense of connectedness and the opportunity to realise that there are other scholars interested in their experience and work, who want to support and collaborate with them and who want to take their message and recommendations as a learning experience for further development.

It is my personal belief that it is of greater worth than gold to meet people who have the same vision and interest, who are working towards the same goal and who are motivated to support and collaborate with each other for the development of each other's work and for society. It is also extremely exciting to discover that scholars from all over the world are interested in working together on agreed issues and are motivated to continue researching and finding solutions to areas where more understanding is needed.

Although my participation at the conference was simply as an attendee/audience member, making no contribution to either the oral or poster presentations, my experience of attending the conference has inspired me to prepare presentations and to participate as a speaker in international conferences in the future. I observed that *most presentations were made from participants from the western world*, probably because other scholars from backgrounds similar to mine may either lack the motivation or opportunity to participate in such world-class global conferences. In future, I aim to contribute as a speaker at other international conferences so as to help narrow this gap, increase diversity and to help to narrow the north/south divide.

I am very much thankful to the organisers of the conference, my partners/collaborators and colleagues who supported me and made my participation at this conference possible.

Yours,  
Mubarek Abera

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He is currently an investigator in the joint London School of Hygiene and Tropical Medicine (LSHTM), Jimma University, ENN and GOAL research partnership on Management of 'at risk' Mothers and Infants under six months (MAMI) research project, funded by the Eleanor Crook Foundation <https://www.ennonline.net/ourwork/research/mamiriseethiopia> and it was under this project that he participated in the ACF Conference.

# Adaptations to community-based acute malnutrition treatment during the COVID-19 pandemic



MUAC measurement taken by trained individuals, Gambella, Ethiopia

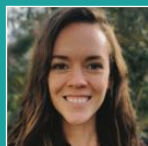
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By Maria Wrabel, Sarah King and Heather Stobaugh

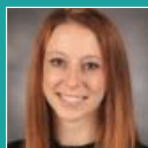


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## GLOBAL

**What we know:** The COVID-19 pandemic required that outpatient and community-based management of acute malnutrition (CMAM) programmes was adapted to reduce the risk of virus transmission.

**What this article adds:** Experiences and lessons learned around initial adaptations made to CMAM programmes in the light of COVID-19 were gathered through multiple surveys and interviews with programmers in over 40 countries. The adaptations implemented most frequently were Family mid-upper arm circumference (MUAC), a change in the frequency and method of follow-up visits and modified admissions and discharge criteria. This article presents initial lessons learned and recommendations for each of these adaptations. Regardless of the adaptation made, close collaboration and clear communication between caregivers, communities, partners and government entities were found to be critical. Programme implementers should continue to aim to protect staff and programme participants while continuing service provision, using personal protective equipment and capitalising on virtual trainings and meetings as much as possible. Building staff surge capacity may also mitigate unexpected shifts in staffing structures due to illness or travel restrictions. Innovations and adaptability in the face of supply chain and other programmatic disruptions require flexible funding sources and partnerships.

### Introduction: A call to adapt life-saving nutrition programmes during COVID-19

Past epidemics demonstrate that disrupted health and nutrition services can be especially deadly for young children. Therefore, after the onset of the COVID-19 pandemic, guidance was quickly released by the United Nations Children's Fund (UNICEF), the Global Nutrition Cluster (GNC), Global Technical Assistance Mechanism for Nutrition (GTAM) and the World Health Organization (WHO). This guidance suggested a range of adaptations to acute malnutrition management programmes to enable service continuity (UNICEF, 2020a; UNICEF, 2020b) while reducing the risk of virus transmission (Robertson, 2020; World Vision, 2020). In response, a variety of programme adaptations were implemented around the world yet questions remained.

Which adaptations have been implemented by whom and where? What are the operational implications and lessons learned?

### An effort to document lessons learned

Action Against Hunger, with support from the United States Agency for International Development (USAID) and in collaboration with UNICEF and the United States Centers for Disease Control and Prevention (CDC), began a mixed methods study to systematically document, synthesise and analyse information regarding programmatic adaptations in the management of acute malnutrition in children under five in the context of COVID-19. Specific adaptations studied included the introduction of measurement of mid-upper arm circumference (MUAC) by caregivers (referred to as Family



**Box 1** Definitions of programme adaptations

**Modified frequency of follow-up appointments:** Adjusting the timing for when children who are enrolled on an outpatient programme (OTP) or Targeted Supplementary Feeding Programme (TSFP) return to the facility for follow-up consultations and ration distribution. For example, children enrolled on an OTP may come to a clinic every other week instead of weekly.

**Modified dosage of therapeutic and/or supplementary foods:** Change in the amount of ready-to-use therapeutic food (RUTF) or supplementary food (RUSF) prescribed for children's consumption on a daily or weekly basis. For example, clinic staff may use non-standard methods to calculate RUTF/RUSF dosage or may reduce the dosage of RUTF/RUSF for each child.

**Use of one product for the treatment of severe acute malnutrition (SAM) and moderate acute malnutrition (MAM):** Traditionally, two separate products are used to treat SAM and MAM at the community level: RUTF is most commonly used to treat SAM while RUSF or improved corn soy blend (CSB++) is used to treat MAM. This adaptation refers to a shift in which a single product is used for the treatment of both SAM and MAM.

**Combined SAM and MAM treatment in one protocol or programme:** Development of acute malnutrition protocols that manage and treat cases of SAM and MAM on a spectrum, whereby both SAM and MAM cases are managed utilising one admission/discharge criteria, one therapeutic product, etc.

**Modified admission and/or discharge criteria:** The most common anthropometric measurements used for determining eligibility for admission into a nutrition programme are weight-for-height (WFH), mid-upper arm circumference (MUAC) and oedema. This adaptation could include a shift to using only one or two of these criteria or adjusting the thresholds for admission.

**Family MUAC (also referred to as Mother MUAC):** Caregivers are trained to monitor their children's MUAC at home and to refer them to a community health worker (CHW) or health facility when they detect signs of acute malnutrition.

**SAM treatment by CHWs:** Initiatives such as integrated community case management (iCCM)+Nut where children presenting with SAM are diagnosed and treated through a community-based platform that does not include a facility component.

**Use of low-literacy tools by CHWs:** Low-literacy tools are developed to facilitate the work of CHWs who may have low literacy or numeracy skills.

MUAC), reduced frequency of follow-up visits during treatment, modified admission criteria, reduced dosage and acute malnutrition treatment by community health workers (CHWs) among others (Box 1). At the time of publication, data collection was on-going and included an online survey for implementing organisations, semi-structured interviews with programme staff and secondary analyses of programmatic data to examine trends and possible associations between different adaptations and programme indicators. It is anticipated that data collection will continue until January 2021 with full results and analysis available mid-2021.

As of November 23, 2020, 19 organisations (17 non-governmental organisations (NGOs) and two United Nations (UN) organisations) running operational programmes in 36 countries had completed the survey and 36 semi-structured interviews had been conducted. Responses to

date indicate that most implementers began protocol modifications in April 2020 following the COVID-19 pandemic declaration and subsequent national and global guidance. The process of selecting which adaptations to implement typically followed traditional decision-making structures specific to each context. Decisions were most often made at the national level, with leadership and input from actors such as the Ministry of Health, the national Nutrition Cluster and NGOs. Figure 1 shows an overview of the adaptations made to outpatient and community-based acute malnutrition programming. The most frequently implemented adaptation was Family MUAC followed by modifications made to scheduled follow-up appointments for acute malnutrition treatment. While some countries have begun to return to 'pre-COVID-19' protocols, most are unsure when (and if) protocols will revert.

**Using Family MUAC for continued screening and surveillance**

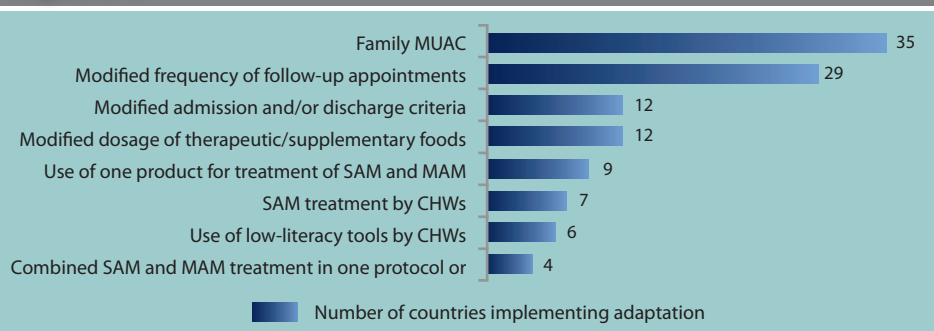
During the pandemic, movement restrictions and social distancing inhibited screening and surveillance by health professionals and volunteers, significantly reducing detection and referrals of wasted children for treatment. Governments and implementing partners therefore either piloted or scaled up the Family MUAC approach, whereby caregivers are provided MUAC tapes and taught to monitor their own children's MUAC to increase detection service coverage and timely referrals.

Overall, programme staff implementing Family MUAC reported that initiating and scaling this approach was largely successful. While the end activity of Family MUAC is consistent – training caregivers to measure children's MUAC – programme design varied widely, with some building on existing structures (such as Care Groups) and others using a stand-alone cascading training model. Respondents interviewed had used both virtual and in-person training. Caregivers were eager to monitor their children's health and clinic staff offered anecdotal reports of increased self-referrals. Respondents indicated that follow-up with caregivers after training may enhance measurement accuracy. A limited number of MUAC tapes was identified as a common challenge, thus many programmes targeted at-risk families such as those with children discharged from acute malnutrition treatment programmes.

Box 2 highlights a case study of scaling up Family MUAC in Kenya. Preliminary findings from this case study and other interviews include the following recommendations:

- Train mothers how to check for oedema in addition to measuring MUAC and integrate sensitisation on the causes of malnutrition and measures to prevent acute malnutrition.
- Engage with MUAC tape suppliers to procure sufficient tapes for wide distribution to maximise coverage. In the absence of sufficient tapes, target tape distribution to caregivers of children vulnerable to acute malnutrition (e.g., children discharged from acute malnutrition treatment programmes at risk of relapse).
- Clearly delineate the roles of community volunteers, clinic staff and caregivers in screening and referrals to streamline processes, maximise collaboration and assuage tensions.
- Prepare clinics for elevated caseloads that may result from an initial increase in self-referrals.
- Retrain caregivers who self-refer children with inaccurate measurements and encourage them to continue health-seeking behaviours.
- Family MUAC should complement, rather than replace, traditional community-based screenings and surveillance coverage.

**Figure 1** Protocol adaptations implemented for detection and treatment







**Box 2** Case study: Family MUAC in Kenya

Kenya's Ministry of Health (MoH) and the Family MUAC Task Force accelerated Family MUAC rollout in April 2020 to promote surveillance and early case identification and referral during the pandemic. Action Against Hunger Kenya and the Kenya Red Cross (KRC), in collaboration with the MoH, scaled up Family MUAC alongside organisations such as Save the Children and Concern Worldwide, with support from the Office of Foreign Disaster Assistance (OFDA), Swedish International Development Cooperation (SIDA) and UNICEF. The National Drought Management Authority (NDMA) also incorporated Family MUAC into monthly monitoring activities in July 2020 to meet on-going demands for data for drought early warning bulletins and the National Health Information System (NHIS).

The MoH, with support from the KRC, Action Against Hunger Kenya and others, trained community health volunteers (CHVs) and NDMA field monitors virtually, who then cascaded training to caregivers at home or in small groups. CHVs continuously followed up with caregivers to encourage screenings, refresh knowledge and refer malnourished children for treatment. One respondent reported that virtual training cost less than in-person training. Small group trainings allowed for social distancing but required more time and resources.

Programme staff reported widespread acceptance of Family MUAC. Caregivers appreciated assessing their children privately, as they could face stigma if a child was publicly identified as malnourished. Using colour-coded tapes was also perceived as easier than numbers-only tapes. Implementing Family MUAC also reportedly improved relationships between caregivers and staff and volunteers. Caregivers were previously concerned that staff or volunteers would favour some children in determining eligibility and became frustrated when their children were not referred or admitted due to limited knowledge of MUAC measurement and interpretation. Expanded awareness through Family MUAC mitigated these issues. Respondents also indicated that caregivers could better track their children's progress, reinforcing programme guideline adherence.

A limited number of MUAC tapes was a key constraint, requiring targeted tape distribution instead of full coverage. Respondents also warned that clinics must ensure adequate nutrition supply to cover increased caseloads. However, accuracy also remains an area for improvement, as turning caregivers away from a facility due to inaccurate self-referrals may discourage health-seeking practices. Consistent follow-up and refresher training with caregivers can improve accuracy.

Orientation of family members with MUAC measurements, Kenya



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**Box 3** Case study: Modified frequency of follow-up appointments in Ethiopia

In May 2020, Ethiopia's Ministry of Health, in collaboration with the Nutrition Cluster and the United Nations High Commissioner for Refugees (UNHCR), released guidelines for adapting community-based management of acute malnutrition (CMAM) programmes, including reduced frequency of follow-up visits. Action Against Hunger Ethiopia mainly applied these adaptations to its nutrition programmes within refugee settlements. Follow-up for children enrolled on acute malnutrition treatment programmes changed from weekly to biweekly, with larger ration sizes to cover the increased time between visits.

At first, fewer children attended their newly scheduled appointments. Staff reported caregiver confusion about the scheduling and reluctance to seek health services for fear of COVID-19. This confusion was seen primarily within refugee settlements. In contrast, surrounding host communities have stronger health extension services, ensuring clearer and more consistent messaging. Programme staff hypothesised such outreach facilitated better service utilisation within host communities as compared to settlements. Therefore, Action Against Hunger employed increased community health workers for outreach.

Staff interviewed reported anecdotal observations of increased sharing and selling of RUTF and/or RUSF, more visibly in refugee settlements than host communities likely due to increased economic needs and limited alternative livelihood options during the pandemic. Additionally, caregivers from refugee settlements reported challenges storing the rations securely, leading to unintended sharing. Staff also expressed concerns that more children were either deteriorating or recovering more slowly with less frequent clinic visits which many attributed to less opportunity to assess for and treat co-morbidities. CMAM programme data (Figure 2) shows an increase in average length of stay (LOS) in both outpatient therapeutic programmes (OTP) and targeted supplementary feeding programmes (TSFP) since the start of the pandemic although this cannot be directly attributed to the programme adaptations. Given these concerns, in July 2020, weekly follow-up appointments resumed on a case-by-case basis for children at higher risk of complications.

**Modified frequency of follow-up appointments during treatment to reduce crowding and travel**

To reduce crowding and facilitate social distancing at clinics, implementers have adapted the frequency of follow-up visits whereby caregivers return to the clinic for their child's nutritional and health assessment and ration distribution. While typical treatment programmes involve weekly follow-up visits, protocols during COVID-19 were adapted to include fortnightly or monthly visits.

Respondents indicated this approach successfully reduced crowding at clinics and demands on caregivers' time. Communities with strong health extension services reported better uptake if CHWs conducted home visits and supported families during the extended period between appointments. However, staff in multiple contexts anecdotally observed increases in the selling and sharing of nutrition products, possibly due to the larger rations distributed at each visit combined with families' livelihoods constraints. Anecdotally, respondents were also concerned that enrolled children's nutrition status may deteriorate during the longer gaps between visits, resulting in medical complications. Staff reported varied experiences in workload, some experienced a reduced workload due to fewer children at clinics, yet others experienced increased workload to accommodate scheduling and logistical support.

Box 3 captures Action Against Hunger's experience in Ethiopia implementing this modification. Preliminary findings from this case study and other interviews included the following recommendations:

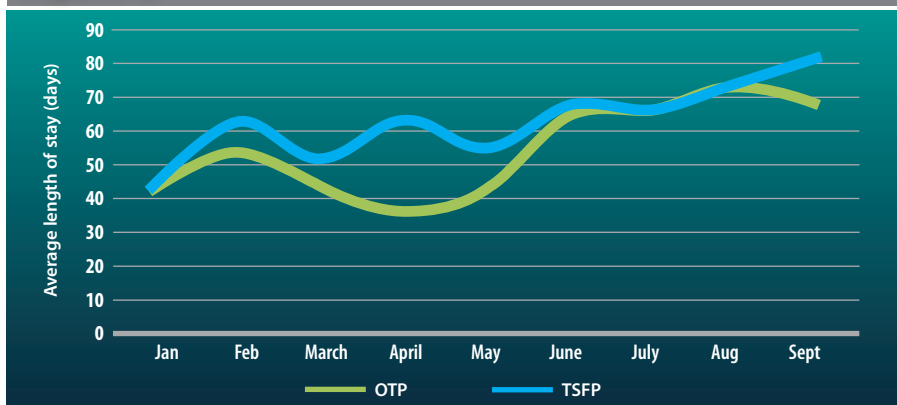
- Provide strong community sensitisation to reduce confusion among caregivers and increase uptake of new schedules.
- Explore storage alternatives for families unable to safely manage the larger ration sizes that accompany less frequent clinic visits.
- Increase home visits to ensure robust caregiver support in dosing larger rations between appointments.
- Schedule more frequent appointments for high-risk children.
- Ensure existing supply chains can support supply prepositioning to meet increased nutrition product needs to cover extended duration between visits.

**Modifying admissions/ discharge criteria to reduce risk of COVID-19 transmission**

To reduce contact between staff and children, some programmes reduced the number of anthropometric measurements taken (e.g., weight, height, MUAC and oedema) to assess admission eligibility. Adapted protocols most frequently included assessing only MUAC and oedema, while some also expanded MUAC thresholds after conducting a scoping assessment to capture children with low weight-for-height Z-scores (WHZ).



**Figure 2** Average length of stay for Nguenyiel Refugee Settlement, 2020



**Box 4** Case Study: Modified admissions criteria in Uganda

In May 2020, Uganda’s Ministry of Health and the World Food Program (WFP) released COVID-19 guidance for organisations treating acute malnutrition in the country’s refugee settlements. Among other adaptations, the guidance outlined adapted admission/discharge criteria. Uganda’s national integrated management of acute malnutrition (IMAM) protocol specifies that children should be admitted based on MUAC, WHZ or oedema. Due to COVID-19, programmes in refugee settlements suspended WHZ as a metric for newly admitted patients and expanded the MUAC threshold. Action Against Hunger Uganda implemented these modifications in five settlements.

To determine appropriate MUAC thresholds, WFP conducted a rapid assessment at three facilities. The threshold analysis demonstrated that most children typically identified as malnourished using WHZ only would be captured under a MUAC threshold expanded to 13.0 cm. Based on these results, the decision was made that a child with a MUAC between 12.5 cm and 13.0 cm would be admitted for treatment and considered “at risk.” Weight continued to be taken to calculate ration and prescription medication dosages for admitted children.

Generally, caregivers responded positively to the new admission criteria as it led to a more positive clinic experience, eliminating the normal challenges with measuring height of often frightened children. Programme staff observed a slight increase in admissions from the expanded threshold, yet still expressed concern that children with low WHZ may not be admitted. Additionally, there were reports that cases enrolled above the standard MUAC threshold of 12.4 cm were sometimes not perceived as malnourished, highlighting a need for increased sensitisation when implementing an expanded MUAC approach. With this adaptation, staff reported growth in overall workload due to increased caseloads and additional reporting.

In multiple interviews, staff cited concerns about no longer admitting children with low WHZ upon discontinuing weight and height measurements. However, staff appreciated the reduced workload associated with eliminating these measurements although this may ultimately be offset by an overall increased workload associated with expanding MUAC thresholds. Eliminating these measurements also reduced caregivers’ time at the site. Respondents interviewed expressed concerns regarding insufficient supplies to meet the increased caseload due to implementing expanded MUAC thresholds.

The case study in Box 4 highlights Action Against Hunger’s experience in Uganda implementing this adaptation. Preliminary findings from this case study and other interviews include the following recommendations:

- Consider conducting assessments and scenario planning to determine if higher MUAC thresholds would capture children otherwise identified by WHZ, as well as whether there is sufficient capacity (e.g., staffing, supplies, etc.) to meet a potentially increased caseload.
- If expanding admissions thresholds, coordinate with donors and suppliers to ensure that supply chains can meet increased needs for RUTF/RUSF and other nutrition supplies, as well as sufficient staff and space to accommodate potential caseload growth.
- Emphasise staff and community sensitisation on the revised clinical definitions of malnutrition when modifying admissions and/or discharge criteria to address a new perception of what acute malnutrition is and promote community acceptance of the changes. Also, consider the potential long-term consequences of switching thresholds, potentially back and forth, which could potentially undermine the work because of repeated redefining of what is a “malnourished” child.
- Provide additional training to staff and caregivers to ensure proper implementation of adapted classifications of at-risk or malnourished children under new criteria.
- Develop guidance for organisations implementing both expanded thresholds and Family MUAC to align MUAC cut-offs and referral processes.

**Continuing treatment of acute malnutrition when facilities are inaccessible**

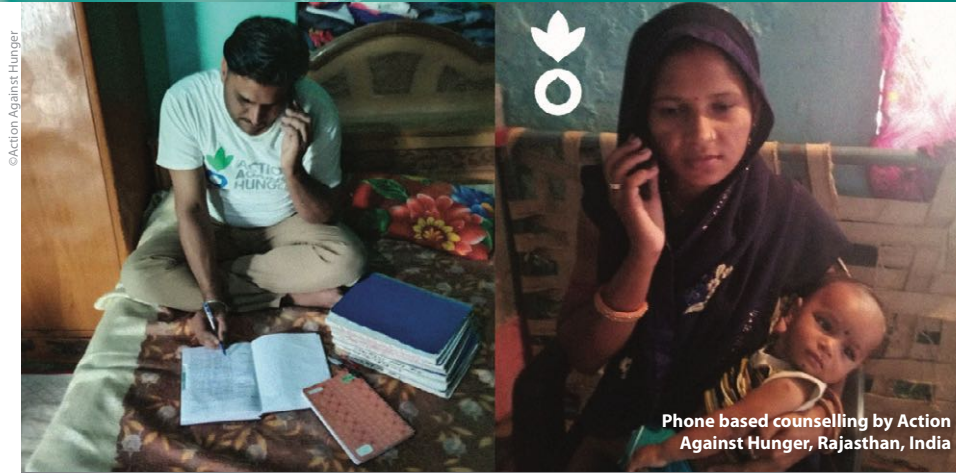
COVID-19 lockdowns and movement restrictions forced many health and nutrition providers to find alternative methods for reaching malnourished children to ensure service continuity. In locations with sufficient telecommunications infrastructures, phone and/or video calls were conducted to follow up with enrolled children and to counsel caregivers. In other locations, programme staff and CHWs conducted home visits to deliver health and nutrition services.

Overall, respondents reported that phone-based counselling allowed for continued contact with children in acute malnutrition treatment programmes despite movement restrictions. Clinic staff were sometimes able to engage with caregivers more fre-



Community Health Worker (CHW) home visit, Nepal

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Phone based counselling by Action Against Hunger, Rajasthan, India

**Box 5** Case study: treating acute malnutrition when health facilities are inaccessible in India and Nepal

In India, the government restricted movement and closed community-based clinics and other nutrition service delivery platforms for several months. To treat acute malnutrition during the mandated closures, Action Contre la Faim India (ACF-IN), among other adaptations, shifted to telephone counselling to reach children at home. ACF-IN called families directly or through other community members' phones. Phone-based counselling continued for the duration of the lockdowns and will continue for children in hard-to-reach areas or whose caregivers lack transportation.

Respondents reported that phone-based counselling successfully maintained and sometimes increased contact and was well-received. Although children identified as deteriorating were referred for treatment as available, relying on caregivers to self-assess their child's nutritional status was not ideal. The costs associated with phone-based counselling were reportedly lower than those associated with home visits; however, each individual call lasted longer. Depending on other responsibilities, adding phone-based counselling notably increased the workload of CHWs.

Although health facilities did not close in Nepal, lockdowns and travel restrictions limited mobility. In April 2020, Action Against Hunger Nepal (ACF-NE) therefore reduced the frequency of follow-up visits and engaged with caregivers over the phone to check children's status. ACF-NE coordinated with the District Administration Office and local police to allow willing caregivers to visit health facilities for follow-up visits. Additionally, ACF-NE mobilised staff to conduct home visits for those restricted from travelling to the nutrition treatment centres or reluctant to go to health facilities for fear of contracting COVID-19. During these visits, staff monitored children's progress using MUAC and distributed rations using dosage based on the last recorded weight.

Staff reported that some caregivers preferred home visits although others declined these for fear of COVID-19. Staff also expressed that conducting home visits was challenging and time consuming, particularly for children in hard-to-reach areas. The programme's low caseloads during this period (likely due to suspended community screenings) enabled this approach's success as staff could allocate more time to each child. After restrictions relaxed, caregivers were requested to resume visiting facilities for treatment.

quently, making multiple calls each week. However, limited face-to-face interactions with phone-based counselling inhibited visual assessment of a child's progress. Respondents from programmes implementing home visits reported that caregivers preferred home-based care and listed visits as essential for continuing care. Due to the time-consuming nature of individual home visits, this approach is maximised in contexts with low caseloads or increased staffing.

Box 5 highlights two approaches used by Action Contre la Faim in India and Nepal. Preliminary recommendations from these case studies and other interviews include:

- Where possible, integrate a video or photo component to tele-health visits to enable a visual anthropometry assessment.
- Ensure staff and volunteer safety while transporting supplies to children's homes. Coordinate with the district health office and other local authorities to strengthen last mile stock management.
- Facilitate open communication between community workers conducting health

visits, health facilities and local police enforcing movement restrictions to coordinate severe or deteriorating case referral.

**Conclusions**

As the pandemic continues, so will nutrition programmes continue to innovate and adapt. While data collection is expected to continue until January 2021, participants have already highlighted several key takeaways related to the most frequently implemented adaptations: Family MUAC, frequency and method of follow-up visits and modified admissions and discharge criteria. Final results from the project will be available mid-2021.

Family MUAC was the most widely implemented adaptation, with positive feedback from both caregivers and clinic staff. Respondents indicated that this approach, above all others, would likely continue beyond the pandemic. Increased supply of MUAC tapes and developing guidance and standard monitoring and evaluation indicators would facilitate successful implementation and scaling.

Reduced frequency of follow-up visits enabled staff to control crowding at sites and reduced burdens on caregivers' time. Successful implementation often relied on strong community health platforms to provide clear messaging to caregivers. Questions remain regarding the potential implications for acute malnutrition treatment outcomes. Field staff suggested including more frequent follow-up clinic or home visits for high-risk children.

Modifications to admissions and discharge criteria successfully reduced contact between staff and children. While implementing only MUAC and oedema measurements improved caregiver experience at the clinic and reduced initial staff workload, staff still expressed concerns for the lack of admissions based on WHZ. Furthermore, expanded MUAC thresholds led to an increased caseload and a need to sensitise communities on new thresholds. Staff indicated the need to conduct scenario analyses with different thresholds to maximise inclusion of at-risk children while respecting existing programme capacity (e.g., supplies, staffing, space, etc.).

Regardless of the adaptation, close collaboration and clear communication between caregivers, communities, partners and government entities are critical. Programme implementers should aim to ensure appropriate and sufficient personal protective equipment for staff to continue service provision, capitalising on virtual trainings and meetings as much as possible. Building staff surge capacity may also mitigate unexpected shifts in staffing structures due to illness or travel restrictions. Innovations and adaptability in the face of supply chain and other programmatic disruptions require flexible funding sources and partnerships. Above all, the health of children, caregivers, communities and staff remains paramount during and beyond the pandemic.

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**References**

Roberton, T., Carter, E. D., Chou, V. B., Stegmuller, A. R., Jackson, B. D., Tam, Y., Sawadogo-Lewis, T., & Walker, N. (2020). Early estimates of the indirect effects of the COVID-19 pandemic on maternal and child mortality in low-income and middle-income countries: a modelling study. *The Lancet. Global health*, 8(7), e901–e908. [https://doi.org/10.1016/S2214-109X\(20\)30229-1](https://doi.org/10.1016/S2214-109X(20)30229-1)

UNICEF, Global Nutrition Cluster, and GTAM (2020). Management of Child Wasting in the Context of COVID-19, Brief No. 1, 27 March 2020. <https://www.unicef.org/media/68286/file/Wasting-Programming-COVID19-Brief.pdf>

United Nations Children's Fund and World Health Organization. (2020). Prevention, Early Detection and Treatment of Wasting in Children 0-59 Months through National Health Systems in the Context of COVID-19. UNICEF: New York.

World Vision (2020). COVID-19 Aftershocks: Secondary Impacts Threaten More Children's Lives than the Disease Itself. <https://www.wvi.org/publications/covid-19-aftershocks-secondary-impacts-threaten-more-childrens-lives-disease-itself>



# Zambia efforts in prevention, early detection and treatment of wasting during COVID-19

By Getinet Babu, Agnes Aongola, Colleen Emary, Phyllis Oyugi, Claire Beck, Chansa Tembo



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## ZAMBIA

**What we know:** The COVID-19 pandemic and resulting movement restrictions have disrupted nutrition and health service provision in Zambia.

**What this article adds:** The emergency response plan designed to ensure adequate provision of nutrition services in response to a prolonged and severe drought in Zambia was at the conception stage when the COVID-19 pandemic began. Interventions were rapidly redesigned to include COVID-19 prevention measures and to ensure the continuation of service delivery at community-level and in nutrition centres. The government prioritised 36 districts where child wasting treatment services were initiated in 366 additional health facilities, totalling 647 of the 659 health facilities. Programme adaptations, such as the provision of personal protective equipment (PPE) and the adjustment of treatment guidelines or the strengthening of the supply chain, enabled the continuation of nutrition services for those in need and the resumption of outreach services. Between January and October 2020, a total of 6,361 children were admitted for treatment of wasting which reflects a 188% increase compared to the same period in 2019. As outreach activities resumed, the default rate in wasting treatment programmes dropped down to below 3% from 12% prior to the scale-up of nutrition services. Coverage during the child health week national campaign exceeded the targeted number of beneficiaries: over 3.5 million children under five years of age were reached, for a target of 2 million. These improved performances are thought to be due mainly to increased screening and the availability of services and the fact that the provision of PPE brought confidence to facility-based health workers and community-health workers to resume activities despite COVID-19 contamination risks. Preparatory steps are in place to initiate the screening for malnutrition by caregivers (Family MUAC approach) that will lead to the timely and early referral of children with acute malnutrition at outpatient therapeutic centres. The rapid integration of COVID-19 prevention activities into the nutrition programme, through the flexibility granted by donors to redesign project activities and the prompt implementation of these measures by partners, is regarded as a key success. A question remains as to whether or not this level of service provision will continue in the absence of further investment.

### Background

Before the first cases of COVID-19 were confirmed on March 18, 2020, Zambia was already facing a serious food insecurity and nutrition crisis within a context of a fragile health system. Due to the devastating combination of prolonged and severe drought, the Zambia vulnerability assessment committee (ZVAC)/integrated phase classification (IPC) analysis published in August 2019 identified that 60 districts (out of the total of 116) had registered a huge decline in maize production, the main staple food in Zambia, and were projected to be in IPC phase 3 (n=57) and phase 4 (n=3) between October 2019 and March 2020 (IPC, 2019). In addition, the vulnerability assessment revealed an increase in severe acute malnutrition (SAM) levels in comparison to previous years in 24 out of the 87 districts assessed (OCHA, 2019).

Of the 60 drought-affected districts classified as IPC 3 or 4, 36 were prioritised for the scale-up of malnutrition prevention

and treatment services as of March 2020, driven by the Ministry of Health (MoH) and supported by UNICEF, World Vision, People in Need and PLAN International, with the remaining 24 districts continuing to receive routine integrated management of acute malnutrition (IMAM) services led by the MoH. When the COVID-19 pandemic began, this scale-up was in its conception stage. Interventions were therefore re-designed, adding additional scope, including the allocation of additional budget to include COVID-19 prevention measures at community-level and in nutrition centres. As of October 2020, 73 districts in Zambia were designated as COVID-19 affected (with confirmed positive COVID-19 cases) including 23 of the 36 districts prioritised for scale-up of nutrition services (Figure 1). This article describes efforts to support the continuation of essential nutrition services to prevent and treat child malnutrition and prevent the spread of COVID-19 in the context of the pandemic.



**Figure 1** Districts in Zambia in IPC phase 3 and 4 & districts prioritised for scale-up of nutrition services



**Scale-up and continuity of nutrition services during COVID-19**

*Coordination*

The MoH led the coordination of the scale-up of nutrition services through the provision of key guidance and tools to health workers and the chairing of online nutrition partners meetings. This ensured that partners had a harmonised approach to the nutrition response and were updated on the latest guidance on nutrition in the context of COVID-19. All adaptations and scale-up actions detailed here were discussed and agreed upon in meetings and working sessions that included the MoH, UNICEF and implementing partners.

*Scaling up nutrition services*

In collaboration with the MoH and UNICEF, the three non-governmental organisation (NGO) partners (World Vision, People in Need and PLAN International) jointly developed a scale-up plan. Within the 36 target districts, wasting treatment services were initiated in 366 additional health facilities, adding to the 281 health facilities already providing services prior to the pandemic to cover 647 out of 659 health facilities. This ensured that wasting treatment service delivery was maintained despite the threat of COVID-19 and the resulting movement restrictions.

With UNICEF funding, the MoH and partners undertook a capacity mapping and a gap analysis in the 36 target districts (led by NGOs in 31 districts and by the MoH in five districts). These assessments identified that the capacity of health workers and volunteers was limited as a result of infrequent trainings and the absence of practical experience in implementing IMAM programmes. As a result, priority was given to improving the capacity of health workers and volunteers in IMAM and infant and young child feeding programmes as well as ensuring that appropriate infection prevention and control measures were put in place to make all stages of service delivery COVID-19 secure.

*Timely reprogramming and financing*

The allocation and availability of funds already designated for the 36 target districts, as well as additional funds from the Scaling-Up Nutrition (SUN) Movement Pooled Fund and the Foreign, Commonwealth and Development Office (FCDO),<sup>1</sup> enabled the continuation and scale-up of essential nutrition services in the context of the global pandemic. This included a share of the USD200,000 allocated from the SUN II programme<sup>2</sup> for the procurement of personal protective equipment (PPE) to support the COVID-19 response in the 73 districts that the MoH designated as COVID-19 affected. In addition,

the UNICEF funds initially assigned to the emergency response in the 36 drought-affected districts were reprogrammed to include COVID-19 prevention activities within nutrition services. A greater focus was put on Lusaka district as this was the main hotspot for COVID-19, accounting for 60% of infection cases in the country. Both the flexibility and the additional allocation of funds for COVID-19 prevention activities allowed nutrition programming to continue.

*Programme adaptations*

To balance the demands of responding directly to COVID-19 and the maintenance of essential health service delivery, the MoH and partners designed a joint set of immediate actions which were initiated in April 2020. These included the following:

<sup>1</sup> Formerly the UK Department for International Development (DFID)  
<sup>2</sup> The Scaling Up Nutrition (SUN) Programme is a cross-ministry and multi-donor programme to reduce stunting in Zambia. The National Food and Nutrition Commission (NFNC) implements SUN as part of the Government of the Republic of Zambia (GRZ) 1,000 Most Critical Days Programme. SUN 2.0, the second phase of the programme, has three major components: (1) Pooled Multi-Donor SUN Fund, (2) SUN Technical Assistance (SUN TA), and (3) SUN Learning and Evaluation. The Civil Society Alliance in Zambia, in collaboration with other SUN Networks, used SUN Movement Pooled Funds to lobby the government and to advocate for a system-wide approach to the pandemic that went beyond the health sector.



**Figure 2** Composition of the health and nutrition package of child health week

<b>Nutrition</b>
<b>Micronutrient supplementation</b> Vitamin A supplementation for children Deworming for children aged 12-59 months
<b>Growth monitoring and promotion</b> Measuring and detection of malnutrition using MUAC and weight-for-height Provision of nutrition education
<b>Infant and young child feeding</b> Promotion of age-appropriate feeding practices Counselling on recommended good practices
<b>Expanded programme on immunisation</b>
<b>Provision of catchup of immunisation for children under five years of age</b> Provision of vaccine that were missed during routine immunisation services Provision of vaccine due in the same particular month
<b>Provision of inactivated polio vaccine</b> To all children under five years of age who have never received
<b>Polio mop up using oral polio vaccine</b> 36 districts bordering Democratic Republic of Congo (DRC) and Angola
<b>COVID-19 prevention</b>
<b>Distribution of communication material and key messages on COVID-19</b> <b>Reinforcing COVID-19 prevention measures</b> <b>Distribution of soap</b>

**Introducing specific COVID-19 measures**

Programme adaptations were introduced to wasting treatment services to comply with standard infection prevention control measures such as using PPE, strengthening hygiene practices and establishing community-based delivery platforms to handle movement restrictions. Community health workers (CHWs) and clinical staff received training in infection prevention control protocol measures by MoH, UNICEF and partners, including maintaining physical distancing, hand and respiratory hygiene and the cleaning and disinfection of equipment and the environment. The MoH, in coordination with UNICEF and other partners, including World Vision, provided PPE to all health facilities, including face masks, gloves, hand sensitiser, infrared thermometers and hand washing stations. Materials were also provided to CHWs for use during outreach activities, including boots and aprons. It was observed that the provision of PPE and supplies brought confidence to facility-based health workers and CHWs to continue to provide nutrition services in this new context. In addition, caregivers were instructed to bring their own cloths to use as weighing pants and mid-upper arm circumference (MUAC) tapes were disinfected between measurements.

**Adjusting the IMAM guidelines**

Rapid and temporary adjustments were made to wasting treatment protocols in the Zambia IMAM guidelines to enable necessary programme adaptations to continue treatment services. This included adaptations to the ration schedule for ready-to-use therapeutic food (RUTF) to cover longer periods whereby children with SAM without medical complications were given RUTF supplies to cover two weeks at a time, rather than one week. This helped to minimise overcrowding and reduced the frequency of caregivers' visits to nutrition sites to reduce the risk of COVID-19 transmission.

**Introducing the Family MUAC approach**

To increase screening coverage, health workers and volunteers were trained how to take MUAC

measurements for the detection of wasting and how to subsequently train caregivers to screen for wasting themselves (Family MUAC). The Family MUAC approach began being rolled out in December 2020 (later than anticipated due to initial shortages of MUAC tapes) and is anticipated to lead to the timely and early referral of children with acute malnutrition to wasting treatment services, at the same time as reducing the risk of COVID-19 transmission between volunteers and caregivers and their children.

**Resuming outreach services**

There was an initial drop in referrals of malnourished children to nutrition centres in the early stage of the pandemic, due to the temporary suspension of outreach services from March to June 2020 as well as caregivers fearing attending health facilities. These issues also led to suboptimal follow-up and increases in defaulting. When PPE became available, outreach services resumed and caregivers gained the confidence to attend health centres again. The district health office was also supported to develop plans to strengthen outreach and monitoring activities. This included provision of transport to facilities with remote outreach locations, provision of a stipend to volunteers who conducted community sensitisation activities and training, supervision and mentoring for CHWs. Through this programme, over 300 health workers and 721 CHWs were trained on programme adaptations.

As field monitoring was a challenge in the context of COVID-19, remote monitoring methods were adopted. The remote monitoring tools developed by UNICEF in response to the pandemic were tested and refined prior to rollout. In areas with good internet access, an online form was used. Where internet access was poor (five districts), information was collected through phone calls made by the district nutritionist to facility-based staff. A WhatsApp group provided a way to provide feedback and share reports for those who were experiencing network challenges. Key challenges of remote monitoring methods were

delays in the submission of monitoring information and poor network coverage in some districts.

**Ensuring a functional supply chain**

The quick actions taken by MoH and partners to procure and donate PPE to each health facility gave health workers the confidence to continue the provision of basic health and nutrition services. In addition, efforts were taken to ensure sufficient RUTF supply with effective prepositioning of stocks in all districts. Health facilities were encouraged to monitor and timely report on their RUTF stock levels to help prevent stock-outs.

**Ensuring continuity of the child health week campaign**

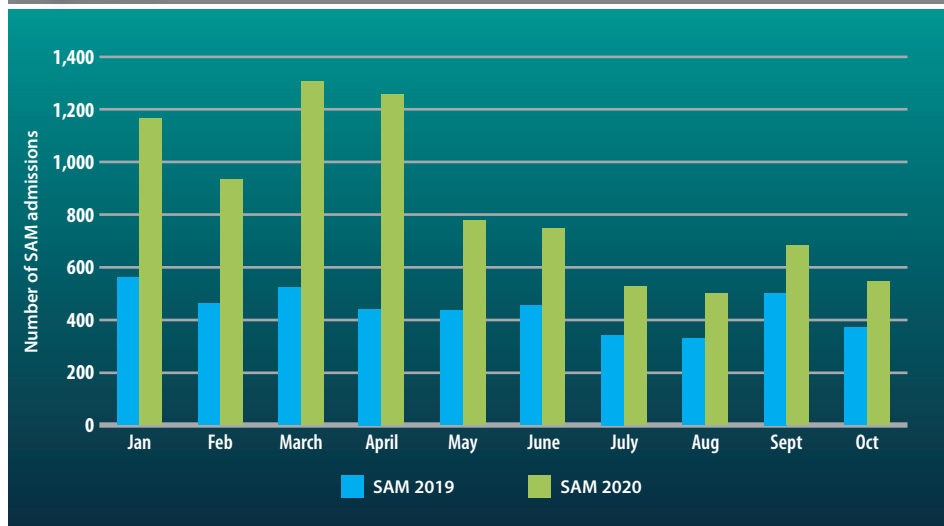
Zambia, like many other countries, faced challenges in safely maintaining access to essential health services due to pressure on the health delivery system created by the COVID-19 pandemic. However, thanks to high community-level mobilisation and engagement, the child health week campaign (22-27 June 2020) was successfully implemented, ensuring the provision of major life-saving vaccinations and services. COVID-19 prevention measures in the context of child health week included use of a no-mouth touch approach for vitamin A supplementation, physical distancing with additional staffing for crowd control and the provision of handwashing



MUAC measurement of young child at Maramba clinic, Zambia

Maramba clinic, Zambia, 2020

**Figure 3** Number of monthly admissions for treatment of wasting before (2019) and during (2020) COVID-19 pandemic



supplies. Services provided during the child health week are presented in Figure 2.

In addition to routine child health week activities – vitamin supplementation, deworming tablet, tetanus shots, provision of soap for handwashing – all caregivers and all mothers were reached with COVID-19 prevention awareness messages, along with lessons on safe motherhood and newborn care. The child health week campaign offered an opportunity to ensure that basic health services reached all targeted children especially those who do not benefit from routine health services.

### Achievements

The rapid introduction of temporary adaptations to wasting treatment services was critical to ensure continued access to services in the context of the COVID-19 pandemic. It was observed that the provision of PPE and supplies brought confidence to facility-based health workers and CHWs to continue to provide nutrition services for those in need and enabled the rapid restarting of outreach services. Early transportation of RUTF to the health facilities helped to reduce RUTF stock-outs which enabled the continuation of wasting treatment services without interruption.

As a result of these adaptations, nutrition screening and treatment activities continued under COVID-19. Between January and October 2020, a total of 105,185 children were screened for wasting. Programme admission data in the 36 target districts indicate that a total of 6,361 children were admitted for treatment of wasting which reflects a 188% increase in admissions of wasted children compared to the same period in 2019 (Figure 3) (MoH, 2019 and MoH, 2020a). While it is expected that the drought conditions contributed to an increase in wasting cases, it is speculated that the increase in admissions is mainly due to increased screening and the availability of services, as outreach activities do not currently function well in routine IMAM services.

The defaulter rate for outpatient treatment of severe wasting treatment was 12% prior to

the scale-up of nutrition services in the 36 prioritised districts, most likely a reflection of disrupted outreach activities due to COVID-19. In recent months, as outreach activities resumed, the default rate has dropped down to below 3%.

Maintaining the implementation of the child health week also demonstrated that it was possible to continue to deliver health and nutrition services while ensuring the safety of health workers and communities in the context of COVID-19. Despite occurring within the context of COVID-19, the coverage during this national campaign exceeded by far the targeted beneficiaries: over 3.5 million children under five years of age were reached, for a target of 2 million. This 178% coverage indicated a highly successful effort (MoH, 2020b).

### Conclusions

The rapid integration of COVID-19 prevention activities into the nutrition programme, through the flexibility granted by donors to redesign project activities and the prompt implementation of these measures by partners, is a key success. A question remains as to whether or not this level of service provision will continue in the absence of further funding investments. The government’s investments in routine services exist but do not cover the full package of services, or do not cover all health facilities and outreach services. It is anticipated that treatment services will continue to be available in the facilities as part of the basic health service package; however, screening and outreach activities will probably not be sustained without additional funding.

Challenges also remain regarding supervision and data management. Innovative monitoring and reporting approaches need to be examined jointly by nutrition partners in order to increase health facility reporting despite poor internet network coverage in some areas of the country. In addition, it is important to better understand the implications of COVID-19 adaptations on routine indicators and wasting treatment outcomes, as the reduction in frequency of visits

might negatively impact on the average length of stay and weight gain indicators. The definition of ‘defaulter’ also needs to be adapted to take into consideration the reduced frequency of visits. These are questions that need to be considered by the MoH and its partners when reviewing the routine programme monitoring data.

During the upcoming rainy season, the risk of flooding is expected to increase, affecting the north and north-eastern parts of the country, leading to disruptions to programme delivery. In preparation for these disruptions, more outreach sites should be added to continue the provision of services in the event that access to health facilities is cut off. Access to affordable, nutritious foods for maternal diets and adequate complementary feeding for young children remain severely threatened by the loss of income for the most vulnerable households. To address this challenge, government, development partners and the donor community should continue to invest in livelihood programming to prevent undernutrition while continuing wasting treatment services for all who need them. While these initial scale-up efforts have focused on the treatment of wasting, nutrition implementing partners and the MoH should strengthen the implementation of additional essential nutrition actions for the prevention of malnutrition including strengthening services for the promotion, protection and support of infant and young child feeding.

As this article is being finalised, COVID-19 cases are continuing to rise as are the number of districts reporting COVID-19 infections (from 68 in September 2020 to 96 in November out of 116 districts countrywide). Adding up the socio-economic impacts of COVID-19, the depreciation of the Zambian kwacha and the continued rise in acute food insecurity, serious concerns remain for the health and nutrition status of women and children in Zambia.

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### References

IPC. (2019). Zambia: integrated food security phase classification - Acute Food Insecurity May - September 2019 and Projection for October 2019 - March 2020. [https://reliefweb.int/sites/reliefweb.int/files/resources/IPC\\_Zambia\\_Acute%20Food%20Insecurity\\_2019May2020March.pdf](https://reliefweb.int/sites/reliefweb.int/files/resources/IPC_Zambia_Acute%20Food%20Insecurity_2019May2020March.pdf)

MoH. 2019. Zambia MoH Ministry of health routine IMAM data 2019. and 2020

MoH. 2020a. Zambia Ministry of health routine IMAM data 2020.

MoH. 2020b. Zambia child health week preliminary data 2020.

OCHA. (2019). Zambia humanitarian response Appeal October 2019 - March 2020. United Nations Office for the Coordination of Humanitarian Affairs, published 24 Oct 2019. <https://reliefweb.int/report/zambia/zambia-humanitarian-appeal-october-2019-march-2020>

WHO. (2020). Maintaining essential health services: operational guidance for the COVID-19 context: interim guidance, 1 June 2020. World Health Organization. <https://apps.who.int/iris/handle/10665/332240>. License: CC BY-NC-SA 3.0 IGO

Zambia Vulnerability Assessment Committee Results. (2019). <https://reliefweb.int/report/zambia/zambia-vulnerability-assessment-committee-results-2019>



Caregiver receiving MUAC training

GOAL, Ethiopia

## ETHIOPIA

**What we know:** There is growing evidence of the effectiveness of mid-upper arm circumference (MUAC) in identifying infants under six months at increased risk of mortality but no globally agreed thresholds yet exist for this age group which limits community-based screening.

**What this article adds:** In response to the COVID-19 pandemic, GOAL adapted its community-based Management of At-risk Mothers and Infants under 6 months (MAMI) programme in Gambella, Ethiopia by introducing the Family MUAC approach to enable home-based screening of infants under six months and a new type of reversible MUAC tape, specially adapted for the screening of infants under six months of age. Following implementation, the average number of monthly referrals increased (from 11.6 infants pre-training to 19.1 post-training). Pre-training, monthly outreach contributed to most referrals (average 77.0%) and there were no self-referrals. Post-training, the average monthly outreach referrals reduced to 45.3% and self-referrals increased to 41.4%. Measurement accuracy analysis showed that most caregivers trained by Community Outreach Agents (COAs) correctly identified the MUAC of their infants. Based on these results, GOAL will explore the feasibility of moving to using Family MUAC alone for the screening of infants under six months of age.

# Implementing the Family MUAC approach for infants under six months in the context of COVID-19 in Ethiopia

By Ritu Rana, Hatty Barthorp, Mary T Murphy and Alemayhu Beri



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### Background

The measurement of mid-upper arm circumference (MUAC) by caregivers is a promising approach to improve the frequency and coverage of screening and case identification of child wasting (Bliss *et al.*, 2018; Blackwell *et al.*, 2015). Although measurement of MUAC by community health workers (CHWs) and caregivers has proven to be effective, evidence suggests that it does require adequate operational support, training and supervision (Bliss *et al.*, 2018). While MUAC has been tested and is increasingly used for children aged 6 to 59 months, there are currently no globally established MUAC thresholds to identify at-risk infants under six months of age. There is growing evidence of its effectiveness in identifying infants at increased risk of mortality in several African countries (Mwangome *et al.*, 2012; Lelijveld *et al.*, 2017). However, the accuracy and reliability of MUAC measurements by caregivers in this age group is unknown.

Since 2014, GOAL has been implementing the Management of At-risk Mothers and Infants under six months (MAMI)<sup>1</sup> programme in four refugee camp sites in Gambella, Ethiopia – *Kule-1, Kule-2, Tierkidi-1 and Tierkidi-2* (Burrell *et al.*, 2020). Since 2016, CHWs – called Community Outreach Agents (COAs) locally – have screened infants under six months of age using standard MUAC tapes designed to measure children aged 6 to 59 months. In response to the COVID-19 emergency, GOAL introduced multiple adaptations to its MAMI programme, guided by the 2020 World Health Organization (WHO) and UNICEF implementation guidance for the early detection of malnutrition in infants aged 0 to 6 months in the context of

COVID-19 (UNICEF, 2020). This guidance recommends the use of MUAC as a 'reduced physical contact' approach for identifying nutritional risk in infants under six months of age using the following thresholds: <11.0 cm for 0-6 weeks and <11.5 cm for 7 weeks to 6 months (UNICEF, 2020).

From March 2020, the Family<sup>2</sup> MUAC approach was introduced to enable home-based screening of infants in the community, in addition to existing screening by COAs. A specially designed MUAC tape<sup>3</sup> called MAMI-MUAC (Figures 1a and 1b), developed by GOAL in 2019, was introduced for use by both caregivers and COAs. Tapes are reversible (one side is used for infants under six months and the other is used for older children and pregnant and lactating women) with two versions available – one enumerated for use by COAs (Figure 1a) and the other non-enumerated for use by caregivers (Figure 1b). This article shares the experiences of implementing the Family MUAC approach for infants under six months in the Gambella refugee camps, Ethiopia.

### Implementation of the Family MUAC approach for infants under six months *Training of COAs and caregivers (steps one and two)*

The training was conducted in two phases across all four camp locations – COAs in March 2020 and caregivers of infants under six months in May 2020. The GOAL MAMI supervisor trained a maximum of 30 COAs per session, after which they began using

<sup>1</sup> <https://www.ennonline.net/ourwork/research/mami>

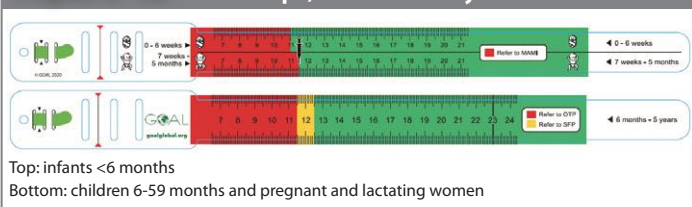
<sup>2</sup> The term family includes mothers and/or caregivers

<sup>3</sup> A pdf of the MAMI-MUAC tapes is available to download at [www.ennonline.net/mamimuaactapes](http://www.ennonline.net/mamimuaactapes)

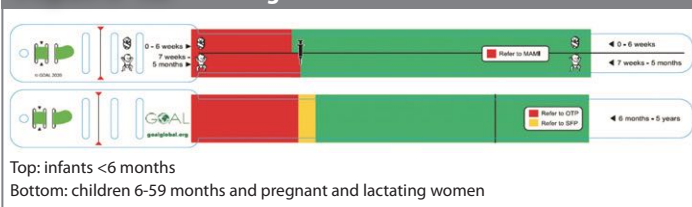




**Figure 1a** Enumerated, colour-coded reversible MAMI-MUAC tape, for community health workers



**Figure 1b** Non-enumerated reversible MAMI-MUAC tape for caregivers



**Figure 2** Implementation steps



**Table 1** Number of COAs and caregivers trained, overall and by camp

Camp and site	Total COAs	Number of COAs trained	% COAs trained	Total eligible* caregivers	Number of caregivers trained	% Caregivers trained
Kule-1	31	29	93.5	365	365	100.0
Kule-2	32	24	75.0	401	402	100.0
Tierkidi-1	31	30	96.8	281	281	100.0
Tierkidi-2	31	29	93.5	242	242	100.0
<b>Total</b>	<b>125</b>	<b>112</b>	<b>-</b>	<b>1289</b>	<b>1289</b>	<b>-</b>
			<b>Average 89.7%</b>			<b>Average 100.0</b>

\*Families with infants under six months

**Table 2** Sample size for first follow up assessment

Camp and site	Total COAs	Selected COAs	% COAs covered	Total eligible* caregivers	Selected eligible caregivers	% Caregivers covered
Kule-1	31	29	93.5	365	173	47.4
Kule-2	32	20	62.5	401	119	29.7
Tierkidi-1	31	23	74.2	281	137	48.8
Tierkidi-2	31	21	67.7	242	126	52.1
<b>Total</b>	<b>125</b>	<b>93</b>	<b>-</b>	<b>1289</b>	<b>555</b>	<b>-</b>
			<b>Average 74.5</b>			<b>Average 44.5</b>

\*Families with infants under six months

**Table 3** Validity of screening using MAMI-MUAC tapes during first follow-up assessment

Results of screening test (measure by caregivers)	True risk status (measure by COAs)	
	Positive (red)	Negative (green)
Positive (red)	a	b
Negative (green)	c	d
<b>Total</b>	<b>a + c</b>	<b>b + d</b>

a = infants who are at-risk of malnutrition and were identified in the red category by the MAMI-MUAC tapes (true positive)  
 b = infants who are not at-risk of malnutrition but were identified in the red category by the MAMI-MUAC tapes (false positive)  
 c = infants who are at-risk of malnutrition but were identified in the green category by the MAMI-MUAC tapes (false negative)  
 d = infants who are not at-risk of malnutrition and were identified in the green category by the MAMI-MUAC tapes (true negative)  
 Sensitivity = a/a + c and Specificity = d/b + d

**Table 4** Sample size for second follow up assessment

Camp and site	Total COAs	Selected COAs	% COAs covered	Total eligible* caregivers	Selected eligible caregivers	% Caregivers covered
Kule-1	31	29	93.5	365	174	47.4
Kule-2	32	23	71.9	401	138	29.7
Tierkidi-1	31	30	96.8	281	180	48.8
Tierkidi-2	31	27	87.1	242	162	52.1
<b>Total</b>	<b>125</b>	<b>93</b>	<b>-</b>	<b>1289</b>	<b>654</b>	<b>-</b>
			<b>Average 80.6</b>			<b>Average 53.2</b>

\*Families with infants under six months

the tapes in the community. COAs then trained caregivers in a series of short, house-to-house training sessions respecting infection prevention control (IPC) measures. The number of COAs and caregivers trained are presented in Table 1. Each caregiver was given their own MUAC tapes and all tapes used by COAs and caregivers were wiped with soap and water solution before each measurement.

*First follow-up assessment (step three)*

The first follow-up assessment was carried out in July 2020, two months post-training of caregivers. During the assessment, caregivers' screening performance was assessed by comparing it with that of the COAs. A sample population was selected for assessment while respecting IPC measures (Table 2). Follow up with all the COAs and around a third of the caregivers was planned but several COAs were absent on the day of assessment. For each of the caregivers and the COAs included in the sample, detailed information on the following case identifications was also collected – true positive, true negative, false positive and false negative – to calculate the sensitivity and specificity of their measurements (Table 3).

*Second follow-up assessment (step four)*

The second follow-up training was carried out in November 2020, six months post-training of the caregivers. During this assessment, caregivers' screening performance was re-assessed using the same methodology as in the first assessment. The sample size is presented in Table 4. Additionally, using a simple checklist, we also collected information on caregivers' experience of using the MAMI-MUAC tape including on the tape's wear and tear, its place of storage, any reported confusion over using the tape, frequency of screening and any barriers to referral to management services.

*Referrals to MAMI programme for enrolment*

In order to ascertain whether there had been a change in the origin and proportions of case referrals, we analysed case referrals following Family MUAC training. We extracted enrolment data from the MAMI programme database<sup>4</sup> where MAMI referrals were recorded as follows: self-referral (referral by caregivers), outreach referral (referral by COAs), health facility referral, inpatient referral and monthly screening referral. We compared average monthly referrals pre-training (May 2019-April 2020) and post-training (May 2020-December 2020).

**Findings**

*Coverage and performance of caregivers in measuring infants*

Overall, 112 COAs (89.7%) and 1,289 caregivers with infants under six months of age (100%) received the training (Table 1). Sensitivity and specificity of screening by caregivers at first and second follow-up are presented in Table 5. Two months post-training (first follow-up) the sensitivity and specificity was 100% and 98.6%, respectively. Six months post-training (second follow-up), sensitivity was 88.9% and specificity was 96.2%.

<sup>4</sup> MAMI programme database was maintained since May 2019

**Table 5** Sensitivity and specificity of screening test by caregivers during first and second follow-up assessment

First follow-up assessment			
COA vs mothers		True disease status (measure by COAs)	
		Positive (red)	Negative (green)
Results of screening test (measure by caregivers)	Positive (red)	42	7
	Negative (green)	0	506
	Total	42	513
Sensitivity = 42/42 = 100%		Specificity = 506/513 = 98.6%	
Second follow-up assessment			
COA vs mothers		True disease status (measure by COAs)	
		Positive (red)	Negative (green)
Results of screening test (measure by caregivers)	Positive (red)	40	23
	Negative (green)	5	586
	Total	45	609
Sensitivity = 40/45 = 88.9%		Specificity = 586/609 = 96.2%	

**Implications for case enrolment**

Overall, the total number of referrals increased after Family MUAC training (Figure 3) – average monthly referrals pre-training was 11.6 and this increased to 19.1 post-training. Pre-training, average monthly outreach referrals contributed to most of the referrals (77.0%) and there were no self-referrals. Post-training, average monthly outreach referrals reduced to 45.3% while average monthly self-referrals contributed to 41.4% of total referrals.

**Caregivers’ experiences of MAMI-MUAC tapes**

During the second follow-up assessment we asked caregivers about their experiences of using the MAMI-MUAC tapes. Findings showed that 56% of caregivers reported no wear and tear at all, 67% reported no confusion while using the tapes and 93% reported no barriers to referring their infants. Of caregivers who experienced wear and tear of tapes, it transpired that this was minimal and was mainly reported as the folding of the tape from the corners and in the middle due to its place of storage. The functionality of the tape was not considered to be affected. Of caregivers who reported confusion while using the tapes, the majority reported this was related to the reversible nature of the tapes. Regarding the storage of tapes, the majority (65%) stored tapes in a bag, one fifth of caregivers (19%) kept the tape on the table, the wall or on the front of

the door, 4% kept it in a book and 2% reported having lost the tape. Regarding the use of tapes, the majority reported using it weekly (69%), 7% monthly, 12% every 15 days and 12% daily.

**Discussion**

Even during a pandemic, a high coverage of training was achieved (>90%) for both COAs and caregivers of infants under six months of age. The majority of caregivers trained by COAs correctly identified the MUAC of their infants; this was sustained six months post-training. Our findings also show that a substantial proportion of caregivers are actively screening and self-referring their infants, despite the community also benefiting from widespread, continual, active case finding in the community by COAs. This implies that they are engaged and motivated to play an active role in their infant’s wellbeing through early case identification and referral.

Screening of infants under six months of age using MAMI-MUAC tapes by both COAs and caregivers appears to be a feasible and effective approach, accounting for a major proportion of total enrolments between May and December 2020 (Figure 3). This means, in the absence of such training, and without the use of the MUAC tool, it is plausible that many of these ‘at-risk’ cases who need support would be missed. This highlights the value of MUAC screening in the context of COVID-19. Although we did not attempt to statistically validate our findings, our

data could be useful to other organisations who are interested in implementing a similar approach. Our findings demonstrate that the MAMI-MUAC tape can function well when appropriate training and supervision are provided.

Nine months following the implementation of the Family MUAC approach alongside the use of MUAC by COAs, we plan to explore the feasibility of moving to using Family MUAC alone for the screening of infants under six months of age. This would reduce physical contact between health workers and beneficiaries and thus the risk of COVID-19 transmission. Additionally, the time saved by health workers could be utilised to provide other services such as community-based nutrition education or counselling, absentee and defaulter tracing and programme monitoring. The feasibility of this approach will be examined and documented.

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More information can also be found at: GOAL (2020). MAMI mid-upper arm circumference (MUAC) tapes.

[www.ennonline.net/mamimuactapes](http://www.ennonline.net/mamimuactapes)

GTAM Conversations on how programmes are adapting in light of COVID-19: Implementing the Family MUAC approach in Gambella, Ethiopia. <https://www.ennonline.net/medi-ahub/podcast/gtamconversationsmuacethiopia>

**References**

Blackwell, N., Myatt, M., Allafort-Duverger, T., Balogoun, A., Ibrahim, A., & Briend, A. (2015). Mothers Understand And Can do it (MUAC): a comparison of mothers and community health workers determining mid-upper arm circumference in 103 children aged from 6 months to 5 years. Archives of public health = Archives belges de sante publique, 73(1), 26. <https://doi.org/10.1186/s13690-015-0074-z>

Bliss, J., Lelijveld, N., Briend, A., Kerac, M., Manary, M., McGrath, M., Weise Prinzo, Z., Shepherd, S., Marie Zagre, N., Woodhead, S., Guerrero, S., & Mayberry, A. (2018). Use of Mid-Upper Arm Circumference by Novel Community Platforms to Detect, Diagnose, and Treat Severe Acute Malnutrition in Children: A Systematic Review. Global health, science and practice, 6(3), 552–564. <https://doi.org/10.9745/GHSP-D-18-00105>

Burrell A, Barthorp H. (2020). GOAL’s experiences of management of at-risk mothers and infants (MAMI) programming in Ethiopia. Field Exchange 62.

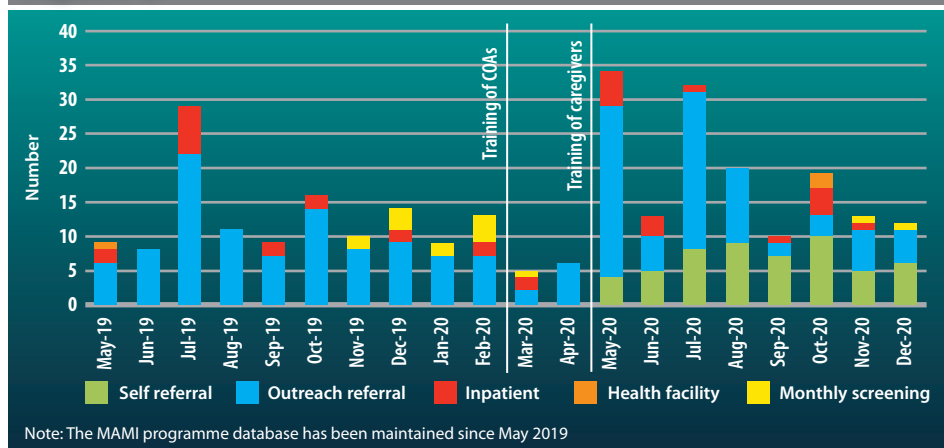
Lelijveld N, Kerac M, McGrath M, Mwangome M and Berkley J A. (2017). A review of methods to detect cases of severely malnourished infants less than 6 months for their admission into therapeutic care. ENN, The Child Acute Illness and Nutrition Network and LSHTM.

Mwangome, M. K., Fegan, G., Mbunya, R., Prentice, A. M., & Berkley, J. A. (2012). Reliability and accuracy of anthropometry performed by community health workers among infants under 6 months in rural Kenya. Tropical medicine & international health : TM & IH, 17(5), 622–629. <https://doi.org/10.1111/j.1365-3156.2012.02959.x>

Rana R, Barthorp H, Murphy MT. (2020). Leaving no one behind: Community Management of At-risk Mothers and Infants under six months (MAMI) in the context of COVID-19 in Gambella refugee camps, Ethiopia. World Nutrition 11(2):108-20.

United Nations Children’s Fund and World Health Organization. (2020). Prevention, Early Detection and Treatment of Wasting in Children 0-59 Months through National Health Systems in the Context of COVID-19. UNICEF: New York.

**Figure 3** Monthly referrals pre and post Family MUAC training



# Use of RapidPro for remote collection of nutrition data during the drought emergency and COVID-19 pandemic in Zimbabwe

By Nakai Munikwa, Pauline Tsikayi, Desire Rwodzi, Mara Nyawo and Mathieu Joyeux



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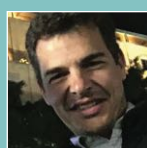


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The authors would like to thank all those who contributed information to this article including the Ministry of Health in Zimbabwe, the UNICEF Zimbabwe nutrition team and Nutrition Cluster partners. Most importantly, we would like to thank the dedicated health personnel in Zimbabwe, at both facility and community level, for their continuous monitoring and reporting through this system which allowed the timely identification of and treatment for malnourished children. We are also grateful to the United Nations Central Emergency Response Fund (CERF) and European Civil Protection and Humanitarian Aid Operations (ECHO) who funded this initiative, for their generous and continued contributions.

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of UNICEF and the Zimbabwe Ministry of Health and Child Care.

Baby (9 months) is measured for malnutrition by Unicef volunteers at a food distribution point in Manzwire village, Zimbabwe



## ZIMBABWE

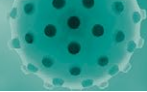
**What we know:** The COVID-19 pandemic and resulting movement restrictions have challenged the collection of routine nutrition monitoring data, limiting the ability of countries to identify changes in the nutrition situation.

**What this article adds:** The RapidPro data management system enabled the continuation of routine nutrition data collection in Zimbabwe in the COVID-19 context. A number of indicators were selected for weekly (instead of monthly) reporting in nutritionally vulnerable, drought prone districts. Village health workers (VHWs) and health facility staff were prompted weekly to submit data via the mobile phone short messaging service (SMS) which were automatically collated via RapidPro software and analysed regularly at national level. A national level monitoring and evaluation officer responsible for quality control followed up with districts and health staff if data discrepancies were noted. To date, over 9,146 VHWs provide reports using the RapidPro system; on average, 70% of responses were complete and correct. This system enabled near real-time screening data (Family mid-upper arm circumference (MUAC)) and information on ready-to-use therapeutic feeding (RUTF) supplies that were used by the Nutrition Cluster for decision making and response planning to support continued wasting treatment services. Successful scale-up of RapidPro was as a result of strong government leadership, the inclusion of RapidPro activities in Ministry of Health activity plans and integration with national nutrition reporting systems. In due course, this data will be automated to feed directly into the Demographic Health and Information Survey version two (DHIS2) data management platform.

## Background

An effective emergency response relies on timely and accurate data to inform prompt and evidence-based decision making and programming. During the emergency response to Cyclone Idai in Zimbabwe in 2019, RapidPro software (Box 1) was used to facilitate the remote collection of nutrition data in two districts of the country. Following this success, plans were being made to re-initiate the use of this technology at the start of 2020 in the light of predicted back-to-back droughts and poor grain harvests. As re-deployment of RapidPro was being prepared, the COVID-19 pandemic took hold, resulting in movement restrictions

across the country put in place to mitigate the spread of the virus. This had an immediate impact on the delivery of nutrition services and the routine collection of nutrition monitoring information, creating challenges for effective decision-making by the government, Nutrition Cluster and partners. In response, plans were made by the Zimbabwean Ministry of Health and Child Care (MoHCC), with technical and financial support from UNICEF Zimbabwe supported by the Nutrition Cluster, to scale up the use of RapidPro technology to 27 priority districts (wider than initially planned) to support the continuation of nutrition delivery services within this new challenging operational environment.



**Box 1** RapidPro

RapidPro is an open source software that allows for the collection of data via text messaging services (short messaging services (SMS)). The SMS facility is widely available on all types of phones and the platform does not require an active internet connection, making it a feasible approach in areas of limited internet coverage. For nutrition programmes, RapidPro is able to provide weekly geo-referenced data for the monitoring of nutrition programme caseloads, coverage of implemented activities and the use of and need for nutrition resources, including nutrition supplies such as ready to use therapeutic food (RUTF) and multiple micronutrient powders (MNPs).

RapidPro was developed by ONA,<sup>1</sup> a social enterprise that builds data infrastructure to enable data driven decision-making. RapidPro can be integrated with the ONA platform to enable data validation, analysis and visualisation. ONA can also register users who are able to create new or update contact information for respondents and access information as it is being received.

In Zimbabwe, the routine nutrition information system is embedded into the District Health Information System version two (DHIS2). Within this system, routine nutrition data, including clinic-based growth monitoring and village health worker (VHW) data, are recorded on paper monthly and then sent to a District Health Officer who enters it into the DHIS2 system. Within this system, it takes around one month from reporting for data to be available. An automated system already exists for weekly disease surveillance in the country, using a two-way mobile messaging system to monitor disease and report events by health facilities. In this system, data are transmitted via the short messaging service (SMS) to a central server from where it is automatically transferred to DHIS2. However, nutrition information is not currently integrated within this system. RapidPro is not intended to replace the routine nutrition information system, but to fast track data flow from frontline workers to national level. In due course, the intention is to feed RapidPro data into the DHIS2 system to ensure MoHCC ownership and avoid duplication. This article describes the process of planning, preparation and implementation of RapidPro and presents the results of data collection between April and October 2020 and lessons learnt.

**Planning for use of RapidPro**

Prior to the scale-up of the RapidPro system, a

mapping exercise of existing information management systems was conducted by Nutrition Cluster members, led by the MoHCC and the Nutrition Cluster Coordinator. This was an important first step to avoid duplication of efforts, identify areas for potential integration and explore current information gaps that could be addressed by the use of the RapidPro system. Gaps identified in this exercise included a lack of near real-time nutrition data for use in emergency responses, a lack of data on children admitted with moderate acute malnutrition (MAM) and children reached with multiple micronutrient powders (MNPs). Following this, 27 districts were prioritised for implementation of RapidPro. This was achieved through the ranking of all 63 districts by severity of drought impact according to key nutrition indicators (prevalence estimates of stunting and wasting of children aged 6 to 59 months and estimates of minimum acceptable diet of children aged 6 to 23 months). Twenty five of the most affected districts were identified and two additional 'hotspots' were added based on rising rates of wasting.

**Selection of indicators**

The number of nutrition indicators collected was streamlined from the routine list of indicators to include high frequency indicators at health facility and community level that had potential to provide trend data (Box 2). Streamlining took place to avoid overloading health workers

and reporting processes while allowing the ongoing monitoring of trends at facility level and early identification of hotspot areas. Data on the status of supplies for health facilities were also collected to ensure no stock-out of life-saving nutrition supplies and emergency orders for facilities with fast depleting stocks. The frequency of collection of these indicators was increased from monthly to weekly during the implementation period.

**Capacity building of health staff**

The MoHCC and national level partners were already familiar with the RapidPro process from previous training that had been cascaded to district level within the nutrition, health information and information technology government departments. To support the 2020 deployment of RapidPro, short refresher trainings were conducted at national level with support from UNICEF Zimbabwe which were then cascaded to priority districts. Refresher trainings enabled a similar level of understanding of the system and its functioning at national, provincial and district levels. From the districts, trainings were then cascaded to health facility staff and then on to VHWs using a training-of-trainers approach. Most of these trainings were carried out before the COVID-19 movement restrictions were imposed. After COVID-19 movement restrictions were in place, some trainings were carried out using online platforms and, where this was not possible, infection prevention and control measures were put in place to enable face-to-face training. Job aids were also developed in relation to the RapidPro system to be used by the nutritionists, health information officers and VHWs.

**Data collection and validation**

Following deployment of the new system, on a weekly basis, when prompted through messages, VHWs and health facility staff sent data for the selected indicators via SMS to a short-code. The system was designed to make VHW reporting as simple as possible given the general level of

<sup>1</sup> <https://ona.io/home/>

**Box 2** High frequency indicators selected in Zimbabwe for monitoring with RapidPro

**Health facility level indicators**

- Number of children (6-59 months) screened for wasting using mid-upper-arm circumference (MUAC) and weight for height z-score (WHZ)
- Number of children with severe wasting (disaggregated by sex)
- Number of children with moderate wasting (disaggregated by sex)
- Number of children who received vitamin A supplement (disaggregated by sex)
- Number of children who received multiple micronutrient powders (MNPs) (disaggregated by sex)
- Number of caregivers of children under two years of age who were reached with infant and young child feeding (IYCF) messages
- Number of sachets of ready-to-use therapeutic foods (RUTF) in stock at the health facility

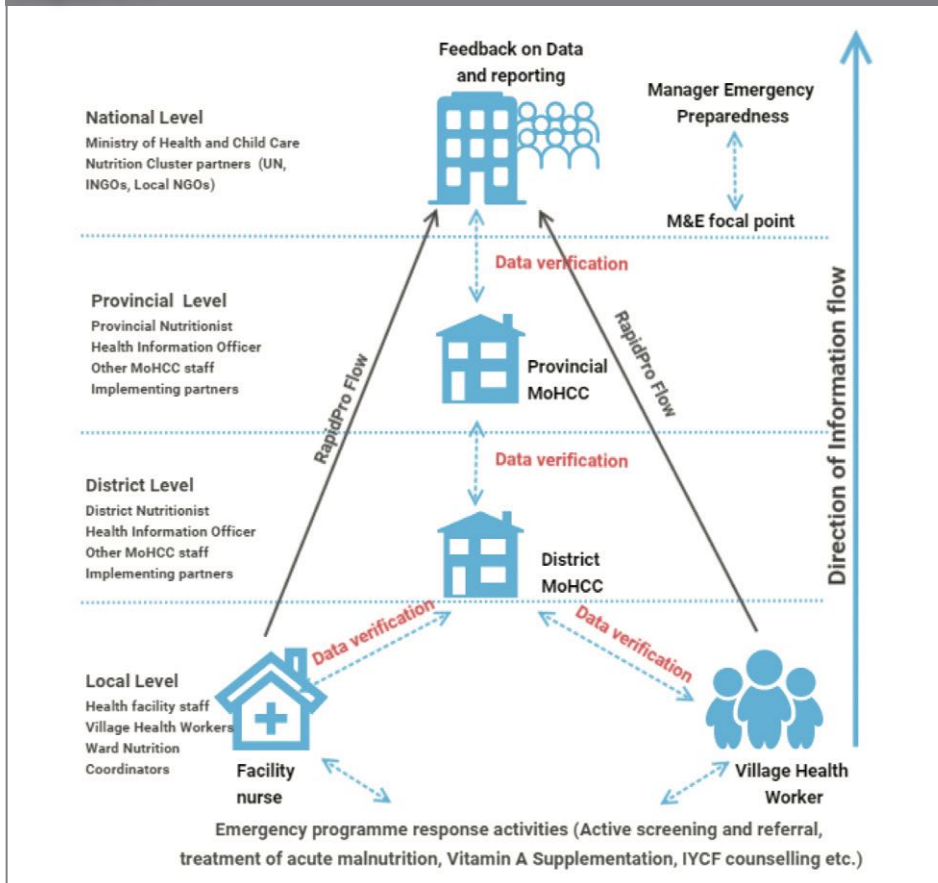
**Community level indicators**

- Number of children (6-59 months) screened for wasting using MUAC
- Number of children with 'red' MUAC referred to the health facility for severe wasting treatment
- Number of children with 'yellow' MUAC referred to the health facility for moderate wasting treatment
- Number of children who received vitamin A supplement
- Number of caregivers of children under two years of age who were reached with IYCF messages



A village health worker takes the MUAC measurement of a child in Buhera District, Zimbabwe

**Figure 1** RapidPro data flow from frontline workers to national level



literacy. The system used reverse billing with no charge to the recipient for sending messages. The bill was paid at national level by MoHCC with financial support from UNICEF and its donors.

A benefit of the process is that it bypasses data analysis and validation at district and provincial levels, thereby allowing data to reach the national level cloud server in near real-time. The trade-off, however, is that data is received at national level in its raw and uncleaned form. This necessitates having some capacity at national level to clean (remove duplications and incomplete responses), quality check and analyse the data received. At national level, a Monitoring and Evaluation (M&E) officer under the nutrition department of the MoHCC and an information management officer at UNICEF received and analysed the data sent by frontline workers and any incorrect data was passed back to health facilities or VHWs via SMS for checking and correcting. Despite the training and message reminders, in the first two to three weeks of reporting a number of errors were noted that required checking. Data validation rules were also developed to ensure quality of reporting, for example to ensure that VHWs were not able to refer more children to the health facility than the number of children that were screened that week. Following this process of validation, results were regularly shared with all interested parties including provincial and district cadres and Nutrition Cluster members through email or an online shared folder. The data flow is described in Figure 1.

To improve efficiency of this process, plans are currently being made to use the ONA platform for validation of data by officers at district, provincial and national levels and for further analysis and visualisation. The ONA platform will shorten the validation process as district level staff will be able to login to the platform, browse through the data submitted and make any necessary changes when data discrepancies are evident.

**Results**

Reporting on RapidPro started in April 2020 in 655 health facilities across the 27 priority districts. By October 2020, this had increased to all 684

health facilities. Other non-priority districts continued to report their data routinely through the DHIS2. During the first week of April 2020, 13% of registered health facilities reported data correctly, following all the reporting format requirements. During the second week of April this rose to 35% and by the 25th week in October 2020, 74% of registered health facilities reported data correctly. Continuous follow-up was conducted to ensure that health facilities reported data consistently. As time unfolded, respondents became more familiar with the system and reporting rates improved substantially. One critical challenge in reporting was that some health facilities did not possess a health facility phone and facility staff’s personal phones had to be used. Reporting was therefore often not done when that particular staff member was off-duty. This has subsequently been rectified by registering more than one phone number per health facility.

At community level, 5,009 VHWs were registered by the first week of reporting and submitted reports using their personal mobile phones or, in the few instances where VHWs did not have their own phone, a friend’s/neighbour’s phone. Additional VHWs were registered in the following weeks based on feedback from health facilities. To date, over 9,146 VHWs have been registered to provide reports using the RapidPro system. On average, 70% of registered VHWs send complete and correct responses (following the correct reporting format requirements). Continuous follow-up is done at district level to ensure VHWs are aware of the correct reporting formats and that they are reporting consistently on RapidPro.

Screening for wasting in Zimbabwe has continued in the COVID-19 lockdown following adoption of mother-led mid-upper-arm circumference (MUAC) approaches (also known as Family MUAC) which aimed to limit the risk of exposure to COVID-19. Family MUAC was introduced in Zimbabwe prior to COVID-19, however it was rapidly scaled up to cover all 27 drought-prone districts with the arrival of the pandemic to ensure the continuation of screening activities in vulnerable communities. Training



Silabaziso Ncube, a UNICEF-supported community health worker, shows the mobile phone that she uses for reporting on the number of children she has screened with MUAC. Insiza North, Zimbabwe



©UNICEF/Zimbabwe/2020/Prinsloo

of mothers was carried out through a cascade approach whereby UNICEF implementing partners trained VHWs who then trained mothers in their area. Reporting of children screened through the mother-led MUAC approach has been included within the RapidPro system with VHWs reporting the measurements taken by mothers. Between April (when data collection started) to October 2020, over 2.5 million screening episodes were recorded at community level as reported by VHWs. This is in comparison to the 1.1 million screening episodes noted in the same time period the previous year (April to October 2019) when the mother-led MUAC approach was not in place. A VHW reports on each child's MUAC reading an average of once per month and it is therefore estimated that over 400,000 children (46% of the total children 6-59 months in the 27 districts) were screened each month. Supplies of ready-to-use therapeutic food (RUTF) were also closely monitored in the 684 facilities across the 27 districts allowing for timely restocking of supplies and only 4% of health facilities reported stock-outs during the reporting period.

During the reporting period (April to October 2020), 25,488 children were reported at community level with a 'red' MUAC reading (indicating severe wasting) and 91,543 with a 'yellow' MUAC reading (indicating moderate wasting) and were referred to health facilities for further investigations. Of the children referred, 5,596 were admitted for treatment of severe wasting while 5,768 were admitted for treatment of moderate wasting. This is similar to the numbers admitted in 2018 (5,509) and slightly less than those admitted in 2019 (6,376) for the same time period and the same districts. This is in line with trends for admissions of severe wasting at national level during 2020 which have seen a drop compared to 2019 as services were affected by the restrictions associated with COVID-19. The large discrepancy between the number of children reported as wasted by VHWs and the numbers admitted for treatment when verified at health clinics (using weight-for-height) is being further investigated and likely includes

double counting of children between weeks. This indicates that the VHWs still require more training and supportive supervision in MUAC measurement and in the reporting of data and also that mothers may require refresher training. This discrepancy may also be as a result of MUAC-only screening having the propensity to pick up a high number of 'false positives'; this also needs more investigation in the Zimbabwe context.

### Discussion and lessons learnt

Building on the experience and learning from the use of RapidPro in the Cyclone Idai response, Zimbabwe was quickly able to restart and scale up the use of this reporting platform when the COVID-19 pandemic began and associated travel restrictions and lockdowns were put in place. RapidPro was identified as a suitable data collection tool in light of COVID-19 due to its ability to allow remote community level and health facility level data collection. This helped to ensure continuous monitoring of the nutrition situation in Zimbabwe within the 27 most drought-affected and nutritionally vulnerable districts in the country.

The availability of nutrition information through RapidPro contributed to informed decision making during the COVID-19 crisis. The Nutrition Cluster was able to monitor disruptions to essential nutrition services caused by the crisis in a near real-time manner (weekly) and put in place measures to support the continuity of services for those children requiring treatment. For example, the Nutrition Cluster was able to promptly see the drop in utilisation of essential nutrition services at health facility level following the COVID-19 related lockdown. Such data enabled informed decision making around the need for various adaptations to the delivery of services for the treatment of wasting and community engagement and counselling around breastfeeding and young child feeding in the context of COVID-19. The availability of the data on a regular basis also meant that RUTF stock-levels were monitored closely and those health facilities requiring replenishment were stocked in a timely manner.

During the process of using the RapidPro system for the reporting of nutrition data, the following aspects were noted to be critical to its successful rollout. Firstly, the mapping of the existing information management systems was an important initial step to avoid duplication of efforts, identify areas for integration and highlight gaps that could be addressed by the RapidPro system. Secondly, government leadership and ownership of the nutrition information systems initiatives was critical. For the COVID-19 response, decisions on the scale-up of the RapidPro reporting system were made through the Nutrition Cluster and under the leadership of the MoHCC, resulting in improved buy-in and ownership of the system by MoHCC as well as the Nutrition Cluster partners. This also enabled improved communication between the MoHCC and partners. Thirdly, a systems strengthening approach was key to ensuring that the RapidPro strengthened, but did not undermine, routine reporting systems. The health monitoring information systems (HMIS) and monitoring and planning departments in the MoHCC were engaged throughout to ensure that the data collected was fed into the national reporting system rather than serving as a parallel platform. The National Nutrition Unit in the MoHCC took the lead in engagement with other departments, making it easier to get their buy-in. In addition, plans were put in place to ensure that, in future, RapidPro data feeds into the DHIS2 in an automated fashion. Finally, appropriate approaches for the capacity building of key cadres at all levels was essential to create momentum in the use of the system and support its functioning. Creating the same level of understanding of the system and how it functions across all users at all levels was important as well as ensuring sufficient training and trouble-shooting were provided to VHWs. It is clear that the importance of on-the-job training and supportive supervision cannot be underestimated, as the errors in numbers reported shows, and the propensity of MUAC-only screening to pick up a large number of 'false positives' also requires more investigation.

The MoHCC National Nutrition Unit has since decided to restart the sub-committee on information management, a technical body formed within the Nutrition Cluster, which will oversee the next steps for the use of the RapidPro reporting system. These include working to improve data quality in the 27 districts through review and quality control of the numbers being reported by VHWs with refresher training and mentorship visits planned for those VHWs reporting unlikely numbers or reporting using text instead of numbers. Weekly reporting is still in place and will continue until nutrition service delivery has recovered. In addition, the automatic link (using an ONA platform) between the RapidPro system and the national HMIS (that uses DHIS2) will be completed before any further scale-up of the system to ensure proper reporting into the national HMIS.

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## Long-term outcomes for children with disability and severe acute malnutrition in Malawi

Research snapshot<sup>1</sup>

Despite broad understanding that severe acute malnutrition (SAM) and disability can cause and influence one another, there is limited information on their co-existence in low-income settings and linkages are seldom considered by those working in programmes. This study aimed to describe the prevalence, characteristics and outcomes of disability among children with SAM from a hospital in Blantyre, Malawi, using data from two longitudinal cohort studies, following up survivors who had been treated for SAM one and seven years after discharge. Disability at admission was originally identified clinically and at the seven-year follow-up using a standardised screening tool, the 'Washington Group Questionnaire'. Clinical and anthropo-

metric profiles were compared with sibling and community controls.

According to clinical assessment at admission, 6.4% (60/938) of SAM children had an obvious disability. At the seven-year follow-up, 18% (11/60) of these children were still known to be alive. SAM children with a clinically identified disability at admission had a 6.99 times greater risk of dying by seven-years post-discharge compared to those admitted without disability (relative risk adjusted for age, sex and HIV status 6.99, 95% CI 3.49 to 14.02,  $p < 0.001$ ). Children with some types of disability were at particular risk of death: by the seven-year follow up, 7.82% of children with cerebral palsy had died. Children with a clinically obvious disability were older on average, less likely to be HIV positive and to have oedema

but more likely to be severely malnourished than children without disability at admission. At the seven-year follow-up, those children were more stunted, had less catch-up growth, smaller head circumference, weaker hand grip strength and poorer school achievement compared to non-disabled survivors. The use of the Washington Group Questionnaire confirmed disability in all children identified with disability at admission plus many more children not previously identified.

The authors conclude that SAM children with disability face a much greater risk of mortality than non-disabled children one and seven-years post-discharge. To help children survive and thrive after SAM treatment, it is vital that those with an underlying disability are identified and supported. SAM treatment programmes should also consider structured screening tools to better identify children at risk.

<sup>1</sup> Lelijveld N, Groce N, Patel S, et al. (2020). Long-term outcomes for children with disability and severe acute malnutrition in Malawi *BMJ Global Health* 2020;5:e002613.

## Antimicrobial and micronutrient interventions for the management of infants under six months of age identified with severe malnutrition

Research snapshot<sup>1</sup>

Infants under 6 months (U6M) contribute a significant proportion of the burden and mortality of severe malnutrition globally, with 3.8 million infants U6M estimated as being severely wasted and 4.7 million moderately wasted. Evidence of underlying aetiology in this population is sparse but it is known that the group includes ex-preterm and low birthweight (LBW) infants. They also represent a unique population given their dependence on breastmilk or a safe, secure alternative. Nutrition agencies and health providers struggle to make programming decisions on interventions for this group based upon the 2013

WHO Guidelines for the 'Management of Severe Acute Malnutrition in Infants and Young Children' since there is no published interventional trial data that focusses on this population. This review summarises the evidence-base for a selection of common interventions in order to inform policies for the management of severely malnourished infants U6M. Of the 94 articles identified for inclusion, none focused exclusively on severely malnourished infants U6M. There was, therefore, a lack of direct evidence for this population group. In closely related populations, the evidence-base was also neither strong nor extensive.

Key findings by intervention were:

- Antibiotics:** systematic use, as per current WHO guidelines
- Deworming:** no evidence of systematic use in infants but some evidence in breastfeeding mothers of malnourished infants
- Vitamin A:** use of low-dose supplementation in deficient populations only
- Vitamin D:** 6 months supplementation, as per current WHO guidelines for LBW
- Iron:** routine use not recommended
- Zinc:** supplement as per guidelines for infants with diarrhoea and routine use in regions with zinc deficiency
- Folate:** routine use not recommended Maternal supplementation: insufficient evidence to justify routine use
- ReSoMal:** use in malnourished infants U6M, as per current WHO guidelines

Considerable heterogeneity in terms of the age range of the population studied, an anthropometric definition of malnutrition, the dosage and duration of interventions and the outcomes studied make it challenging to summarise the evidence. However, the results provide an initial evidence-base to inform interim policy and programme decisions and future research agenda. More guidance for programmers based on increased evidence is urgently needed.

<sup>1</sup> Campion-Smith, T. J., Kerac, M., McGrath, M., & Berkley, J. A. (2020). Antimicrobial and micronutrient interventions for the management of infants under 6 months of age identified with severe malnutrition: a literature review. *PeerJ*, 8, e9175. <https://doi.org/10.7717/peerj.9175>



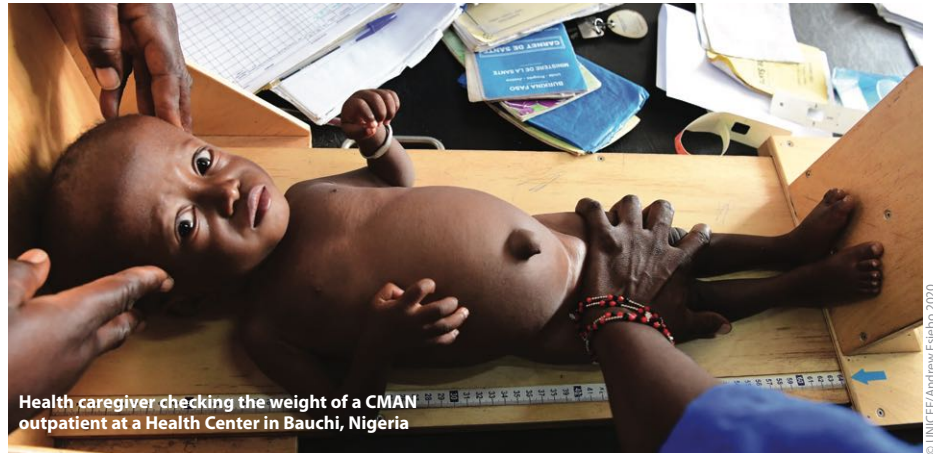
Health caregiver checking the weight of a CMAM outpatient at a Health Center in Bauchi, Nigeria

## Can children catch up from the consequences of undernourishment?

### Research snapshot<sup>1</sup>

**T**his review of the literature examines the possibility of recovery from undernutrition in early life in terms of linear growth, developmental epigenetics and child development. In this study, four criteria must be met to claim catch-up growth: a growth inhibiting condition is required (criterion 1) which causes a reduction in linear growth velocity (criterion 2). This period of growth inhibition is followed by alleviation of or compensation for the inhibiting condition (criterion 3) which subsequently leads to higher-than-normal velocity (criterion 4).

Identifying catch-up growth therefore requires looking at absolute height velocity, i.e., the change in height in cm with age, compared against the growth standard for a given age and sex. The common use of height-for-age z-scores (HAZs), sometimes referred to as “relative catch-up growth”, is incorrect. Studies examining catch-up growth using observational data or methods that do not cover the four criteria stipulated in this study are deemed by the authors as inaccurate and likely counterproductive. Be-



Health caregiver checking the weight of a CMAN outpatient at a Health Center in Bauchi, Nigeria

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cause recovery from linear growth retardation does not automatically lead to improved neurocognitive outcomes, the literature remains unclear as to whether children can actually recover from the broader consequences of undernutrition even when they recover from linear growth retardation.

The review of 11 adoption studies suggests that catch-up growth is biologically possible, even after 24 months of age, when children’s home environments are dramatically improved. Most interventions in low- and middle-income countries, however, do not achieve these dramatic improvements in conditions and therefore do not offer the conditions for full catch-up growth. The effects of undernourishment early in life

were found to be profound and irreversible across the three domains reviewed: linear growth, developmental epigenetics and child development.

The reviewed evidence confirmed the importance of ensuring adequate nutrition, health and responsive care from before conception and throughout childhood rather than attempting to correct consequences of undernutrition or to prove that its consequences can be corrected.

<sup>1</sup> Jef L Leroy, Edward A Frongillo, Pragya Dewan, Maureen M Black, Robert A Waterland, (2020) Can Children Catch up from the Consequences of Undernourishment? Evidence from Child Linear Growth, Developmental Epigenetics, and Brain and Neurocognitive Development, *Advances in Nutrition*, Volume 11, Issue 4, July 2020, Pages 1032–1041, <https://doi.org/10.1093/advances/nmaa020>

## Making the health system work for the delivery of nutrition interventions

### Research snapshot<sup>1</sup>



Child recovers from severe acute malnutrition after undergoing CMAM treatment programme at the Primary Health Care center in Binkola, Adamawa

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**T**he 2013 Lancet series on nutrition highlighted 10 nutrition-specific interventions that, if scaled up through national health systems, could significantly reduce child mortality associated with undernutrition. While there is substantial evidence of the efficacy and potential impact of nutrition-specific interventions, less is understood about how to deliver them at scale and the role of health systems in facilitating or hindering their success.

This paper describes the health system components required for the delivery of nutrition-specific interventions and explores how the framework could be used to identify opportunities for increasing coverage of nutrition interventions. For each of the 10 nutrition-specific interventions, implementation guidance was reviewed and information on the nature of the intervention (provision of drugs/supplements or counselling), delivery level (facility or community), workforce cadre responsible for the intervention (doctor, nurse or occasional trained provider/peer) and required supplies (drugs/supplements or counselling materials) was extracted. Flow diagrams were then developed to illustrate the delivery process for each intervention.

Nutrition-specific interventions were found to be delivered in one of four ways: (i) when nutrition interventions are intentionally sought out, (ii) when care is sought for other, unrelated interventions, (iii) at a health facility after active community case finding and referral and (iv) in the community after active community case finding. The nutrition community should consider the four health system components required for the success of its interventions: a skilled and motivated health workforce, an effective supply chain, demand for services and access to services. A strong health system can both provide health services and promote and facilitate care seeking for those services.

In addition to strengthening health systems, adjusting delivery processes to make better use of existing health systems as they are now should be considered by nutrition programmers. This may include increasing the number and frequency of interactions (for any reason) that people have with the health system, improving demand for, and access to, health services in general and enhanced pre-service and in-service training of health workers to ensure they use every patient interaction to assess, treat and counsel on nutrition-related issues.

<sup>1</sup> King, SE, Sawadogo–Lewis, T, Black, RE, Robertson, T. (2020). Making the health system work for the delivery of nutrition interventions. *Matern Child Nutr.* 2020:e13056. <https://doi.org/10.1111/mcn.13056>



## Carers' knowledge of treatment of severe acute malnutrition at Dadaab refugee complex, Kenya: A prospective cohort study Research snapshot<sup>1</sup>

**R**esearch shows that carers' lack of understanding on the nature of treatment may contribute to poor adherence to treatment modalities. In response to the high prevalence of severe acute malnutrition (SAM) in emergency contexts and related mortality in children under the age of five years in refugee camps, this study was conducted to fill an evidence gap by describing carers' knowledge of treatment of SAM in a refugee setting.

A prospective cohort study of 128 children aged 6 to 59 months and their carers was carried out at the Ifo I and Hagadera refugee camps, two large camps (100,000 plus predominantly Somali nationals) in Garissa County, Kenya. Over a three-month period, 22 child-carer pairs were selected from the stabilisation centre (SC) and 42 from the outpatient therapeutic feeding programme (OTFP) at each camp and followed up until the child met the

discharge criteria. A carer's knowledge was assessed by the administration of a questionnaire in the early days of admission. None of the 128 children enrolled defaulted.

More than 70% of carers participating in the SC programme in both camps and over one third of those whose children were treated at OTFP were unable to say how long their children's treatment would last. Few carers from the Hagadera OTFP (n=7; 16%) knew the correct frequency of prescribed therapeutic feeds while a majority from Ifo did (n=31; 72%). In both OTFPs, less than half of the carers fed their children strictly as per prescribed therapeutic feeds. There was a significant relationship between carers' level of education and their knowledge of the frequency of therapeutic feeds in both the SC programme and the OTFP at both refugee camps. The reasons given for keeping a malnourished child warm during cold weather were quite diverse among carers from the two camps in both programmes.

Carers have a critical role to play in managing acute malnutrition in community-based programmes; carers from refugee camps in Kenya showed room for improvement in their knowledge of SAM treatment.



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<sup>1</sup> Mbogo AM, van Niekerk E, Ogada I, Schübl C. (2020) Carers' knowledge of treatment of severe acute malnutrition at Dadaab refugee complex Kenya: A prospective cohort study. *South African Journal of Child Health*. September 2020, vol 14, no. 3.

## Promoting ethnic parity in health, leaving behind "race": a challenge for the global community in 2020 Research snapshot<sup>1</sup>

**P**romoting parity is central to both medicine and public health, whether we refer to sex, age or population group. Beyond age and sex, it has long been recognised that nutritional status often differs on average between what are usually referred to as "racial" or "ethnic" groups. This article proposes that evaluating health and nutritional status relative to children of similar "race/ethnicity" increases the accuracy of the assessment, moving away from the idea that there is a single nutritional norm represented by any one population. In acknowledging such population differences, the language used to describe them profoundly affects how they are conceptualised. This is not simply a semantic issue but also influences how clinical and public health practices affect health outcomes.

The editors of the *American Journal of Clinical Nutrition* recognise the complexity of this issue and their current instructions aim to help authors to describe which aspect is under consideration: "use 'race' to describe racial categories based on physical appearance, 'ethnicity' to describe traditions, lifestyle, language, diet and values and 'ancestry' to describe ancestry informative markers based on genetic or genomic data." As soon as we try to apply these instructions, however, multiple problems manifest. If "race" refers to physical appearance, what characteristics should we look at and who is given the role of looking? When it comes to traditions, lifestyle and diet, are these selected by preference or are they imposed by socioeconomic constraints? At the level of genes, there are no discrete, objective racial groups.

Ethnicity is a very different concept from race and offers a much richer framework through which to explore and understand population variability. Ethnicity varies between countries due to historical circumstances, for example those who identify as "black" in the United Kingdom may differ in several ways from their African American counterparts in the United States. No such references adequately capture the full range of ethnic variability in contemporary societies and therefore any clinical benefits may be unequally distributed. Ethnic-specific reference data are to be welcomed but, if they are genuinely to promote parity in health, they must be used prudently.

<sup>1</sup> Wells, J. C. K. (2020). Promoting ethnic parity in health, leaving behind "race": a challenge for the global community in 2020. *The American Journal of Clinical Nutrition*, 112(3), 505-506. doi:10.1093/ajcn/nqaa189

## 'Severe malnutrition': thinking deeply, communicating simply Research snapshot<sup>1</sup>

**T**here is currently a plethora of complex technical terminology used to describe malnutrition which can confuse non-specialist audiences. Current terminology has limitations in that it emphasises being severely small (short or thin) rather than the risk of severe adverse outcomes such as mortality, morbidity or developmental delay. Furthermore, using anthropometry to define malnutrition, while valuable, does not distinguish between the state and process of malnutrition and misses children with 'normal' anthropometry who are deteriorating and at risk of adverse outcomes. Alternatively, it may include children who are constitutionally small with no functional/clinical impairments who may not benefit from nutrition-based treatment. Terminology distinctions have also led to nutrition 'tribalism'

with different anthropometric deficits being managed by different communities and inadequate consideration for the context within which malnutrition is experienced.

Given these limitations, the authors propose the use of the term 'severe malnutrition' to define 'any form of malnutrition associated with a high risk of severe adverse outcomes.' This definition includes stunting, underweight, wasting, low mid-upper arm circumference, concurrence, oedematous malnutrition and micronutrient malnutrition. It provides a simple, advocacy focused term in which 'severe' highlights the risk of mortality/morbidity and encompasses different manifestations of malnutrition, context-appropriate anthropometric cut-offs and underlying causes.

The advantages of this terminology include providing a bridging language for increased linkages between different nutrition-related programmes, offering clarity and familiarity (both 'severe' and 'malnutrition' are widely understood and are easily translatable into most languages) and the chance to keep important technical arguments internal to avoid giving the impression to external audiences that experts do not agree on core issues. Using this term and guided by local mortality/morbidity data, countries could be freer to set context-specific programme admission criteria for 'severe malnutrition'.

The authors conclude that the use of the term 'severe malnutrition' as a complement to current terminology would enable clear, simple communication while encouraging simultaneous deep thinking about malnutrition.

<sup>1</sup> Kerac M, McGrath M, Connell N, *et al.*, (2020) 'Severe malnutrition': thinking deeply, communicating simply. *BMJ Global Health* 2020;5:e003023. doi:10.1136/bmjgh-2020-003023

## Fertility is a key predictor of the double burden of malnutrition among women of child-bearing age in sub-Saharan Africa Research snapshot<sup>1</sup>

**G**lobally, countries are undergoing a nutrition transition, shifting from high rates of underweight towards growing rates of overweight and obesity. In sub-Saharan Africa (SSA), this transition has occurred relatively rapidly over the last 40 years. No study to date has specifically examined the double burden of malnutrition (DBM) in women of child-bearing age within the region. This study aimed to address this gap by classifying countries according to malnutrition prevalence of women of child-bearing age and determining key country-level and individual-level risk indicators associated with underweight, overweight and obesity within this group. Data from 34 SSA countries were acquired

from Demographic and Health Surveys, the World Bank and the Swiss Federal Institute of Technology. National malnutrition prevalence rates were determined and random forest analysis and multinomial logistic regression models used to examine associated risk indicators.

Of the 34 countries studied, five continue to face significant undernutrition (greater than 10% prevalence of underweight), 11 countries face DBM (with a greater than 10% prevalence of both underweight and overweight/obesity) and 18 countries face significant overnutrition (greater than 10% prevalence of overweight (seven countries) and obesity (11 countries)). Across countries, fertility rate was the strongest predictor of undernutrition,

overweight and obesity prevalence; fertility rates were highest in countries with high underweight prevalence and lowest in countries with high overweight/obesity prevalence. Economic and equality indicators (measured via Gross Domestic Product and Gini coefficient indicators) were also noted to be strong predictors of nutrition outcomes. Within countries, parity was a risk factor for underweight in countries with a high burden of underweight and a risk factor for overweight/obesity in overweight/obesity burdened countries. Age and wealth were noted to be protective factors for underweight but risk factors for overweight/obesity.

This study highlights the important role of fertility and parity in nutrition outcomes for women of child-bearing age and urges health professionals to consider integrating reproductive services and nutrition programmes in SSA.

<sup>1</sup> Were, J. M., Stranges, S., & Creed, I. F. (2020). Fertility is a key predictor of the double burden of malnutrition among women of child-bearing age in sub-Saharan Africa. *Journal of global health*, 10(2), 020423. <https://doi.org/10.7189/jogh.10.020423>

## The missing focus on women's health in the 'First 1,000 days' approach to nutrition Research snapshot<sup>1</sup>

**T**he First 1,000 Days approach emphasises the time between conception and a child's second birthday as a critical period where adequate nutrition is essential for subsequent healthy growth and development throughout the child's life. Based on a review of the relevant literature, this commentary explores the First 1,000 Days approach with a maternal lens.

The focus of nutrition-specific and nutrition-sensitive interventions within the first 1,000 days is on child health benefits with very little attention given to maternal nutritional status and health outcomes. Interventions indirectly place emphasis on mothers through interventions to strengthen their nutritional status during pregnancy and lactation, for example, through vitamin and mineral

supplementation and multiple micronutrient (MMN) supplementation to reduce the risk of low birthweight (LBW) infants.

However, women's health indicators are rarely tracked and measured. As an example, the authors highlight a 2017 Cochrane review of MMN supplementation for women during pregnancy which included 16 trials that reported the effects on preterm births and LBW and 15 trials that reported small-for-gestational-age but only five trials that reported maternal anaemia, four trials reporting caesarean section rates, three that reported maternal mortality rates and one trial that reported pre-eclampsia. Other maternal health outcomes (placental abruption, premature rupture of membranes, maternal wellbeing or satisfaction) were not re-

ported by any of the trials. This represents a measurement gap in the evidence base, particularly in health outcomes for women.

The gap in knowledge of the effect of maternal nutrition interventions on women themselves perpetuates the lack of prioritisation and research in this area. Nutritional interventions within the First 1,000 Days approach have not had the expected magnitude of effects on reducing childhood stunting and potentially the lack of attention given to the nutritional status of women has been a contributing factor to this. The authors conclude that there is a need to understand the processes of entrenching poverty and malnutrition between inadequacies in maternal diet, adverse health outcomes for women and contextual factors, with mothers at the centre.

<sup>1</sup> Kinshella, M., Moore, S., & Elango, R. (2020). The missing focus on women's health in the First 1,000 days approach to nutrition. *Public Health Nutrition*, 1-5. doi:10.1017/S1368980020003894

## Impacts of WASH on acute malnutrition: from available scientific evidence to informed action

Research snapshot<sup>1</sup>

**M**any of the 4.5 billion people who do not have access to improved sanitation or the 2.1 billion people who do not have access to safe drinking water sources are the same populations with high levels of acute malnutrition (AM). The hypothesised causal pathways between poor Washing, sanitation and hygiene (WASH) and child malnutrition consist namely of diarrhoea, environmental enteric dysfunction and helminth infections (worms) and, indirectly, the ability of families to provide safe and clean living environments, the time it takes to do so and the time it takes to adequately care for children in such en-

vironments. The aim of this review was to identify and evaluate the strength of the available evidence related to WASH and AM through a search of literature published between 2000 and 2017.

After inclusion and exclusion criteria were applied, 24 articles were included in the final analysis. Very little research has been conducted on the effect of WASH interventions on the treatment of AM, although evidence is building on the additional benefits of providing water treatment supplies and counselling for improved water quality alongside treatment. While additional trials are needed, treatment programmes

may consider the feasibility and cost of adding a water quality component to the current standard of care, with a focus on the continuation of such behaviours after discharge to help reduce relapse.

Many low-quality studies have been conducted that indicate associations between WASH-related indicators and child AM but very few high-quality intervention trials have been conducted that demonstrate significant impact on preventing malnutrition. The WASH sector includes a wide variety of diverse interventions. Extensive context analysis may be necessary before designing a WASH intervention to best match the intervention with the specific needs of the target population. Environmental testing may be helpful to determine what harmful pathogens are particularly present in the context and which interventions are best suited to stop transmission. It may also be possible that environments are so contaminated that one or even the combination of a few interventions aimed at individual or household level does not reduce the amount of exposure to harmful pathogens to realise an impact on AM and that community-level interventions may show more promise.

The author concludes that the current state of the evidence regarding associations between WASH and AM outcomes is very weak. Although hypothesised causal pathways are supported by strong logic, they have yet to be consistently proven through rigorous studies. High-quality, rigorous intervention studies are needed to prove or disprove the links between WASH and child AM to guide decision-making.



A mother is washing the hands of her baby, in the health center of Kaya, in the North of Burkina Faso

© UNICEF/Frank Dejongh

<sup>1</sup> Stobaugh, H. (2020). Impacts of WASH on acute malnutrition: from available scientific evidence to informed action. R4ACT.

## High burden of undernutrition among at-risk children in neonatal follow-up clinic in Rwanda

Research snapshot<sup>1</sup>

**A** Paediatric Development Clinic (PDC) in rural Rwanda provides a medical home model for the medical, nutritional and developmental care of high-risk children up to the age of five after their discharge from specialised neo-natal care services. To gain a better understanding of nutritional outcomes among children enrolled at the PDC and to better design targeted interventions to accelerate the reduction of undernutrition in Sub-Saharan Africa, this study explored the prevalence of stunting, underweight and wasting and assessed associated factors among high-risk children (defined as born preterm, low birth weight or other birth and neurodevelopmental injuries) who received nutritional support and clinical care follow-up at the PDC.

This cross-sectional study included all children aged 6 to 59 months who had been enrolled at

the PDC between 2014 and 2017. An assessment of the age and anthropometric measurements was taken at the child's last visit to the PDC during this period and the records of 641 children were included. The study found a high prevalence of stunting (58.8%), underweight (47.5%) and wasting (25.8%) among children who received nutrition, development and medical follow-up at the PDC between 2014 and 2017. While the odds of wasting were particularly high among younger children, being born small for gestational age was associated with increased odds of stunting (odds ratio (OR) 2.63; 95% confidence interval (CI) 1.58–4.36) and underweight (OR 2.33; 95% CI 1.46–3.71). The history of feeding difficulties was significantly associated with wasting (OR: 3.36; 95% CI: 2.20–5.13) and with underweight (OR: 2.68; 95% CI: 1.78–4.04). Importantly, late PDC intervention was associated with increased odds of stunting (OR: 1.06; 95% CI: 1.01–1.11),

underweight (OR: 1.09; 95% CI: 1.05–1.14) and wasting (OR: 1.07; 95% CI: 1.04–1.10).

Although children at the PDC received additional nutrition, developmental and medical support, the heavy burden of undernutrition in this population indicates that even more specialised services are needed for the highest risk children beyond that which is currently provided within the PDC. For instance, children with feeding difficulties require specialised interventions that may be beyond the scope of management by general nurses and social workers in the PDC, or infants aged six to eight months transitioning from exclusive breastfeeding to complementary feeding (the highest risk group) may require interventions such as caregiver education and counselling on exclusive breastfeeding under six months of age, maternal nutrition among lactating women and support for timely transition to and adequate complementary feeding.

<sup>1</sup> Mutsindashyaka, T., Nshimiyiro, A., Beck, K., Kirk, C.M., Wilson, K., Mutaganzwa, C., Bradford, J.D., Havugarurema, S., Bihibindi, V., Ngamije, P.K., Mubiligi, J.M. and Miller, A.C. (2020). High Burden of Undernutrition among At-Risk Children in Neonatal Follow-Up Clinic in Rwanda. *Annals of Global Health*, 86(1), 125. DOI: <http://doi.org/10.5334/aogh.2636>

## A systematic review and meta-analysis of sex differences in undernutrition

Research snapshot<sup>1</sup>

Despite considerable research into childhood sex differences in neonatal and infant health, different disciplines tend to hold surprisingly contrary views and findings on the relative vulnerability of male and female children. Sex differences within nutrition programmes have not been explored in detail but there is a commonly held belief that girls are more vulnerable to undernutrition from a gender perspective. This paper explores the evidence on male/female differences in undernutrition in children under five years of age.

Seventy-four studies were identified with measures of male/female wasting, stunting and underweight prevalence estimates and 44 were included in the meta-analysis. In the 20 studies that examined

wasting, 17 (85%) found that wasting was more prevalent in boys than girls, with boys having a higher odds ratio (OR) of being wasted (pooled OR 1.26, 95% CI 1.13 to 1.40). In the 38 studies that examined stunting, 32 (85%) studies showed stunting to be more prevalent in boys than girls with a higher pooled OR of 1.29 (95% CI 1.22 to 1.37). In the 23 studies exploring underweight, 18 (78.2%) studies indicated that underweight was more prevalent in boys than girls with a pooled OR of 1.14 (95% CI 1.02 to 1.26).

When analysed by region, the odds of being malnourished were nearly always higher for boys than for girls for all three manifestations of undernutrition although there was some evidence

that female advantage, in terms of lower risk of stunting and underweight, was weaker in South Asia than other regions. When analysed by age, the odds of boys being wasted, stunted or underweight were higher than girls in all age categories.

Forty-three studies (58%) offered potential explanations for the differences although the reasons provided tended to be varied and often conjectural. Six studies noted biological factors (including immune and endocrine differences), 21 studies noted social reasons (including gender dynamics and preferential feeding practices) and 16 studies noted a combination of the two. The findings suggest that sex differences in undernutrition should be further explored in research, policy and programming.

<sup>1</sup> Thurstans S, Opondo C, Seal A, *et al.*, (2020). Boys are more likely to be undernourished than girls: a systematic review and meta-analysis of sex differences in undernutrition. *BMJ Global Health* 2020;0:e004030. doi:10.1136/bmjgh-2020-004030

## Adolescent nutrition mapping study: A global stakeholder survey of policies, research, interventions and data gaps

Research snapshot<sup>1</sup>

Nutrition in school-aged children and adolescents can significantly impact lifelong health and wellbeing as well as the growth, development and long-term health of future generations. Considerable evidence exists for the importance of nutrition in the first 1,000 days, however less focus has been placed on understanding or improving the nutritional status of older children and adolescents.

While evidence and programme experience in this area have been growing, we need greater consensus and information-sharing on the burden, indicators and successful interventions to tackle malnutrition in adolescents and school-age children (5-19 years). Using an online survey, this research mapped the activities and experiences of stakeholders across 1) research and

data, 2) policies, strategies and guidelines and 3) interventions and programmes. Questions focused on micronutrient deficiencies, undernutrition (including wasting, thinness and stunting), overweight and obesity and dietary behaviours. The analysis included 133 responses with representation from 42 countries. Most of the work described by the respondents was conducted in low- and middle-income countries (LMICs) in Africa and Asia.

The results showed that research efforts have predominantly focused on the burden of malnutrition with nutrition indicators and the consequences of malnutrition during the adolescent period receiving less attention. More studies were reported on undernutrition, micronutrient deficiencies and diets in this age group than on overweight and obesity. This is a worrying omission considering the rising tide of overnutrition globally. The majority of adolescent nutrition programmes and interventions described by the respondents were provided through the health, nutrition and education sectors. Many of the large-scale and successful programmes described target micronutrient deficiencies, especially iron-deficiency anaemia. Other large-scale programmes described included social media campaigns and school-based peer education programmes to influence dietary practices.

The survey also identified a lack of agreement as to how the adolescent period is defined leading to difficulties in providing representative and comparable data. Other important data and policy gaps identified include the lack of national and international nutrition targets for this age group, lack of standardised definitions of mal-

nutrition, lack of data on current and optimal diets, lack of inclusion and/or disaggregation of adolescent data within national surveys, lack of data on adolescent sub-groups (e.g., males, refugees, out-of-school adolescents), lack of evidence on effective interventions and the lack of inclusion of adolescent voices within research.

Given these findings, the authors recommend:

- Adoption of a universal definition of adolescence. To date, the most commonly used definition is 10-19 years.
- Adolescent-specific nutrition targets that go beyond anaemia in women of reproductive age are needed, both nationally and internationally.
- Routine national surveys are age-disaggregated to represent the adolescent population.
- More research and agreement on effective interventions, particularly for dietary patterns and overweight/obesity, the nutritional needs of particular sub-groups (male adolescents, those out-of-school and adolescents in humanitarian contexts), the most useful indicators to identify and classify malnutrition and how best to reach adolescents (e.g., using social media platforms).
- Greater attention and funding from donor agencies to address the research and programmatic gaps identified in this review and to ultimately improve adolescent outcomes.

<sup>1</sup> Zakari Ali, Natasha Lelijveld, Stephanie Wrottesley and Emily Mates (2020). Adolescent nutrition mapping study: A global stakeholder survey of policies, research, interventions and data gaps. [www.ennonline.net/adolescentnutritionmappingstudy](http://www.ennonline.net/adolescentnutritionmappingstudy)



Students attend a nutrition education session

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## Mid-upper arm circumference as a screening tool for identifying adolescents with thinness

### Research snapshot<sup>1</sup>

**A**dolescence is a unique period of rapid growth and, when combined with household food insecurity, is also a period of an increased risk of under-nutrition. Failure to achieve optimal nutrition during adolescence may lead to delayed physical growth and sexual maturation and, for adolescent girls, increases the risk of giving birth to under-nourished infants. There is a need for a simple, reliable and accurate screening tool to identify undernutrition in this age group to underpin effective interventions. This cross-sectional study aimed to evaluate the performance of mid-upper arm circumference (MUAC) as an alternative to the World Health Organization-recommended

body mass index (BMI) z-score to identify thinness in the late adolescence period.

In a sample of 851 adolescents aged 15 to 19 years from 15 schools in Addis Ababa, Ethiopia, the study found that MUAC had a significant strong positive correlation with BMI z-score,  $r = 0.81$  (95% CI 0.79, 0.84) but was poorly correlated with age,  $r = 0.15$  (95% CI 0.08, 0.21). MUAC could identify thinness among adolescents with excellent discriminatory performance (area under the curve (AUC) 0.91). The optimum MUAC cut-off point to identify thinness was  $\leq 23.3$  cm for males (sensitivity: 87.9%; specificity: 75.9%), whereas the optimum MUAC cut-off point for females was  $\leq 22.6$  cm (sensitivity: 100%; specificity:

88.2%). Based on the proposed cut-off point for the total sample ( $\leq 23.3$  cm), MUAC had a high negative predictive value (NPV) – among those adolescents who identified as non-thin by MUAC, 98.0% were non-thin by BMI Z-score – and lower positive predictive value (PPV) – among those adolescents identified as thin by MUAC, only 32.4% were thin by BMI Z-score.

This indicates that MUAC is a good indicator for ruling in and ruling out thinness among adolescents but that, due to the low PPV, a large number of adolescents would be incorrectly considered to be thin leading to unnecessary nutritional support, poor use of resources and an overburdened healthcare system. When used in a relatively well-nourished population, it would be necessary to choose a cut-off with a greater positive predictive value.

<sup>1</sup> Sisay, B., Haile, D., Hassen, H., & Gebreyesus, S. (2020). Mid-upper arm circumference as a screening tool for identifying adolescents with thinness. *Public Health Nutrition*, 1-10. doi:10.1017/S1368980020003869

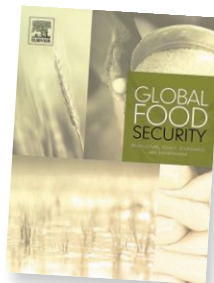
## Food systems for children and adolescents

### Research snapshot<sup>1</sup>

**W**ell-nourished children and adolescents are the foundation of thriving communities and nations. Undernutrition, in the form of stunting, wasting and micronutrient deficiencies, remains widespread among young children while overweight, obesity and diet-related non-communicable diseases are increasing rapidly among children and adolescents including in countries and regions where undernutrition is still prevalent. Recognising that food systems are essential to supporting diet quality among children and adolescents but that their nutritional needs are rarely prioritised in efforts to reorient food systems, the United Nations Children's Fund (UNICEF) and the Global Alliance for Improved Nutrition (GAIN) convened a 'Global consultation on food systems for children and adolescents' in November 2018 to identify priority actions for food systems and diet quality among children and adolescents. A special issue of 'Global Food Security' contains a series of 10 papers that were commissioned based on the priorities identified before and during the consultation.

Three papers describe the distinctive way that children and adolescents engage with the food system and how this influences their diets (Fox & Timmer, 2020), nutrition recommendations for the dietary intakes of children and adolescents (Hollis *et al.*, 2020) and what data is available on diet quality in low- and middle-income settings (Kupka *et al.*, 2020). These three papers indicate that children and adolescents require special attention in food system reorientations for improved diets and that, despite existing data gaps, there is evidence

that children's and adolescents' dietary intakes are sub-optimal compared to dietary recommendations. A further paper builds on this evidence to create a conceptual framework of food systems for the diets of children and adolescents – the 'Innocenti Framework' – that depicts drivers, determinants, influencers and interactions (Raza *et al.*, 2020) and another paper details specific actions to reorient food systems for improved diets in this age group (Hawkes *et al.*, 2020). These tools address important conceptual and practice gaps and create common analytical reference points for different stakeholders working on food systems and nutrition.



Reviews of evidence are included regarding how to improve food supply chains (Nordhagen, 2020), food environments (Downs & Demmler, 2020) and food behaviours (Tumilowicz & Pelto, 2020) – the key determinants of food systems outlined in the Innocenti Framework. Recognising the changing landscape of malnutrition, a review of evidence is included regarding the marketing of unhealthy, ultra-processed foods to children and adolescents, especially on digital platforms (Tatlow-Golden & Garde, 2020). A concluding paper presents the key implications for public policies and programmes with specific country-level illustrations (Morris *et al.*, 2020). This special issue will be useful for food system reorientations in support of improved diet quality among children and adolescents, as protecting the diets of children and adolescents has never been more urgent and relevant than now.

<sup>1</sup> Edited by Roland Kupka, Saul Morris, Elizabeth Fox. (2020). Food Systems for Children and Adolescents. *Global Food Security*, Volume 27, December 2020 <https://www.sciencedirect.com/journal/global-food-security/vol/27/suppl/C>

### References

Downs, S., & Demmler, K. M. (2020). Food environment interventions targeting children and adolescents: A scoping review. *Global Food Security*, 27, 100403. doi:<https://doi.org/10.1016/j.gfs.2020.100403>

Fox, E. L., & Timmer, A. (2020). Children's and adolescents' characteristics and interactions with the food system. *Global Food Security*, 27, 100419. doi:<https://doi.org/10.1016/j.gfs.2020.100419>

Hawkes, C., Fox, E., Downs, S. M., Fanzo, J., & Neve, K. (2020). Child-centered food systems: Reorienting food systems towards healthy diets for children. *Global Food Security*, 27, 100414. doi:<https://doi.org/10.1016/j.gfs.2020.100414>

Hollis, J. L., Collins, C. E., DeClerck, F., Chai, L. K., McColl, K., & Demaio, A. R. (2020). Defining healthy and sustainable diets for infants, children and adolescents. *Global Food Security*, 27, 100401. doi:<https://doi.org/10.1016/j.gfs.2020.100401>

Kupka, R., Siekmans, K., & Beal, T. (2020). The diets of children: Overview of available data for children and

adolescents. *Global Food Security*, 27, 100442. doi:<https://doi.org/10.1016/j.gfs.2020.100442>

Morris, S. S., Barquera, S., Sutrisna, A., Izwardy, D., & Kupka, R. (2020). Perspective: Interventions to improve the diets of children and adolescents. *Global Food Security*, 27, 100379. doi:<https://doi.org/10.1016/j.gfs.2020.100379>

Nordhagen, S. (2020). Food supply chains and child and adolescent diets: A review. *Global Food Security*, 27, 100443. doi:<https://doi.org/10.1016/j.gfs.2020.100443>

Raza, A., Fox, E. L., Morris, S. S., Kupka, R., Timmer, A., Dalmiya, N., & Fanzo, J. (2020). Conceptual framework of food systems for children and adolescents. *Global Food Security*, 27, 100436. doi:<https://doi.org/10.1016/j.gfs.2020.100436>

Tatlow-Golden, M., & Garde, A. (2020). Digital food marketing to children: Exploitation, surveillance and rights violations. *Global Food Security*, 27, 100423. doi:<https://doi.org/10.1016/j.gfs.2020.100423>

Tumilowicz, A., & Pelto, G. H. (2020). Interventions to improve dietary intake behaviors among children and adolescents. *Global Food Security*, 27, 100413. doi:<https://doi.org/10.1016/j.gfs.2020.100413>

## Effective coverage measurement in maternal, newborn, child and adolescent health and nutrition Research snapshot<sup>1</sup>

**M**onitoring progress towards achieving universal health coverage requires an understanding of the proportion of the population in need of care who received health services at a sufficient level of quality to result in the intended health benefits. Intervention coverage does not include metrics on intervention quality and thus potentially overestimates the health benefits of the services provided to populations. In response, in 2019, the World Health Organization (WHO) and the United Nations Children's Fund (UNICEF) convened the Effective Coverage Think Tank Group, a group of 98 experts in the fields of quality-of-care measurement, monitoring and evaluation, epidemiology and research. The purpose of the group was to establish standardised definitions and measurements on effective coverage indicators (coverage that also explores quality of care)

for maternal, newborn, child and adolescent health and nutrition (MNCAHN).

Through a series of video teleconferences and face-to-face meetings, the group recommended that effective coverage be defined as the proportion of a population in need of a service that resulted in a positive health outcome from the service. Cascade steps to explain effective coverage were defined that can be applied to a broad range of MNCAHN services. These cascading steps are identifying the target population with a specific health need, determining service contact coverage (the proportion of the population who come into contact with a service), establishing input-adjusted coverage (the proportion of the population in need who come into contact with a health service that is ready to provide care), intervention coverage (the proportion of the population who receives service), quality-adjusted coverage (the proportion

of the population receiving service according to quality-of-care standards), user adherence-adjusted coverage (the proportion of users adhering to provider instructions) and outcome-adjusted coverage (the proportion of users who have the expected health outcomes).

Although important research gaps remain, the outcomes of the meetings are a step further towards improving effective coverage measurement and enabling the assessment of health outcomes of proven interventions.

<sup>1</sup> Marsh A. D, Muzigaba M, Diaz T, Requejo J, Jackson D, Chou D, Cresswell J A, Guthold R, Moran A C, Strong K L, Banerjee A, Soucat A. (2020). Effective coverage measurement in maternal, newborn, child, and adolescent health and nutrition: progress, future prospects, and implications for quality health systems, *The Lancet Global Health*, Volume 8, Issue 5, 2020, Pages e730-e736, [https://doi.org/10.1016/S2214-109X\(20\)30104-2](https://doi.org/10.1016/S2214-109X(20)30104-2). (<http://www.sciencedirect.com/science/article/pii/S2214109X20301042>)

## Barriers to the uptake of nutritional services among adolescent girls from rural communities in Tigray region, Ethiopia Research snapshot<sup>1</sup>

**C**onsiderable nutritional problems attributed to an inadequate diet continue to lead to poor health status among adolescents. In Ethiopia, adolescent girls from rural settings, from larger family sizes and with unprotected water sources for drinking and food insecure households are at greater risk of undernutrition. In most resource limited settings, community-based nutrition initiatives mainly focus on preventing malnutrition in women and children, thus neglecting adolescents. This study aims to explore the range of barriers for the uptake of nutrition interventions among adolescent girls in the rural communities of the Tigray region in Northern Ethiopia where 26.5% adolescents are stunted and 58.3% are thin. This explorative qualitative study was conducted in five districts, purposively selected based on their food security status. Focus group discussions (FGDs) and in-depth interviews with in-school and out-of-school-adolescent girls were conducted until researchers reached the saturation level of qualitative data.

adolescent girls. Barriers for the uptake of adolescent girls' nutrition interventions were found to be food insecurity, limited nutrition awareness in the community, limited access to a water source, high workload, service provider's lack of attention to adolescents' nutrition and cultural taboos around foods.

Although limited in reach, available nutrition interventions include awareness creation, nutritional supplementation and disease prevention. Multi-sectoral responses are required to address

the range of challenges including food security and water, sanitation and hygiene barriers that prevent adolescents from accessing nutrition services in resource limited settings such as those in rural areas of Ethiopia.

<sup>1</sup> Kahsay, A., Gebregziabher, H., Hadush, Z., Yemane, D., Hailemariam, A., and Mulugeta, A. (2020). Exploration of Barriers to the Uptake of Nutritional Services Among Adolescent Girls from the Rural Communities of Tigray Region, Northern Ethiopia: A Qualitative Study. *Adolescent health, medicine and therapeutics*, 11, 157–171.



Overall, a total of 98 participants took part in the study through 11 FGDs with adolescent girls (six in-school and five out-of-school) and 17 in-depth interviews (seven with teachers, seven with in-school adolescent girls and three with out-of-school adolescent girls). Data from each FGD was transcribed before the next to enable the inclusion of emerging insights into the semi-structured guide for subsequent FGDs.

Stunting, anaemia and thinness were among the main perceived nutritional problems among

## Incidence of severe acute malnutrition after treatment: A prospective matched cohort study in Nigeria

Research snapshot<sup>1</sup>

**T**reatment programmes for severe acute malnutrition (SAM) tend to focus on initial recovery with limited evidence on post discharge outcomes such as relapse and the remaining risk to children discharged as cured from outpatient facilities (OTP). This paper examines the persistent and excess risk of SAM among children treated in a community-based management of acute malnutrition (CMAM) programme in northern Nigeria and identifies the factors associated with the risk of relapse.

Persistent risk was assessed by measuring the six-month incidence rate of relapse among children discharged as cured from OTPs and excess risk was assessed by comparing this rate of relapse with

a six-month incidence rate of SAM in a cohort of matched community controls. A total of 553 OTP-cured children and 526 matched community control children were enrolled on the study conducted from September 2018 to May 2019 in five rural local government areas (LGAs) in Sokoto State. Each community control child was matched to an OTP-cured child based on residence, age, sex, age of mother and level of education. Both cohorts were followed-up with outcomes and covariates measured fortnightly in up to 12 home visits.

Throughout the study, 24% of OTP cured children experienced relapse, compared to 0.6% community control children who developed SAM. The relapse incidence rate in the OTP-cured

cohort was 0.204 per 100-child days compared to 0.004 per 100 child-days in the community cohort, meaning that SAM incidence rates were 52 times higher in the OTP-cured cohort. Most relapse cases occurred within the first 60 days post OTP-discharge. When assessing risk factors of relapse, it was found that being female, having a lower length/height for age at admission, a lower mid-upper arm circumference (MUAC) at admission and a household head without stable employment throughout the year were all related to a higher likelihood of relapse.

The authors conclude that OTP-cured children remain at a significantly excess risk of SAM and follow-up care should be strengthened using key observable characteristics such as sex or MUAC at admission to identify high risk cases.

<sup>1</sup> Adegoke, O, Arif, S, Bahwere, P, et al., (2020). Incidence of severe acute malnutrition after treatment: A prospective matched cohort study in Sokoto, Nigeria. *Matern Child Nutr.* 2021; 17:e13070. <https://doi.org/10.1111/mcn.13070>

## INCAP Longitudinal Study: 50 Years of History and Legacy

Research snapshot<sup>1</sup>

**T**he INCAP Longitudinal Study is the longest followed cohort study since birth in a developing country. It is made up of people who, from conception or before they turned seven years of age, participated in a nutritional supplementation intervention between 1969 and 1977 in four rural villages in Guatemala and who, in the last follow up (2015-2017), were between 42 and 57 years of age.

Two villages received a high-protein, high-energy supplement ('atole') and another set of matched villages received a non-protein, low-energy supplement ('fresco'). Both supplements

contained the same amount of micronutrients. This community randomised nutrition intervention targeted pregnant and lactating women and their children from birth to seven years of age. In addition to the nutritional intervention, a health education programme and free primary healthcare were provided in all villages.

Since the study, seven follow-up investigations have been carried out, thus offering one of the richest sources of information in relation to the importance of nutrition for growth, development, wellbeing and human capital later in life. Reflecting on the findings over the last fifty years, a special supplement of the *Food and Nutrition Bulletin* aims to highlight the large body of evidence drawn from this cohort.

Articles in this supplement demonstrate an association between atole being given during the first 1,000 days and reductions in morbidity and improved physical growth in infancy and early childhood, as well as positive longer-term effects on anthropometry, skeletal maturation, physical

work and intellectual development. Atole during the first 1,000 days was also associated with improvements in motor development and cognitive function during childhood and adolescence and adult cognitive skills and productivity. One follow up study noted the impact of atole on reducing the risk of diabetes but also on increasing the risk of overweight and obesity. Intergenerational effects were also found with impacts on the birth size, growth, body composition and wellbeing of the next generation.

The INCAP study has been instrumental in generating consensus on the importance of the first 1,000 day window with long-term impacts on human capital. The special supplement summarises the rich body of evidence to enable improved decision making, particularly in Latin America. Work to explore further findings within this cohort continues.

<sup>1</sup> Ramirez-Zea, M & Mazariegos, M. (2020). INCAP Longitudinal Study: 50 Years of History and Legacy. *Food and Nutrition Bulletin* 1-3. <https://doi.org/10.1177/0379572120907756>

## Burden and determinants of wasting in Southeast Asia and the overlap with stunting

Research snapshot<sup>1</sup>

**T**he largest proportion of wasted children globally is found in Southeast Asia, yet this is not fully recognised as a public health problem and the coverage of treatment services in the region remains low. This is partly due to the belief that wasting in Asian children has different determinants and clinical features than those observed in African children. This study aimed to understand wasting epidemiology in Southeast Asia and determine the burden of wasting, its predictors and the level of wasting and stunting concurrence.

The study conducted a secondary data analysis of the latest Demographic and Health Survey

(DHS) and Multiple Indicator Cluster Surveys (MICS) or National Food and Nutrition Survey (NFNS) from Cambodia, Lao PDR, Myanmar, Thailand, Timor-Leste and Vietnam. Surveys were conducted between 2011 and 2017. The pooled weighted prevalence for wasting, severe wasting and concurrent wasting and stunting among children aged 0-59 months of age in the six countries was 8.9%, 2.9% and 1.6% respectively. In absolute numbers this translates to 1,088,747 children with wasting and 272, 563 children with concurrent wasting and stunting in the six countries. Wasting prevalence was 50% higher in the 0-23 months age group. Characteristics associated

with wasting included source of drinking water, wealth index and child's age, size at birth and history of illness. Maternal body mass index (BMI) was also highly associated with wasting; however, there was no association between maternal age and maternal height and risk of child wasting. A surprising finding was the higher risk of wasting among children from urban households compared to those from rural households. Further investigation is needed to understand this finding. The authors conclude that wasting is a serious public health problem in Southeast Asia that needs to be urgently addressed through both preventative and curative approaches.

<sup>1</sup> Mutunga M, Frison S, Rava M, Bahwere P. (2020). The Forgotten Agenda of Wasting in Southeast Asia: Burden, Determinants and Overlap with Stunting: A Review of Nationally Representative Cross-Sectional Demographic and Health Surveys in Six Countries. *Nutrients.* 2020;12(2):559. Published 2020 Feb 20. doi:10.3390/nu12020559

## Relapse and regression to severe wasting in children under 5 years: A theoretical framework

Research snapshot<sup>1</sup>

Recently published reviews on relapse to severe wasting and long-term treatment outcomes suggest that levels of severe wasting after treatment are considerable. Standardised measurement is, however, lacking. The Council of Research & Technical Advice for Acute Malnutrition (COR-TASAM) recommends the use of the following definitions: relapse (wasting within six months after exiting treatment as per recommended discharge criteria), regression (wasting within six months after exiting treatment before reaching recommended discharge criteria), reoccurrence

(wasting after six months of exit from treatment as per recommended discharge criteria) and ongoing episode (severe wasting cases that exit treatment while still severely wasted).

A theoretical framework of post-treatment relapse and regression to severe wasting is presented in this paper to guide discussions, risk factor analyses and the development and evaluation of interventions. The framework highlights additional factors that may impact the risk of relapse and regression in addition to the impact of contextual factors associated with incidence and reoccurrence of severe wasting more generally.

These potential risk factors include the nutrition and health status of the child – at admission, during treatment and at exit from treatment, treatment interventions, platforms and approaches or the type of exit from treatment (e.g., before reaching the recommended criteria), poorer nutritional and immunological status at exit from treatment (immune recovery in wasted children may take longer than nutritional recovery so children may not be immunologically recovered when exiting treatment even after meeting recommended criteria for ‘recovery’) and, finally, interventions following exit from treatment (e.g., nutritional support and care group interventions at the community or household level, broader community support or access to social protection).

The evidence-base for many factors hypothesised in this framework is weak. Robust trials are needed to identify efficacious interventions to reduce relapse and regression after exit from treatment. This framework can be a starting point to stimulate and guide research to improve understanding of severe wasting after exit from treatment, how to identify children most at risk of relapsing and regressing and thus wasting-related mortality and morbidity and how to prevent wasting after treatment exit. For programmes, continuity of care across treatment programmes and after discharge should be a priority.



A child is screened for severe acute malnutrition at the Timbuktu regional hospital, Mali

© UNICEF/Isourama Coulibaly

<sup>1</sup> Schaefer, R., Mayberry, A., Briend, A., Manary, M., Walker, P., Stobaugh, H., Hanson, K., McGrath, M., & Black, R. (2020). Relapse and regression to severe wasting in children under 5 years: A theoretical framework. *Maternal & Child Nutrition*, e13107. doi:https://doi.org/10.1111/mcn.13107

## Identifying and treating maternal mental health difficulties in Afghanistan: A feasibility study

Research snapshot<sup>1</sup>

A recent study found that the prevalence of mental disorders was 22% in low- and middle-income countries that had experienced conflict in the past two decades, substantially higher than global prevalence estimates. Most of those who need care do not, however, have access to treatment. During the perinatal period, mental disorders may have significant deleterious effects on women and their children. With high levels of poverty, lack of autonomy, high rates of violence and assaults on physical health, mental health problems are nearly twice as common amongst women compared to men in Afghanistan.

The aim of this study was to evaluate the feasibility of delivering a maternal mental health service as a part of routine service delivery

(through an infant feeding scheme) with non-specialist health workers in Parwan Province, Afghanistan. The intervention involved training health workers to screen postpartum women for depression (using the PHQ9 – a nine-item depression screening tool) and the delivery of appropriate treatment to those who screened positive. The psychological intervention used was an adaptation of the Thinking Healthy Programme, a cognitive behavioural approach that can be adapted to suit various contexts.

Over a three month period, 215 women who had given birth in the past 12 months were screened for depressive symptoms, of whom 187 (87%) presented with some symptoms of post-partum depression, ranging from mild to severe, and 131 (61%) met the PHQ9 criteria

for referral to the intervention (PHQ9  $\geq 12$ ). All of the women who screened positive agreed to enrol but only 72 actually participated with 47 completing the six sessions. The PHQ-9 scores of those who completed all sessions decreased by at least six points, with an average decrease of 13 points, and all scored below the study’s cut-off score of 12. Mothers of children with moderate or severe acute malnutrition were the most likely to have depressive symptoms.

The study found that there were multiple barriers for women to access mental health care. They may be prohibited by family members, have financial constraints or encounter community-based violence or armed conflict. The design of an intervention in such settings should consider these constraints and anticipate flexible strategies to deliver maternal mental health care.

<sup>1</sup> Tomlinson, M., Chaudhery, D., Ahmadzai, H., Rodríguez Gómez, S., Rodríguez Gómez, C., van Heyningen, T., & Chopra, M. (2020). Identifying and treating maternal mental health difficulties in Afghanistan: A feasibility study. *International Journal of Mental Health Systems*, 14(1), 75. doi:10.1186/s13033-020-00407-1



## Engaging caregivers in at-home surveillance of children with uncomplicated severe acute malnutrition

Research snapshot<sup>1</sup>

**A**lthough outpatient care has been shown to be highly effective, cost-effective and acceptable across a variety of settings, only 10% of children with severe acute malnutrition (SAM) receive treatment each year. Limited health infrastructures and trained personnel can constrain the number of children who receive treatment at facilities. Prior research in nutrition has shown that mothers have the ability to diagnose SAM immediately following training, similar to community health workers.

To assess the feasibility of shifting clinical surveillance to caregivers of children admitted for outpatient treatment of SAM, the authors conducted a pilot study in the Maradi region, Niger, to assess caregivers' understanding and retention of key concepts related to the surveillance

of clinical danger signs and anthropometric measurement. At the time of a child's admission to outpatient SAM treatment, a nurse provided a short training (less than 30 minutes) to groups of no more than 10 caregivers on two topics: (a) clinical danger signs in children with SAM that warrant facility-based care and (b) methods to measure and monitor their child's mid-upper arm circumference (MUAC). Caregiver understanding was assessed using standardised questionnaires before training, immediately after training and 28 days after training.

A total of 128 caregivers of children aged 6 to 59 months with uncomplicated SAM were enrolled. Knowledge of most clinical danger signs (e.g., convulsions, oedema, poor appetite, respiratory distress and lethargy) was low (0–45%) before

training but increased immediately after and was retained 28 days after training. The majority of caregivers correctly implemented the four steps to measure their child's MUAC immediately following training and the correct methods were retained 28 days after.

Results provide preliminary evidence to suggest that, with minimal training, caregivers with relatively low education can understand the key concepts of clinical warning signs and MUAC measurement for the surveillance of their malnourished children at home. Task-shifting of clinical and anthropometric surveillance to mothers may provide a feasible model to reduce the frequency of health facility visits, reduce the burden on resource-limited health systems and caregivers and help to detect clinical warning signs before serious complications develop in SAM children.

<sup>1</sup> Isanaka, S., Berthé, F., Nackers, F., Tang, K., Hanson, K. E., & Grais, R. F. (2020). Feasibility of engaging caregivers in at-home surveillance of children with uncomplicated severe acute malnutrition. *Maternal & child nutrition*, 16(1), e12876. <https://doi.org/10.1111/mcn.12876>

## Co-implementing vitamin A supplementation with seasonal malaria chemoprevention

Research snapshot<sup>1</sup>

**H**igh-dose vitamin A supplementation (VAS) for children 6–59 months of age is recommended by the World Health Organization (WHO) as a proven low-cost intervention to reduce child mortality. In Nigeria, VAS is delivered during twice-yearly maternal, newborn and child health (MNCH) campaigns at the health facility level. However, coverage has been noted to be low (less than 15% in some States). Seasonal malaria

chemoprevention (SMC) is a community-based, door-to-door intervention delivered by community distributors (CDs) in four monthly cycles during peak malaria transmission. Given the low VAS coverage, this study aimed to explore the feasibility and acceptability of integrating VAS with community-level SMC in Dange-Shuni local government area in Sokoto State and provide pragmatic evidence to guide potential implementation and scale-up.

A pilot study was undertaken using a mixed method approach, with qualitative focus group discussions (FGDs) and key informant interviews as well as quantitative components (baseline and endline comparisons of VAS and SMC coverage following integration of services). At baseline, 1.6% of children had received VAS and 69.7% had received SMC (n=188). In comparison, at endline 59.4% of children received VAS and 75.6% had received SMC (n=197). Input from FGDs highlighted that there was a positive response to integration and high levels of acceptability across all stakeholders (including caregivers, CDs, state-level and national-level health programme officials). All stakeholders appreciated the advantages of household-based delivery of VAS over the current health-facility based delivery. However, participants raised issues in terms of potential confusion for caregivers in administering VAS and SMC simultaneously and potential for rejection of these due to social norms. CDs noted that integration increased their workload substantially, without a reduction in daily coverage targets, which led to issues in the quality of service provided. Additional training and remuneration packages for CDs were recommended in order to successfully integrate VAS and SMC. These findings support the rationale for implementation of integrated VAS and SMC campaigns. If validated in additional settings, the intervention should be scaled up incrementally to achieve national coverage, with barriers addressed along the way.

<sup>1</sup> Malaria Consortium. (2020). Co-implementing vitamin A supplementation with seasonal malaria chemoprevention: A pilot implementation study in Sokoto state, Nigeria. Publication data: 24.07.2020 <https://www.malariaconsortium.org/resources/publications/1365/co-implementing-vitamin-a-supplementation-with-seasonal-malaria-chemoprevention-a-pilot-implementation-study-in-sokoto-state-nigeria>



Community distributors showing caregivers how to prepare SMC medication for their children, Nigeria

## Men's Nutrition Knowledge is Important for Women's and Children's Nutrition in Ethiopia Research snapshot<sup>1</sup>

**M**any nutrition-sensitive agriculture programmes focus on women as an entry point to effect positive household nutrition outcomes by improving their nutrition knowledge and empowering them to make decisions around food purchases and the allocation of nutritious food in the household. Despite the central role of men, very few programmes have explored the potential impact of men's engagement in household nutrition, including diets and the nutritional status of women. By default, men have been mostly left out of the design and implementation of these programmes. Using data from a cluster randomised trial in Ethiopia known as 'Agriculture to Nutrition', associations between men's and women's nutritional knowledge on the dietary diversity of households, children and women were explored, as well as specific components of nutrition knowledge that had the highest effect size on nutrition outcomes.

The Food and Agriculture Organisation (FAO)'s nutrition knowledge, attitudes and practice questionnaire was administered to men and women in 1,396 households. Four knowledge variables were examined: good nutrition for pregnant/lactating women, diets for children, vitamin A rich foods and iron-rich foods. Within households, 80% of men and women were found to have a

high knowledge and household knowledge agreement on optimal breastfeeding practices. However, only 56% to 66% of households had knowledge agreement on complementary feeding, iron-deficiency anaemia and vitamin A deficiency. Dietary knowledge was found to have a larger affect on women's and children's dietary diversities than vitamin knowledge. Men's nutrition knowledge was found to have a significant, positive and additive association with household diet diversity (0.24, P value= 0.001), children's diet diversity (0.19, P value= 0.008) and women's dietary diversity (0.18, P value<0.001) after adjusting for household wealth, women's education and nutrition knowledge. Distance to markets and men's education levels modified the effects of nutrition knowledge on dietary diversity.

Although not causal, the results provide useful reflections for future research exploring the gendering of nutrition knowledge and how engaging men in nutrition programming may lead to better outcomes.

<sup>1</sup> Ambikapathi R, Passarelli S, Madzorera I, Canavan CR, Noor RA, Abdelmenan S, Tewahido D, Tadesse AW, Sibanda L, Sibanda S, Munthali B, Madzivhandila T, Berhane Y, Fawzi W, Gunaratna NS. (2020). Men's nutrition knowledge is important for women's and children's nutrition in Ethiopia. *Matern Child Nutr.* 2020 Aug 4; e13062. doi: 10.1111/mcn.13062. Epub ahead of print. PMID: 32755057.

## New approach to assess the nutrition and food security impacts of Ethiopia's safety net programme Research snapshot<sup>1</sup>

**T**he past two decades have seen a rapid increase in social protection programmes in African countries to alleviate poverty, food insecurity and the vulnerability of poor households. Ethiopia's Productive Safety Net Program (PSNP) is one of the largest social protection schemes and has been implemented since 2005. The ongoing fourth phase, which began in 2015, covers around eight million beneficiaries in all but two regions of Ethiopia.

Prior studies provide inconclusive evidence as to whether the PSNP has improved household food security and child nutrition, partly because household food security status is used as both the criteria for participation and a desirable programme outcome. This paper aimed to fill the gap in evidence by examining the impacts of the PSNP on household food security, child meal frequency, child diet diversity and child anthropometry using a marginal structural modelling approach, a method that allows an estimation of the causal association of time-dependent treatment (PSNP) in the presence of a time-dependent covariate (food security status) that is simultaneously a confounder and an intermediate variable.

Contrary to the author's expectations, the study found that household participation in the

PSNP did not have an impact on household food security, on child dietary diversity nor on child anthropometry (estimates of child linear growth, body mass index z-score, stunting and underweight show no significant difference when a household participates in the PSNP). A positive impact was only seen on increased child meal frequency: the number of meals a child would consume in the 24 hours prior to the survey increased by 0.308 units with household participation in the PSNP.

Results suggest that, unless the PSNP is combined with nutrition-sensitive programmes, it will be unable to address the problem of undernutrition among social protection recipients. Integrating the PSNP into broader multi-sectoral programmes that aim, for example, to improve access to clean water and sanitation, health services, agriculture, women's empowerment, employment and training and information on food utilisation, as well as investment in infrastructure, will provide opportunities to address undernutrition as well as the risk of nutrition-related chronic diseases.

<sup>1</sup> Bahru, B. A., Jebena, M. G., Birner, R., and Zeller, M. (2020). Impact of Ethiopia's productive safety net program on household food security and child nutrition: A marginal structural modeling approach. *SSM - population health*, 12, 100660. <https://doi.org/10.1016/j.ssmph.2020.100660>

## Incidence correction factors for moderate and severe acute child malnutrition from two longitudinal cohorts in Mali and Burkina Faso

**A**ccurate estimates of the burden of acute malnutrition (AM) are essential to support policy makers and nutrition programmers in decision making including predicting AM case-loads and preparing sufficient resources for treatment. As AM can be a transient state, incidence estimates, as opposed to prevalence rates, are needed to determine the true annual burden. In the absence of longitudinal data, obtaining incidence estimates is challenging and, as such, AM burden is typically approximated by converting prevalence estimates from cross-sectional surveys to a cumulative AM incidence using an 'incidence correction factor', 'K'.

This study aimed to add to the body of evidence related to incidence correction factors. It estimated 'K' factors for severe acute malnutrition (SAM) and moderate acute malnutrition (MAM) based on longitudinal data (monthly data collected for 18 months) from two cluster-randomised control trials conducted between 2014 and 2017 in Burkina Faso and Mali (Innovative Approaches for the Prevention of Childhood Malnutrition-PROMIS study). SAM cases were included in the incidence calculation if they were preceded by one or more SAM-free months. Children who met the MAM criteria while recovering from SAM were not included in the MAM incidence calculation. Data was compared using complete (weight-for-length z-scores, mid-upper arm circumference (MUAC) and oedema) and partial (MUAC, oedema) definitions of SAM and MAM.

'K' factors for SAM were 9.4 and 5.7 in Burkina Faso and in Mali, respectively. The 'K' factors for MAM were 4.7 in Burkina Faso and 5.1 in Mali. MUAC and oedema based definitions of AM did not lead to different 'K' estimates and thus results suggest that 'K' can be reliably estimated when only MUAC and oedema based data are available.

When comparing incidence correction estimates to available prevalence data in the two countries, prevalence was found to underestimate the annual burden of SAM by a factor of 7 to 10 and that of MAM by a factor of 6. This study highlights the need for more contextualised incidence data to accurately measure AM burden.

<sup>1</sup> Barba F M, Huybregts L, Leroy J L. (2020). Incidence Correction Factors for Moderate and Severe Acute Child Malnutrition From 2 Longitudinal Cohorts in Mali and Burkina Faso, *American Journal of Epidemiology*, Volume 189, Issue 12, December 2020, Pages 1623–1627, <https://doi.org/10.1093/aje/kwaa139>

## A review of cost and cost-effectiveness of treatment for child undernutrition Research snapshot<sup>1</sup>

**M**alnutrition is estimated to account for an 11% yearly loss in gross national product in Africa and Asia as a result of provider costs of treating undernutrition and its associated infections, reduced educational performance and lower agricultural activity. To reduce the cost of programmes and increase cost-effectiveness, it is recommended that outpatient and inpatient care for children with undernutrition are integrated through the community-based management of acute malnutrition (CMAM) programmes.

This study aims to determine the current state of knowledge about the costs and cost-effectiveness of child undernutrition treatment

to households, health providers, organisations and governments in low- and middle-income countries. Through a systematic review of peer-reviewed studies, the authors identified 50 articles that included the costs of child undernutrition treatment. Costing methods used included cost analyses (n=33), cost-effectiveness studies (n=15) and cost benefit analyses (n=2).

The studies varied in the interventions considered and the costing methods used. The treatment costs reported ranged from USD0.44 to USD1,344 per child. Substantial costs for health providers and programmes were due to personnel, medication and therapeutic feeds. The costs of therapeutic feeds were high mainly because they were imported which suggests that using local

ingredients to produce therapeutic foods could potentially reduce costs. Cost per disability adjusted life year (DALY) averted for CMAM programmes ranged between USD26 and USD53 which was much lower than facility-based management (USD1,344).

Despite the recommended integration of outpatient and inpatient care, this has not been adopted by many countries, hence many of the studies compared the cost outcomes of outpatient and inpatient care separately. Most studies adopted institutional/programme and health provider perspectives rather than community or household perspectives. Costs incurred by households with undernourished children have largely been ignored even though such costs may exceed government costs. This is predominantly due to the high expenditure on healthcare during malnutrition treatment and indirect costs, including the opportunity cost of time spent away from normal duties while taking care of sick children or attending clinics, majorly affecting a household's economic productivity.

There is a need to assess the burden of the direct and indirect costs of child undernutrition to households and communities in order to plan, identify cost-effective solutions and address issues of cost that may limit delivery, uptake and effectiveness. Standardised methods and reporting in economic evaluations would facilitate interpretation and provide a means for comparing the costs and cost-effectiveness of interventions.

<sup>1</sup> Njuguna, R. G., Berkley, J. A., & Jemutai, J. (2020). Cost and cost-effectiveness analysis of treatment for child undernutrition in low- and middle-income countries: A systematic review. *Wellcome open research*, 5, 62. <https://doi.org/10.12688/wellcomeopenres.15781.2>

Community sensitisation of a CMAM programme



WFP/Sayma Bashir

## Review of the cost-efficiency and cost-effectiveness of the management of severe wasting in children Research snapshot<sup>1</sup>

**T**he integration of wasting treatment into national primary healthcare services, treatment at the community level by community health workers as well as new 'simplified approaches' all have the potential to increase the coverage of wasting treatment services. However, robust cost-effectiveness evidence is needed to inform policy-level decision-making in support of scale-up. This review examines the latest available evidence on the cost-efficiency and cost-effectiveness of interventions to treat wasting. The review included peer-reviewed papers and evaluation reports published online since 2000. Eleven cost-effectiveness studies were found including two looking at outpatient versus inpatient care, three looking at community health worker-led care and one at the use of simplified combined protocols. The majority of the studies assessed short-term and small scale programmes. A further 10 publications evaluating

cost-efficiency were identified that mostly assessed standard community-based management of acute malnutrition (CMAM) programmes.

Overall, findings indicate that CMAM is cost-effective. There is some evidence that community health worker-led treatment of severe wasting increases cost-effectiveness relative to outpatient treatment alone, particularly in high burden contexts. The combined protocol for treatment of moderate and severe wasting was also found to be cost-effective compared to standard care. The cost per child treated for severe wasting ranged from USD56 to USD805 while the cost per child recovered ranged from USD114 to USD1,041. The high degree of variance in the findings suggests important contextual determinants of cost-efficiency and cost-effectiveness including programme scale, population density, burden of wasting and health system factors. It also reflects

differences in the methods used in data collection and analysis with respect to whose costs (only the main implementer, all partners, beneficiary costs) and what costs (training, ready-to-use therapeutic foods, logistics, financial vs non-financial costs) were collected as well as the outputs and outcomes used to measure cost-efficiency and cost-effectiveness.

The findings point to the need for more cost-efficiency and cost-effectiveness analyses, in particular of large scale and longer-term community-based programmes and new approaches currently being implemented. Data collection for costing activities, cost-efficiency and cost-effectiveness analysis methodologies should be agreed and standardised across the sector to allow comparison within and across contexts to better understand the determinants of cost-efficiency, cost-effectiveness and cost drivers. Economic analyses should be more routinely integrated into programme implementation and monitoring.

<sup>1</sup> Chui, J., Donnelly, A., Cichon, B., Mayberry, A., Keane, E. (2020). The cost-efficiency and cost-effectiveness of the management of wasting in children: A review of the evidence, approaches, and lessons. *No Wasted Lives*. <https://acutemalnutrition.org/en/resource-library/3DI765DmJn5lIRGm8rk4ry>

## Community health worker-led treatment for uncomplicated wasting: insights from the RISE study and practice

By Bethany Marron on behalf of the RISE study consortium



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We would like to acknowledge and thank the community health workers, caregivers and children in Niger State, Nigeria, Nsanje District, Malawi and Isiolo County and Turkana County, Kenya for their participation. Without their trust, this study would not have been possible. The donor for this work was the Eleanor Crook Foundation under their RISE (Research, Innovate, Scale, Establish) for Nutrition Portfolio.

### South Sudan, Nigeria, Malawi, Kenya

**What we know:** Delivery of treatment for uncomplicated wasting by community health workers (CHWs) is a simplified approach that can ensure continuity of detection and treatment, particularly in the context of the COVID-19 pandemic.

**What this article adds:** This article summarises operational insights developed by the RISE study consortium, a multi-partner, multi-country initiative to develop and test a simplified treatment protocol, tools and job aids for literate and low-literate CHWs to deliver treatment for uncomplicated wasting treatment services through the integrated community case management (iCCM) platform in several locations. The following operational aspects must be considered before embarking on this model: context-specific underlying epidemiology (burden of malnutrition and seasonality), extent to which the model will remove top barriers to treatment in the context, existence of a community health system to embed the model within and the presence of a supply chain, supervision and financing. Once deemed appropriate, recommendations to improve implementation and uptake include the simplification of protocols to streamline CHW decision-making, the simplification and integration of CHW tools, the strengthening of referral mechanisms for complicated cases, the provision of motivations and incentives for CHWs, the tracking and addressing of defaulting, enhancing CHW training and supervision and engagement of communities. Full quantitative and qualitative results will be submitted for peer review publication in 2021. Further application of the considerations and recommendations listed here is needed to inform the operational feasibility, scalability and sustainability of the approach.

#### Background

According to the latest Joint Child Malnutrition Estimates, 47 million children under five years of age suffer from moderate or severe wasting (UNICEF, World Bank, WHO, 2020). Yet, with treatment currently only available in health facilities, life-saving services are largely inaccessible. According to global coverage data, only one in four children who need treatment has access to it (Puett *et al.*, 2013; Rogers *et al.*, 2015). The current COVID-19 pandemic threatens to undermine access to nutrition treatment even further. According to the Lancet, United Nations International Children's Fund (UNICEF) reports estimate a 30% overall reduction in the coverage of essential nutrition services

reaching 75 to 100% in lockdown contexts (Headey *et al.*, 2020).

Community-based service delivery models have been used to increase access to treatment for other childhood illnesses. In particular, the integrated community case management (iCCM) approach equips community health workers (CHWs) to deliver treatment outside health facilities in their communities for the major causes of death in under-five children: pneumonia, diarrhoea and malaria (WHO, 2012). Malnutrition, which underlies approximately half of these deaths, is not currently included in the recommended iCCM treatment package.

Several studies have explored whether iCCM CHWs can effectively provide treatment for un-

complicated wasting although none have equipped low-literate CHWs (López-Ejeda *et al.*, 2019). Since 2015, the International Rescue Committee (IRC) has been developing and field-testing tools and a simplified treatment protocol that enables literate and low-literate CHWs to treat uncomplicated severe acute malnutrition (SAM) as part of iCCM (Tesfai *et al.*, 2016). Following an initial study in Northern Bahr El Ghazal State, South Sudan, the simplified package was further adapted and piloted by four other organisations in contexts where children have limited access to facility-based treatment (Kozuki, 2020; Van Boetzel, 2019). From 2017 to 2019, the IRC served as technical lead of the RISE study, a multi-partner, multi-country initiative funded by the Eleanor Crook Foundation (ECF) to generate additional evidence on the CHW-led treatment approach. The RISE study consortium included study partners from global headquarters and field offices in Niger State, Nigeria (Malaria Consortium), Nsanje District, Malawi (Concern Worldwide), Isiolo County, Kenya (Action Against Hunger) and Turkana County, Kenya (Save the Children).<sup>1</sup>

#### RISE study protocol

The RISE study protocol largely mirrored the initial proof of concept study implemented in South Sudan. Study partners in Nigeria and Malawi conducted prospective mixed-method studies on the feasibility and acceptability of CHW-led community-based treatment and outcomes for uncomplicated cases of childhood wasting in their context. Study partners in Kenya evaluated feasibility of the approach within a cluster randomised control trial (RCT) comparing iCCM CHW-led treatment to facility-based treatment (Kimani-Murage *et al.*, 2019). The performance of CHWs was evaluated by supervisors using a pre-defined checklist and children were

<sup>1</sup> <https://www.acutemalnutrition.org/en/Simplified-Approaches-Tools>

**Table 1** RISE study treatment protocol (summarised)

	Aweil South, South Sudan	Niger State, Nigeria	Nsanje District, Malawi	Isiolo County, Kenya	Turkana County, Kenya
<b>Study partner</b>	International Rescue Committee	Malaria Consortium	Concern Worldwide	Action Against Hunger	Save the Children
<b>CHW-led treatment offered</b>	SAM	SAM	SAM	SAM and MAM	
<b>Admission criteria</b>	South Sudan, Nigeria, Malawi: age 6-59 months, no medical complications, no oedema, MUAC 9 to < 11.5cm, good appetite Additionally, in Kenya: MUAC 11.5 to <12.5 cm				
<b>Treatment product</b>	South Sudan, Nigeria, Malawi: RUTF according to weight Kenya: (new SAM) RUTF according to weight (new MAM) one RUSF sachet/day				
<b>Discharge criteria</b> (adapted according to national protocols)					
<b>Recovered</b>	2 consecutive visits with MUAC ≥12.5cm before reaching max length of stay (LOS)				
<b>Non-response (max LOS)</b>	14 weeks	12 weeks	16 weeks	16 weeks	
<b>Default (max consecutive missed visits)</b>	2 visits	2 visits	3 visits	3 visits	
<b>Transfer criteria (safeguard criteria applied by study partners)</b>	<ul style="list-style-type: none"> <li>Failed appetite test</li> <li>4 consecutive weeks with MUAC (9-10.25)</li> <li>4 consecutive weeks with MUAC (10.25-11.5)</li> <li>Any MUAC regression</li> </ul> Additionally, in Kenya: <ul style="list-style-type: none"> <li>3 consecutive weeks with no weight gain</li> <li>Any weight regression</li> </ul>				

**Table 2** CHW performance (summarised)

	Aweil South, South Sudan	Niger State, Nigeria	Nsanje District, Malawi	Isiolo County, Kenya	Turkana County, Kenya	
<b>Number of CHWs who provided treatment</b>	40	60	24	47	50	
<b>Number of supervision checklists completed per CHW</b>	Mean	3.5	10	4.7	12	3
	Median	3.5	10	5	11	3
	Range	1-7	1-28	1-13	4-14	1-8
	IQR	2-7	5-15	3-6.5	2-18	2-4
<b>Average assessment score of each CHW</b>	Mean	89.9	96	98.9	95	89.1
	Median	N/A	98	100	99	92.0
	Range	59.0-100	73-100	92-100	36-100	60.0-100
	IQR	86.4-96.0	96-99	98-100	97-100	83.8-96.9

\*Note, CHWs were assessed using a pre-defined checklist of various context-specific assessment and treatment tasks. Therefore, the above composite CHW performance scores do not provide the full picture of CHW performance or comparability across study sites. Full CHW performance results will be published as part of future peer review publication.

**Table 3** Treatment outcomes (summarised)

	Aweil South, South Sudan	Niger State, Nigeria	Nsanje District, Malawi	Isiolo County, Kenya		Turkana County, Kenya	
<b>Admission type</b>	SAM (n=195)	SAM (n=245)	SAM (n=23)	SAM (n=7)	MAM (n=164)	SAM (n=12)	MAM (n=178)
<b>Recovered</b>	75%	73%	100%	86%	82%	85%	80%
<b>Default</b>	9%	22%	0%	0%	6%	8%	11%
<b>Non-response</b>	15%	4%	0%	14%	12%	8%	9%
<b>Death</b>	0%	0%	0%	0%	0%	0%	0%

\* Sphere minimum standards for SAM to MAM: death 10%, cured 75%, default 15%; for MAM to full recovery: death 3%, cured 75%, default 15%.

\*\* Discharge criteria varied by context (see Table 1) which limits comparability across study sites.

tracked over time to capture treatment outcomes. Focus group discussions and in-depth interviews were conducted in order to understand perceptions toward CHW-led treatment and the logistical successes and challenges of the programme.

The treatment protocol used by CHWs in the RISE studies also followed the simplified treatment protocol tested in South Sudan. Minor modifications to assessment procedures for danger signs (medical complications) and discharge criteria were based on national iCCM and wasting treatment protocols. In Malawi and Nigeria, CHWs admitted children with SAM without complications who had mid-upper arm circumference (MUAC) of 9 to <11.5 cm. Treatment for SAM was provided according to weight using ready-to-use therapeutic food (RUTF) through recovery or until discharged. In Kenya, in accordance with the RCT study objectives, CHWs additionally admitted children with moderate acute malnutrition (MAM) or MUAC 11.5 to <12.5 cm without complications. New MAM cases were given one sachet of ready-to-use supplementary food (RUSF) per day through recovery or until discharged. As an additional safeguard, all study partners instituted transfer criteria requiring CHWs to discontinue treatment and refer children whose MUAC had either regressed or not improved within a pre-determined timeframe. See Table 1 for a summary of the treatment protocols used in each context.

### Study results

Following completion of the studies in Nigeria, Malawi and Kenya, the consortium met in February 2020 to review quantitative and qualitative results and discuss the potential of CHW-led treatment beyond the study period. During the two-day workshop, study partners concluded that CHWs showed high adherence to a simplified treatment protocol for SAM as well as MAM treatment in Kenya, regardless of CHW literacy level, achieving treatment outcomes that meet Sphere humanitarian standards (Table 2 and 3). Also, qualitative data revealed that community members across all contexts generally appreciated the proximity of access to treatment, although some CHWs experienced frustration from caregivers whose children were not eligible for treatment. CHWs felt that providing iCCM+ nutrition treatment was an additional workload and suggested various incentives to support their work.

This article includes a summary of CHW performance and treatment results from the RISE study in order to provide context for the operational insights presented. Full quantitative and qualitative results will be submitted for peer review publication in 2021.

### Operational insights

In addition to building evidence on the feasibility and acceptability of CHW-led treatment, the RISE study experience offers valuable lessons learned on how to operationalise the approach across multiple contexts. Study partners acknowledged their significant role in strengthening programme implementation during the study period and agreed on several considerations and recommendations to ease future implementation under 'typical' programmatic settings and/or Ministry of Health management.



CHW-led treatment is provided outside of typical facilities at the community level, Turkana, Kenya

### *Initial considerations – what to think about before implementing CHW-led community-based treatment*

The following considerations should be vetted by government and non-government implementers to determine whether a CHW-led treatment approach like the programmes piloted through the RISE studies is appropriate for the context in question.

#### *Underlying epidemiology*

CHW-led treatment should address the underlying epidemiology of the context. As a community-based programme utilising a simplified treatment protocol, the burden of malnutrition which can be addressed by CHW-led treatment should be determined according to prevalence by MUAC. Given the logistical challenges of implementing community health programmes, a CHW-led treatment approach may not be cost-effective if the burden of malnutrition is too low. On the other hand, if the burden is high, implementers must consider the logistical implications of treating only new SAM or treating both new SAM and new MAM. Similarly, if prevalence is known to fluctuate with seasonality, CHW-led treatment may be either unnecessary or could heavily strain the community health system during certain times of the year. Mobilising CHWs to provide treatment as surge capacity could be explored as an alternative to resourcing year-round CHW-led treatment.

#### *Reasons for poor coverage*

Implementers should be certain that CHW-led treatment will adequately address the top barriers for families to access and utilise treatment services in their context. Implementers should not assume that physical access to treatment, which CHW-led treatment aims to reduce, is the primary driver of poor coverage. CHW-led treatment will not in and of itself address other barriers which are persistent in many community-based management of acute malnutrition (CMAM) programmes. For example, the availability of CHW-led treatment does not transform the cultural practices or preferences that impact care-seeking nor does it necessarily improve access for mobile pastoralist families. In fact, an important question to ask before exploring

this approach at all should be whether there are reasonable alternatives, including consideration of whether the quality and desirability of services at an outpatient facility could be improved.

#### *Community health system*

A CHW-led treatment approach should only be considered in a context where an explicit link can be made (or already exists) between the community health system and the institutional health system. Implementers should have an experience-based understanding of the realistic coverage and capacity of the community health system and cadre, knowledge of existing policies and procedures which govern working with CHWs and pre-identified referral points to send children for additional medical care. Related, a CHW-led treatment approach which is integrated with iCCM will rely on pre-existing support and/or a reasonable policy environment that would allow CHWs to treat childhood illnesses.

#### *Feasibility and sustainability of the supply chain*

Even in contexts where supply chains for programmes like iCCM exist, the addition of bulky, expensive ready-to-use therapeutic treatment supplies will strain the current system. Sustaining CHW-led treatment will require reimaging current processes and resources to ensure that commodities consistently reach the community-level. Reporting tools and mechanisms for CHWs to record usage and forecast should be adapted with some flexibility to provide buffer stock. Also, central supply stores and/or health facilities that channel commodities to CHWs must be equipped to pre-position, store and transport ready-to-use foods. Finally, CHWs must have safe and adequate options to store commodities in their homes and/or in close proximity to where they provide treatment.

#### *Supervision*

Adding CHW-led treatment for uncomplicated wasting to the workload of CHWs must be accompanied by frequent supervision at the beginning of the programme to correct performance issues and help CHWs to establish clear community expectations of the programme. Implementers should not rely solely on typical Ministry of Health (MoH) resources or protocols to train,

compensate or support supervisors involved in the rollout phase. In the longer-term, implementers should consider how supervision structures can be re-designed or enhanced within the health system so that CHWs are also supported more strategically and frequently by knowledgeable staff from referral health facilities and/or CMAM programmes.

#### *Funding*

Implementers should carefully consider whether there is sufficient funding to resource the necessary phases of implementation of CHW-led treatment, including start-up activities like strengthening links to the institutional health system, creating and/or updating job aids and tools for CHWs, restructuring supply chains and commodity tracking and CHW and supervisor training. The estimated amount of time to complete these activities needs to be weighed against how long it will reasonably take to meet the objectives set for CHW-led treatment and how much funding is available to sustain the maintenance costs of the programme.

#### *Programmatic recommendations – how to optimise CHW-led community-based treatment*

Once a CHW-led treatment approach is deemed appropriate for the context in question, implementers should consider the following recommendations to improve implementation and uptake. 1

#### *Simplify the CHW-led community-based treatment protocol*

Implementers should adopt a simplified treatment protocol for CHW-led treatment of uncomplicated SAM and/or MAM in order to streamline decision-making by CHWs, ease assessment procedures and improve continuity of care. Implementers should incorporate assessment procedures from national iCCM protocols which are already simplified for CHWs to check for medical complications, adopt MUAC-only anthropometry criteria for admission, monitoring and treatment and treat children who are admitted for SAM through full recovery using one treatment product. While the RISE study did not test using a combined treatment protocol for SAM and MAM cases, implementers should consider using a protocol which uses one treatment product for SAM and MAM instead of two products typically used in facility-based treatment. New evidence indicates that combined, simplified treatment for SAM and MAM is as effective as standard treatment and saves money (Bailey *et al.*, 2020).

#### *Simplify and integrate existing tools used by CHWs to provide treatment*

Implementers should equip CHWs with simplified tools and job aids such as the low-literacy toolkit tested in the RISE study. These tools were specifically designed according to a user-centred design process to accommodate CHWs' capacity and preferences whilst guiding them through admission, follow-up and discharge processes using colour references and pictorial icons. Also, the simplified treatment register was essential for empowering CHWs to document, monitor and

interpret children's status over time – a task which typically requires high literacy. Finally, implementers should integrate other tools and job aids used by CHWs whenever possible. For example, iCCM tools and CHW-led treatment tools should be repackaged into one simplified toolkit in order to consolidate step-by-step procedures for treating illness and wasting.

### *Strengthen referral to appropriate health facilities and stabilisation centres*

Implementers should strengthen and/or develop strategies to ensure that children with medical complications complete referral to appropriate health facilities. For example, implementers should leverage CHW-community relationships to design context-specific messaging, counselling and mechanisms that adequately communicate the limit of CHW-led treatment and the seriousness of medical referral when prescribed as well as design feasible support mechanisms, such as providing transportation, to ease referral completion. Implementers should also build and support two-way communication and/or formal referral tracking to confirm adherence and completion or to inform necessary programme improvements.

### *Consider appropriate motivation or incentives for CHWs*

CHWs should receive a salary in line with the minimum national guidelines for CHWs as well as incentives such as chairs and/or a small table to greet caregivers and water, sanitation and hygiene supplies to support them to provide treatment from their homes. Implementers should also develop a way to certify and/or recognise CHWs for acquiring the extra skills and responsibility of CHW-led treatment. Particularly in future contexts, where only selected CHWs are trained and equipped to provide treatment, certification will be important for differentiating CHWs who provide SAM or MAM treatment from other CHWs. Also, legitimising CHWs may address scepticism and accusations of favouritism that CHWs face from caregivers whose children do not qualify for treatment.

### *Track reasons for default and adapt programming to reduce default*

Since the CHW-led treatment approach presumes to reduce barriers to accessing treatment, implementers should establish a default tracking system that includes the collection of quantitative and qualitative data to explain default and, if high defaulting persists, identify feasible programme adaptations to address this.

### *Consider training enhancements to improve CHW performance*

In order to ensure CHWs are ready to administer treatment, implementers should evaluate CHWs' performance before they are deployed through a practical exam with at least one opportunity to improve their performance after receiving feedback from a supervisor. During supervision visits, implementers should closely monitor if there are critical tasks which require additional or innovative training. For instance, CHW cadres who provide both iCCM and wasting treatment may benefit from periodic refresher training or specialised job aids on how to treat and document co-morbidities.

### *Improve communication and involve communities in an effort to support CHW-led treatment*

Implementers should engage communities early on to build shared knowledge, commitment and accountability of CHW-led treatment and to reduce misinformation about the approach. Support from community leaders, caregivers and other medical providers is essential to communicate key nutrition messages and promote adherence to treatment as well as secure the motivation of CHWs and support the movement and safe storage of medicines and RUTF. Improved communication also ensures that caregivers understand referral procedures and mechanisms in order to reduce frustration directed at CHWs.

## Conclusions

Quantitative and qualitative results from the RISE study suggest that, globally, CHWs can be trained and equipped to provide treatment accurately and effectively for uncomplicated wasting at the community level. However, further ap-

plication of the considerations and recommendations developed by study partners is needed to inform the operational feasibility, scalability and sustainability of CHW-led treatment under typical programme conditions and MoH management. More recently, CHW-led treatment has been endorsed and promoted by UNICEF, the World Health Organization (WHO) and the Global Nutrition Cluster as a recommended approach to ensure continuity of wasting treatment in the context of COVID-19 (UNICEF, GTAM, GNC, 2020). While the RISE study consortium explored feasibility before the pandemic, study partners acknowledged the potential of CHW-led treatment to address the unique challenges associated with COVID-19. In June 2020, the RISE study consortium expanded membership to include additional child health and nutrition experts and UNICEF in order to develop a 'Toolkit for CHW community-based treatment of uncomplicated wasting for children 6-59 months in the context of COVID-19'.<sup>2</sup> The toolkit includes updated guidance which reflects the considerations and recommendations in this article as well as integrating additional simplified approaches such as Family MUAC and a combined, simplified treatment protocol.

The RISE study consortium continues to explore the promise of CHW-led treatment to increase access to wasting treatment as the Simplified Approaches working group. This working group, now co-led by UNICEF and supported by additional implementing organisations, aims to support partners and organisations in the implementation of multiple approaches designed to improve coverage and reduce the costs of providing treatment, including CHW-led treatment, by providing a platform on which to share and discuss operational successes, challenges and experiences and to identify and collaborate on the development of tools, guidance learning and evidence generation.

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<sup>2</sup> <https://www.acutemalnutrition.org/en/Simplified-Tools-Covid>

## References

- Bailey, J., Opondo, C., Lelijveld, N., Marron, B., Onyo, P., Musyoki, E.N., *et al.* (2020) A simplified, combined protocol versus standard treatment for acute malnutrition in children 6–59 months (ComPAS trial): A cluster-randomized controlled non-inferiority trial in Kenya and South Sudan. *PLoS Med* 17(7): e1003192. <https://doi.org/10.1371/journal.pmed.1003192>
- Headey, D., Heidkamp, R., Osendarp, S., *et al.*, Impacts of COVID-19 on childhood malnutrition and nutrition-related mortality. *Lancet*. 2020; (published online July 27). [https://doi.org/10.1016/S0140-6736\(20\)31647-0](https://doi.org/10.1016/S0140-6736(20)31647-0)
- Kimani-Murage, E.W., Pythagore, H., Mwaniki, E. *et al.*, Integrated and simplified approaches to community management of acute malnutrition in rural Kenya: a cluster randomized trial protocol. *BMC Public Health* 19, 1253 (2019) <https://doi.org/10.1186/s12889-019-7497-3>
- Kozuki N., Van Boetzelaeer E., Tesfai C., Zhou, A. Severe acute malnutrition treatment delivered by low-literate community health workers in South Sudan: A prospective cohort study. *J Glob Health*. 2020;10(1):010421. doi:10.7189/jogh.10.010421

- López-Ejeda, N., Charle Cuellar, P., Vargas, A., Guerrero, S. Can community health workers manage uncomplicated severe acute malnutrition? A review of operational experiences in delivering severe acute malnutrition treatment through community health platforms. *Matern Child Nutr*. 2019; 15:e12719. <https://doi.org/10.1111/mcn.12719>
- Puett, C., Hauenstein Swan, S., Guerrero, S. (2013). Access for All, Volume 2: What factors influence access to community based treatment of severe acute malnutrition? (Coverage Monitoring Network, London, November 2013)
- Rogers, E., Myatt, M., Woodhead, S., Guerrero, S., Alvarez, J.L. Coverage of community-based management of severe acute malnutrition programmes in twenty-one countries, 2012–2013. *PLoS One*. 2015;10:e0128666. 10.1371/journal.pone.0128666
- UNICEF, World Bank, & WHO. (2020). Joint Child Malnutrition Estimates 2020. Retrieved from: <https://data.unicef.org/resources/joint-child-malnutrition-estimates-interactive-dashboard-2020/>

- UNICEF, Global Nutrition Cluster, Global Technical Assistance Mechanism for Nutrition (GTAM) (2020). Management of child wasting in the context of COVID-19. [www.ennonline.net/covid19wastingbrief](http://www.ennonline.net/covid19wastingbrief)
- WHO. UNICEF. Integrated community case management (iCCM): an equity-focused strategy to improve access to essential treatment services for children. Geneva: WHO; 2012.
- Tesfai, C., Marron, B., Kim, A., Makura, I. (2016). Enabling low-literacy community health workers to treat uncomplicated SAM as part of community case management: innovation and field tests. *Field Exchange* 52, June 2016. p3. [www.ennonline.net/fex/52/communityhealthworkerssam](http://www.ennonline.net/fex/52/communityhealthworkerssam)
- Van Boetzelaeer, E., Zhou, A., Tesfai, C., Kozuki, N. Performance of low-literate community health workers treating severe acute malnutrition in South Sudan. *Matern Child Nutr*. 2019; 15(S1):e12716. <https://doi.org/10.1111/mcn.12716>

## Using satellite imagery in conflict-affected areas in Mali to support WFP's emergency response

The chief of the village of Birga-Peulh (Koro cercle, Mopti, Mali) indicates where the attackers came from a few months earlier, leaving that part of the village abandoned



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## CENTRAL MALI

**What we know:** In conflict-affected areas, it is often challenging to obtain near real-time information on crop changes to estimate future food insecurity levels.

**What this article adds:** A pilot study was carried out by the World Food Programme (WFP) Mali in the Mopti region in 2019 where earth observation data was used to detect cropland abandonment in hard-to-reach areas to assess the physical impacts of conflict on croplands and therefore detect populations in likely need of food assistance. Compared to pre-conflict years (2016 and 2017), 25% of localities in the region experienced a decrease in cultivated lands. Findings were triangulated with population and contextual data including available information on insecurity and local armed conflicts, agricultural season evaluations, displacement estimates and satellite images assessing damage to villages. The results were also validated through field interviews with villagers. The added value of this analysis included a strengthened early warning for prompt action (used during the Cadre Harmonise survey and by the Food Security Cluster and the World Food Programme to prioritise localities for response) and evidenced advocacy to partners and donors. The interpretation of satellite imagery does not replace field surveys; triangulation with official datasets and other data sources is essential. Strengthened technical capacities and early engagement with local ministries and partners is necessary for buy-in and acceptance.

## Background

In 2019, the security situation in the region of Mopti, central Mali, deteriorated dramatically. High rates of violence were triggered by the presence of armed groups and self-defence militias, increasing criminality and inter-communal tensions. Such rising levels of insecurity led to approximately 1,300 fatalities and tens of thousands of internally displaced people across the region. Given the already fragile nature of the context, due to mounting demographic pressures, high rates of youth unemployment, soil degradation, scarcity of natural resources and repeated droughts, this quickly spiralled into a food insecure situation. Agricultural activities in Mopti were immediately heavily curtailed due to the restriction of physical access to fields imposed by armed actors and the displacement of entire communities. Fields that were previously cultivated before the security crisis were abandoned

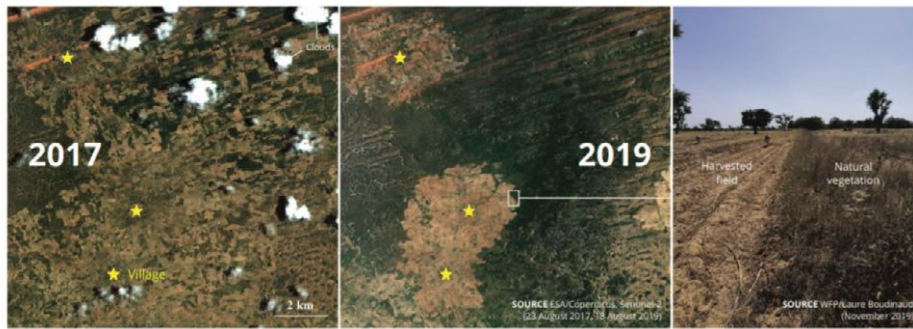
for fear of violence in a number of localities, with differing degrees of loss. Additionally, the impact of insecurity and violence led to entire communities being confined to their villages, unable to access markets, cultivate distant fields or reach neighbouring localities. For those populations forced to abandon distant agricultural fields and adapt their farming practices to the security context, the harvest was insufficient to feed the community until the following harvest season in September/ October 2020. In both cases, displaced or confined, populations relied almost entirely on humanitarian assistance and needed to be prioritised for food assistance and livelihoods support.

This article presents a pilot study during which the World Food Programme (WFP) Mali

<sup>1</sup> Formerly the UK Department for International Development (DfID)



**Figure 1** Satellite images showing the impact of movement restrictions on cropland patterns around three villages (Koro Cercle)

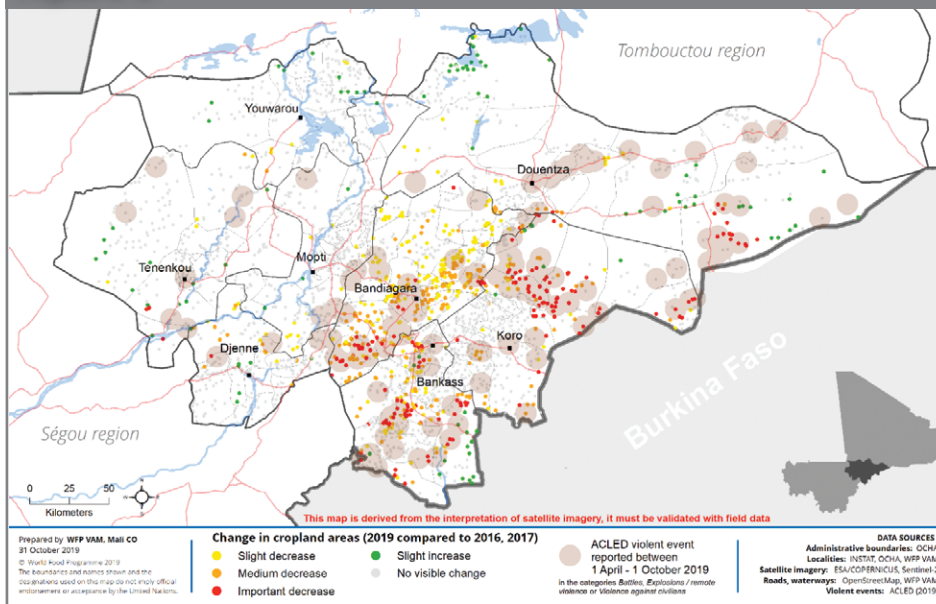


**Left** The satellite image dated from August 23d 2017 shows natural vegetation in dark green, while cultivated fields appear as many beige rectangles, visibly spread all around the villages (represented with yellow stars).

**Centre** On the other image, dated from August 18th 2019, only the fields that are close to habitations appear to be cultivated, concentrated within a 2-kilometre buffer around the villages. Beyond this delimitation, natural vegetation covers up fields that farmers used to cultivate before, but were forced to abandon that year following direct threats or acts of violence.

**Right** A field picture, taken during a validation mission conducted on November 21st 2019, shows the delineation beyond which farmers could not access to cultivate. Interviewees from all visited villages explained that they were unable to cultivate normally in 2019, due to insecurity, and confirmed the significant reductions in cropland areas, as detected from space.

**Figure 2** Cropland abandonment and violent events in Mopti Region, Mali, 2019



used European Space Agency’s Centre for Earth Observation data to detect cropland abandonment in hard-to-reach areas as a means of assessing the physical impact of the conflict on cropland areas and therefore detecting those populations in likely need of food assistance.

**Methodology**

For each year between 2016 and 2019, Sentinel-2 images (provided by the European Space Agency<sup>2</sup>) were acquired, processed and analysed in order to detect cropland change by locality in the Mopti region. The analysis consisted of creating a composite of maximum normalised difference vegetation index (NDVI) images from three distinct periods within the growing season. The composite generated a Red-Green-Blue image where the red band represented the start of the growing season, the green the middle and the blue the end. The resulting image highlighted areas with temporal patterns of cropland which are different from natural vegetation, built-up

areas or other land cover types. To provide a comprehensive overview of an area of interest, up-to-date granular data is essential. The satellite imagery used for this analysis (Sentinel-2) offers details at a 10-metre resolution, enabling results at village scale. A new image is captured every five to six days on any given point on Earth, guaranteeing homogeneous, frequent and updated data for the whole area of interest.

In theory, the period between June 15th and October 15th covers an agricultural cycle in the region of Mopti, from land preparation to the early stages of harvesting. Satellite images acquired during these four months were processed in order to identify cultivated land for each year from 2016 to 2019. A semi-automated method was developed for this study which involved several processing steps including automatically calculating and mapping the yearly composites derived from the maximum values of the vegetation index for the beginning, middle and end of the season followed by visual interpretation

by a remote sensing expert to determine the type of change in vegetation seen between the year of interest and the reference year. This enabled approximately 3,200 localities to be covered, measuring for each the degree of cropland change in the surrounding area between 2019 and a selected year prior to the conflict. Two reference years (2016 and 2017) were selected as two baselines are useful to account for possible cloud cover in one year which makes interpretation more difficult. Figure 1 provides an example of image comparisons conducted between 2017 and 2019. This analysis provided a meaningful interpretation of the data to explore patterns and identify vulnerability hotspots across the region. More details on the datasets and the processing steps are provided in the report, ‘Satellite Imagery in conflict-affected areas.’<sup>3</sup>

The map in Figure 2 depicts, in yellow, orange and red, the localities where slight, medium and severe cropland loss (respectively) was detected in 2019 compared to 2016 or 2017. Slight cropland lost was classified as <25% of cultivated surface area loss between 2019 and the selected reference year, medium cropland lost was classified as between 25%-50% of cultivated surface area loss and severe cropland loss was classified as >50% of cultivated surface area loss between 2019 and the reference year. Grey dots represent villages where no evident change was visible or where there was no agricultural land. Brown circles represent violent events reported by the Armed Conflict Location and Event Data Project (ACLED) between April and October 2019.

**Main findings**

This methodology enabled a regional-scale interpretation of the European Space Agency’s Centre for Earth Observation data, examining several landscape changes that can be detected from space including significant reductions in cropland areas, damaged and abandoned infrastructures and neatly demarcated cropland areas concentrated close to habitations. More specifically, Figure 2 shows that:

- No visible change was detected in the majority (72%) of the 3,166 localities analysed.
- In total, 25% of localities in the region of Mopti experienced a decrease in cultivated lands compared to pre-conflict years (2016, 2017).
- The cercles<sup>4</sup> most affected by significant cropland diminutions are Koro, Bankass, Bandiagara and Douentza which are the areas where inter-communal tensions led to many acts of violence in 2019.
- No evident change was detected in most localities of the western cercles of the region with Youwarou, Mopti, Tenenkou and Djenne experiencing fewer cropland losses than the east of Mopti region.
- For a minority of localities (3%), croplands slightly increased in 2019 compared to pre-

<sup>2</sup> <https://sentinel.esa.int/web/sentinel/user-guides/sentinel-2-msi/overview>  
<sup>3</sup> <https://www.wfp.org/publications/wfp-mali-satellite-imagery>  
<sup>4</sup> A cercle is the second level administrative unit in Mali. Each region is subdivided into a number of cercles, which are themselves divided into a number of communes. There are roughly 50 cercles in Mali.

conflict years. This may be due to favourable climatic conditions despite a late start to the rainy season. Some of these localities were in hard-to-reach areas with the presence of non-state armed groups while others (for example in the west) were in relatively secure areas that experienced few attacks despite the presence of armed actors.

- Violent events between April and October 2019 (as documented by ACLED) overlapped with the analysis results, illustrating the correlation between insecurity and agricultural decline. Insecurity peaks in 2019 heavily affected agricultural activities in the eastern part of the Mopti region.

### Triangulation with population data

In 2019, the region of Mopti had an estimated population size of three million people (Direction Nationale de la Population, Mali, 2019). To assess the possible impact of cropland losses in terms of population (rather than in numbers of localities), several credited population datasets that depict the distribution of the population were analysed. Specifically, the High-Resolution Population Density maps, which represent estimates of population counts per pixel at a 30-metre resolution, were selected to provide population estimates in areas affected by agricultural decline in the region. For each category of cropland change (slight, medium and severe cropland loss), the projected population estimated to live within a 2-kilometre radius around the sites was calculated (this was an approximation and did not take into account displacement as such data at locality level was unavailable). In total, 130,000 people were estimated to live in areas affected by severe cropland loss (4.3% of the total population), out of which 50,000 were in the cercle of Koro and 35,000 in Bankass. In addition to this, 215,000 people were estimated to be in areas affected by a moderate cropland loss (7.2%) and 260,000 by slight cropland loss (8.6%). Around 200,000 people were estimated to be benefiting from a slight cropland increase.

### Triangulation with contextual data

Cropland abandonment, as visible from space, is one of the many consequences of the widespread violence in central Mali. Damaged infrastructure and abandoned villages were also spotted during the interpretation of the satellite imagery. To better understand how the findings correlated to the security context, datasets, such as those with geo-referenced violent events, field data, aggregated displacement data and agricultural seasonal evaluation reports, were analysed for cropland changes. The results were subsequently cross-checked with official agricultural evaluations.

### Insecurity

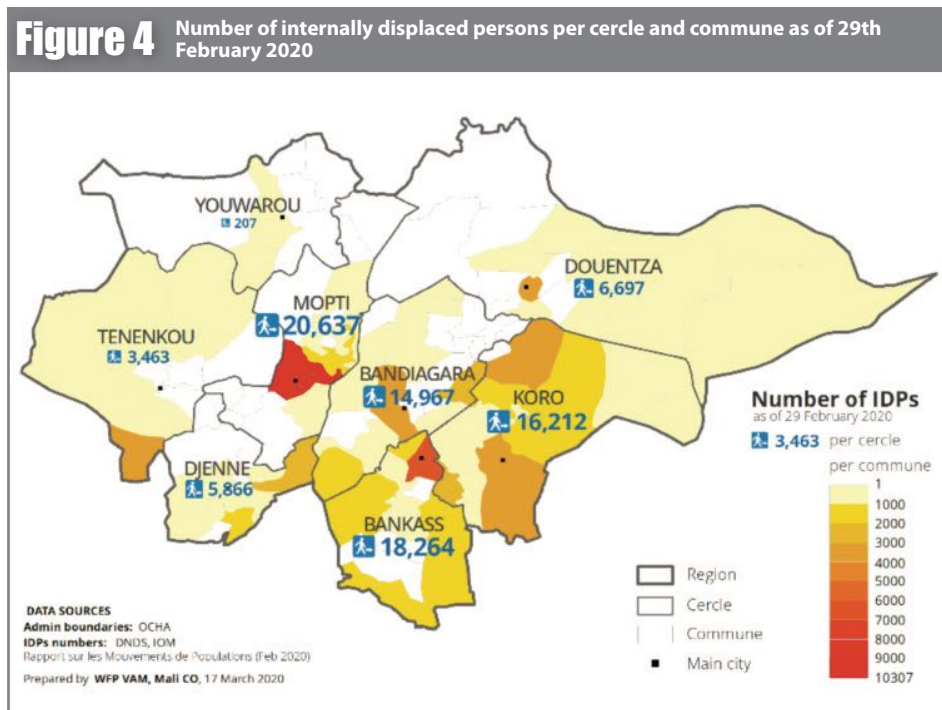
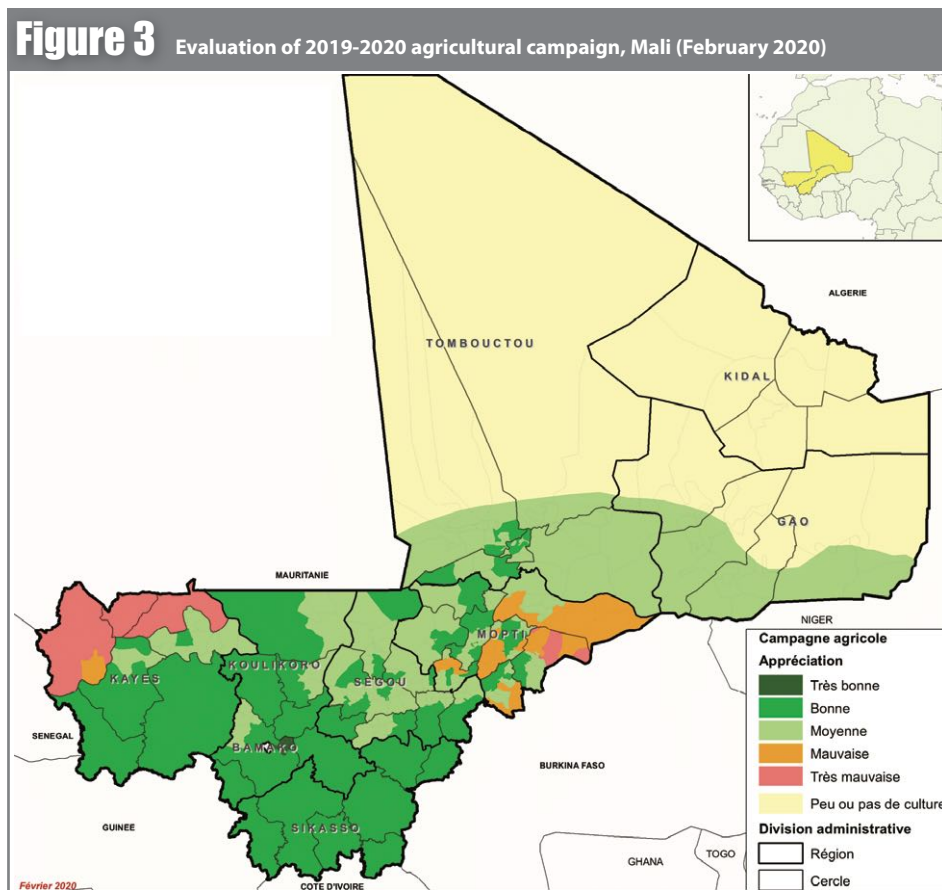
In June 2019, when land preparation and planting were underway, a peak in both significant violent incidents and the number of fatalities was recorded in the region. Indeed, most of the significant cropland losses occurred in localities where violent events were reported between April and October 2019, as depicted in Figure 2. During that period, 190 of the 305 violent events reported for Mali occurred in the Mopti region, 90% of

which were in the four eastern cercles of the region (Bandiagara, Bankass, Douentza and Koro). Due to the presence of multiple armed groups, inter-communal violence was exacerbated in those cercles and the general security context was highly volatile. In contrast, the cercles of Tenenkou, Mopti, Youwarou and Djenne recorded fewer violent events in the same period. These areas are in the west where, as noted previously, the presence of a non-state armed group is deeply rooted (a different context than in the

east) and thus, while there was high criminality, there were no attacks which allowed for a relatively calm situation. This may in part explain a more typical pattern of agricultural activities in this region than in the east.

### Agricultural season evaluation

The early warning system of the Malian food security commissary (Système d'Alerte Précoce) prepared a map (Figure 3) indicating the evaluation of the 2019-2020 agricultural season. It



confirmed a 'bad' to a 'very bad' agricultural season (as classified through the *Système d'Alerte Précoce*) in most of Douentza Cercle (east), Koro Cercle (north), Bandiagara Cercle (south) and Bankass Cercle (south).

### Displacement

As of February 2020, it was estimated that over 86,000 people were internally displaced (IDPs) in the Mopti region, approximately 40% of the total population of IDPs in Mali.<sup>5</sup> Figure 4 indicates the number of IDPs per cercle and per commune as of 29 February 2020. The majority were located in the three cercles most affected by violent events and cropland changes (Koro, Bankass and Bandiagara) as well as Mopti Cercle. Many IDPs sought to reach major towns where the security situation tended to be safer. Around 18,000 IDPs were estimated to be in the Mopti and Socoura communes where Mopti town and Sévaré are located. The communes of Bankass, Bandiagara, Douentza and Koro towns were estimated to host approximately 17,500 IDPs in total. An equally large number of IDPs was spread out across the region, living with host communities in rural areas that may themselves have had difficulties in accessing food resources.

### Damaged villages

In addition to cropland losses, over 100 villages were detected with satellite imagery as having been likely destroyed or damaged in the course of 2019. This was confirmed with Very High Resolution (VHR) satellite images for 60 localities. For the remainder, no recent VHR imagery was available to validate the interpretation from Sentinel-2 images. Damaged localities were seen to be specifically located in the southeast part of the region. In most cases, a severe or even a total loss of cultivated land was detected around those villages.

### Climatic changes

Climatic changes were not considered as part of the triangulation of data given the dramatic cropland losses seen at such a localised level. Changes in inter-annual rainfall patterns were noted at the regional and cercle level but were not sufficient to explain the total losses of cultivated land in one village while in a neighbouring village, no visible changes were seen. Given the localisation of the dramatic losses in cultivated land, climate change was not understood to be a contributing factor to the variation in cultivation seen between 2016/17 and 2019.

### Field validation

Field interviews were conducted in November 2019 to gather evidence from villagers in the cercles of Bandiagara, Bankass and Koro, identified as most affected by significant cropland losses, to test the interpretation of the remote satellite data. The collected information echoes the results derived from satellite imagery and confirms cropland losses as well as settlement damages caused by violent attacks. The field visit confirmed that many inhabitants left their villages during 2019 to escape from the deteriorating security situation, following direct or indirect violent threats. Some joined bigger towns, considered as safer, while others sought refuge in rural areas

with host communities that often struggled to survive themselves due to movement restrictions imposed by armed militias. Farmers could not cultivate normally during the year due to the widespread violence and threats of violence. As a result of fear of attacks, farmers could only access agricultural fields close to habitations. Often, a delimitation beyond which villagers could neither access nor cultivate land was imposed by armed men. Finally, many abandoned, damaged or even destroyed structures were observed during the field mission.

## Discussion

### Early warning for early action

The results from the satellite imagery were used during the *Cadre Harmonisé* (CH) sessions in October 2019 and March 2020, especially for hard-to-reach areas, where traditional survey data could not be collected normally. The CH is a bi-annual food security analysis, led by the national early warning system in collaboration with line ministries and with the support of all food security partners. Using the remote sensing data rather than the traditional field collection has advantages, particularly in hard-to-access areas, in that it is relatively risk-free for staff, low cost (the imagery and processing software is free), quick to carry out (the analysis takes approximately 10 days and requires one expert), it enables homogenous data between the current situation and baseline data (which is not always the case with field data), it offers granularity (at the local level) and it is extensive as it allows all localities to be monitored.

The CH process, using remote sensing results as well as a wider set of indicators and sources, estimated that 535,279 people were going to be in crisis or emergency food insecurity phases for the 2020 lean season across Mopti. Moreover, the unprecedented level of spatial precision provided by these results was fed into humanitarian response mechanisms and strategic decision-making as a tool to better target vulnerable communities at village-scale. The list of localities that were identified as most affected by agricultural decline helped the WFP, the Food Security Cluster and other partners to plan their emergency response as early as March (three months ahead of the theoretical lean season).

### Advocacy

The evidence generated by satellite imagery, in areas where there is little to no up-to-date available data, highlighted the challenges faced in Mopti and helped to mobilise humanitarian partners and the government alike, as well as the support of regional and international donors.

### Expanding the analysis to other areas

An ever-growing, free-of-charge dataset of high-resolution satellite imagery is now available and offers a broad range of applications to the humanitarian and development sectors. As an example, the enhanced characteristics (spatial, temporal and spectral) of Sentinel-2 satellite data are well-suited to monitor cropland changes, more specifically in a country like Mali where agriculture is mostly non-mechanised and fields are relatively small. Remote sensing of cultivated areas is a powerful and likely cost-effective tool

to generate information about the location and timing of agricultural activities in hard-to-reach areas which may indicate physical security, or lack thereof, and its effects on food security. Where there are limited options for detecting the effects of conflict, the integration of satellite technology offers a valuable tool to help to cope with a lack of timely, long-term, homogeneous and reliable on-the-ground information.

The methodology has also been applied to other contexts such as in North-Eastern Nigeria where the Joint Research Centre produced similar maps for five local government areas (LGA) in Borno State. A similar analysis was also conducted in hard-to-access areas in the border areas within Mali, Niger and Burkina Faso for 2019 and 2020, covering about 500,000 square kilometres.

### Lessons learned about the use of technology

Preliminary lessons learned about the use of this technology in the context of Mali were noted. Firstly, in order to validate the results and to ensure their acceptance by national agencies and other partners, a significant triangulation with official datasets and other data sources was found to be essential. Importantly, the interpretation of satellite imagery did not replace field surveys and the results required further investigation with communities to evaluate the economic and societal impacts of the changes identified. Secondly, new technologies may face mistrust from traditional technicians who can be dubious about the innovative method's soundness. Technology appetite should not be taken for granted from all stakeholders: some education on remote sensing must be carried out to help counterparts to accept the methodology and understand what can be obtained from it.

## Recommendations

Several recommendations were determined to support the future use of this technology in humanitarian and development efforts. Critically, it is important to strengthen the technical capacities of those using early warning systems to incorporate satellite-derived data and analysis into existing national information systems and decision-making mechanisms. Furthermore, given that it is a relatively new technology, it is important to involve all partners, line ministries and technical services early in the analysis process and the subsequent validation in order to ensure the acceptability of results. Communicating the methodology of using satellite-derived data clearly, including its benefits as well as its limitations, is important for acceptability. This pilot study has shown that satellite imagery data can provide a useful tool in hard-to-reach areas and deliver valuable information about cultivated land changes. As such, the study should be replicated in other conflict-affected countries in order to assess its broader value in humanitarian and development responses.

For more information, please contact Laure Boudinaud at [laure.boudinaud@wfp.org](mailto:laure.boudinaud@wfp.org)

<sup>5</sup> Source: UNHCR/IOM. Available at [data2.unhcr.org/en/country/ml](http://data2.unhcr.org/en/country/ml)



## Livestock and nutrition: Summary of a discussion paper for the Livestock Emergency Guidelines and Standards Research summary<sup>1</sup>

By Kate Sadler



Dr Kate Sadler is a public nutritionist with over 20 years of experience in the design, management, evaluation and research of nutrition interventions in Africa and Asia. She has a PhD in nutrition and has worked as a programme nutritionist, as assistant professor at Tufts University and is now an independent consultant.

The Livestock Emergency Guidelines and Standards (LEGS) is an independent initiative that aims to improve the quality and livelihoods impact of livestock-related projects in humanitarian contexts and commissioned this work. This article results from the work that LEGS commissioned.



Kelley Lynch-Save the Children

## GLOBAL

**What we know:** Livestock interventions rarely consider the critical impact they can have on human health and nutrition outcomes.

**What this article adds:** Recently, there has been more focus on the potential for nutrition-sensitive agriculture and livestock interventions to improve nutrition outcomes including the release of a technical guidance by the Food and Agriculture Organization. A review of the key issues relating to nutrition in the context of livestock-based emergency interventions was conducted with particular attention to the contribution of livestock to nutrition at household level, the impact of emergencies on this contribution and the nutritional benefits of appropriate livestock-based emergency interventions. While the evidence for the direct impacts of livestock interventions on nutritional status is limited, there is considerable evidence that such interventions can improve household access to nutritious foods and the quality of mothers' and young children's diets. Evidence also increasingly suggests that agriculture and livestock interventions may be more impactful when they are focused on improving access to, and consumption of, nutritious food and diverse diets rather than on reducing malnutrition (stunting and wasting) directly.

### Introduction

Livestock are ubiquitous in poor communities across the developing world. An estimated 68% of resource-poor rural households keep some type of livestock (Pica-Ciamarra, 2011). Livestock are a source of income and food, support crop production and provide insurance and social status for these households (Figure 1). The design of livestock interventions has rarely considered the critical livelihood outcomes of human health and nutrition. Instead, they have traditionally involved livestock support for the

primary purposes of income generation and poverty reduction (Ruel, 2018). Recently, there has been more focus on the potential for nutrition-sensitive<sup>1</sup> agriculture and livestock interventions to improve nutrition outcomes including the release of a technical guidance by the Food and Agriculture Organization (FAO, 2020).

A discussion paper was commissioned by the Livestock Emergency Guidelines and Standards (LEGS)<sup>2</sup> to review the key issues relating to nutrition in the context of livestock-based emergency interventions with particular attention

to the following key topics:

- The contribution of livestock to nutrition at household level
- The impact of emergencies on this contribution
- The nutritional benefits of appropriate livestock-based emergency interventions

The aim of the discussion paper was to provide detailed recommendations for the LEGS Advisory Committee on how nutrition can be better represented in the revised edition of the LEGS Handbook and the wider LEGS programme. Findings of the report were presented in a webinar in November 2020.<sup>3</sup>

### Contribution of animal source foods to nutrition and dietary diversity

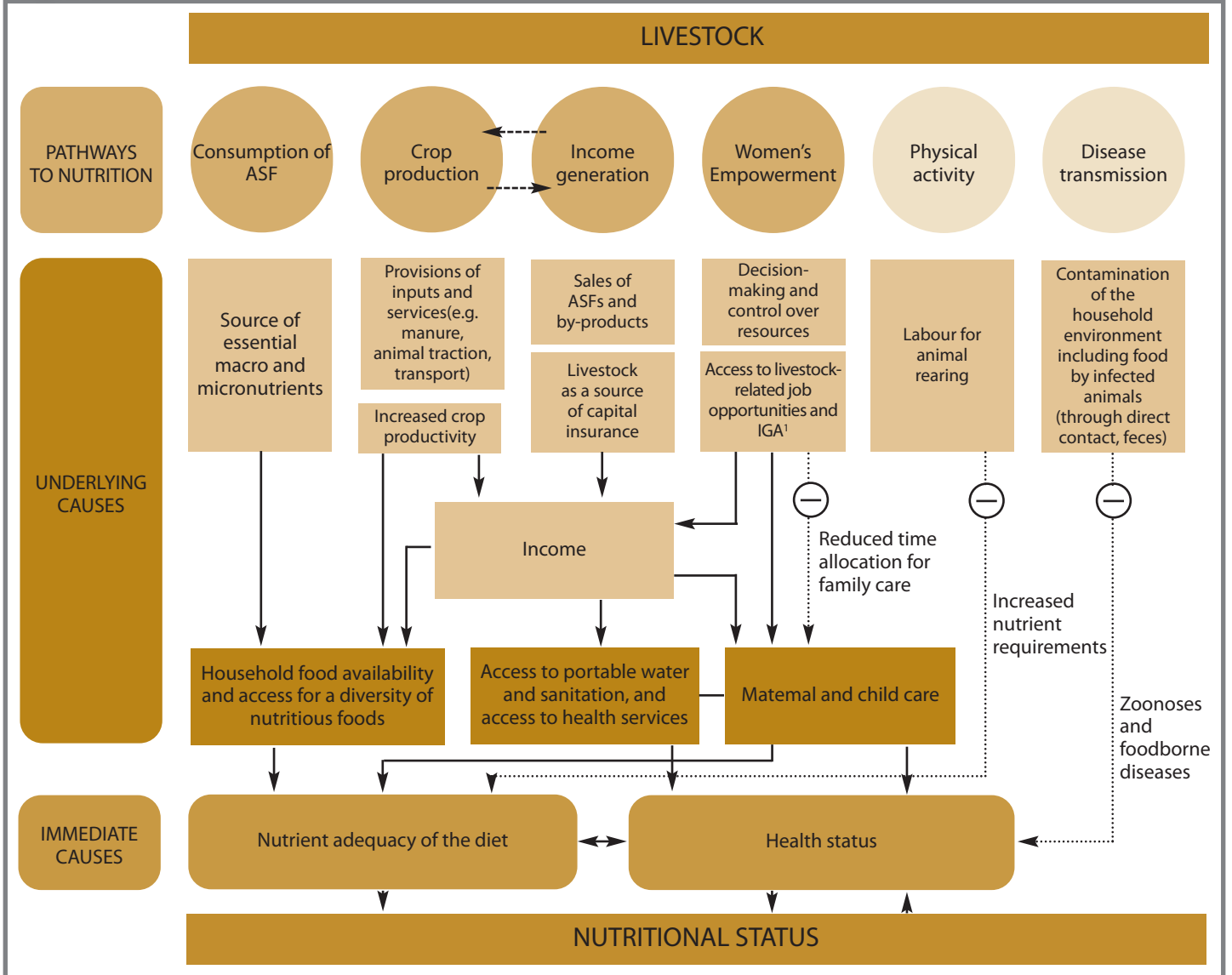
Animal source foods (ASF) are rich in micronutrients and proteins. The proteins they contain are of good quality and are highly digestible and the micronutrients include iron, zinc and vitamins A and B12 that are often

<sup>1</sup> Nutrition-sensitive interventions are designed to address the underlying causes of malnutrition. As nutrition is affected by access, availability and quality of food, a nutrition-sensitive intervention may focus on increasing agricultural productivity for own-consumption or sale. Such interventions may serve as an effective platform for nutrition-specific interventions which directly address the immediate causes of malnutrition – disease and poor dietary intake.

<sup>2</sup> <https://www.livestock-emergency.net/general-resources-legs-specific/>

<sup>3</sup> Recording of the webinar is available at: <https://www.livestock-emergency.net/resources/legs-webinars-2/>

**Figure 1** Impact Pathways from Livestock to Nutrition



⊖ represents a negative influence

Source: Food and Agriculture Organization (FAO, 2020)

lacking in the diets of the nutritionally vulnerable. The bioavailability (how much of a nutrient can be absorbed and used by the body) of these nutrients is also higher in ASF than in many plant-derived foods. For all these reasons, consumption of even small amounts of milk, meat, blood and eggs can contribute substantially to ensuring adequate nutrition. Organisations like the World Health Organization (WHO) recommend that they are included as part of balanced diets for nutritionally vulnerable groups. While ASF have traditionally made up a large part of the diet of some minority groups such as pastoralists, for most rural poor they are rarely eaten because they are relatively more expensive than foods from other food groups. ASF are considered a 'luxury' and livestock are used primarily for income generation.

There have been many studies in the past 10 years that have found positive associations between livestock ownership, dietary diversity (at household, child and/or women level) and, when measured, with increased intake of es-

sential micronutrients. A recent Field Exchange article described an agronomy and livestock programme implemented by Agronomes et Vétérinaires Sans Frontières in Mali that improved both child and maternal dietary diversity scores during a lean season (Bonde, 2016). Several other studies from Bolivia, Ethiopia, Nepal and Tanzania suggest that livestock ownership can significantly increase consumption of nutrient dense ASF by nutritionally vulnerable groups and thereby improve dietary diversity and quality.

Evidence of associations between livestock ownership, intake of ASF and nutritional status outcomes (stunting and wasting) is more limited. Much of the evidence comes from observational cross-sectional studies which do not allow for causal inferences. In addition, most studies examine height-for-age (stunting) only as an outcome which is usually less relevant than weight-for-height (wasting) for examining the impact of emergency interventions. The strongest evidence is seen for the association between milk

intake and improved linear growth (height) in children and, in some contexts, the magnitude of associations was greater for households that had limited access to markets and/or were poorer or affected by conflict – all factors particularly relevant for emergencies.

### Factors that influence associations between livestock and nutrition

*Women's empowerment* has been considered a strategy to enhance household food security and nutrition for some time. The Women's Empowerment in Livestock Index (WELI) is a standardised measure now available to assess this. A study in pastoral communities in Tanzania found that women's control over livestock assets and income was positively associated with individual dietary diversity as it increased women's ability to produce or purchase more diverse nutritious foods. This suggests that opportunities to enhance gender equity can be particularly important for nutrition in vulnerable communities.

**Knowledge** can shape attitudes and behaviour towards improved family and child feeding habits. However, knowledge can only translate into improved nutrition if those acquiring that knowledge have some control over resources. Increasing the knowledge of those making consumption choices and empowering them to have more control over their resources has been found to be key to realising the potential of livestock production on nutrition. Linked to knowledge is a whole set of issues around taboos and cultural practice. Numerous cultural and religious beliefs and taboos influence consumption of ASF including restrictions on which ASF can be eaten by whom, with women and children in particular subject to such restrictions.

In low- and middle-income countries, the availability of animal milk may sometimes support sub-optimal **child-feeding practices**. Although WHO does not recommend animal milk for young children before 9 to 12 months of age, there is considerable evidence in the literature that shows that cow and other milk is often given to infants. Data from different studies have shown that cattle-keeping and other households with easy access to dairy cattle gave cow milk to children at a younger age compared to households with more limited access. The 'Milk Matters' study in Ethiopia, summarised in Field Exchange (Sadler and Catley, 2010), found that the introduction of animal milk to infants below nine months was common. This was practiced in response to mothers' perception that their breastmilk was not sufficient in quantity/quality because they themselves felt sick and/or fatigued.

### *The impact of exposure to animals and animal faeces on child health*

There is on-going debate around the theory that child nutrition and health outcomes in developing countries may be adversely affected by exposure to animals and their faeces. The thinking behind this risk stems from several factors including the widespread ownership of livestock and pets in developing countries, the lack of housing and enclosure structures for livestock that separate animals from household members and, of course, the very high concentration of potentially harmful bacteria in animal faeces. Some research has focused on examining the association between the presence of animals/animal faeces and found there may be an association between hygiene practices, cattle numbers and acute malnutrition in some contexts and between animal faeces in household compounds and poor child nutrition outcomes.

However, despite strong plausible associations between household Water, sanitation and hygiene (WASH) practices and child growth, recent large robust trials have found that household level WASH interventions had no impact on the linear growth of children (Pickering, et al., (2019)) and this has reignited the debate amongst nutrition and WASH researchers regarding the

linkages between poor sanitation and nutrition. The authors concluded that community sanitation may be the crucial factor and highlight the need for more research on faecal contamination in the domestic environment including complete separation of animal faeces from people's living environments. As such, WHO guidelines, and other guidance, recommend that, given the association between diarrhoeal infection and nutrition, improving access to sound WASH practices should remain important for programmes that aim to address malnutrition.

### *The impact of emergencies on the association between livestock and nutrition*

Factors that cause a decline in livestock ownership and reduced access to ASF, including milk, have been shown to have a direct negative impact on the nutrition of communities that are dependent on livestock. These factors disrupt the positive impact pathways between livestock and nutrition. They include armed conflict and drought or flooding that result in animal loss through sales, raids, death and disease. In the context of emergencies, there is a particular need to understand the livelihood strategies of affected communities. There are many examples of livestock keepers prioritising livestock wellbeing over the nutritional and wellbeing needs of their households in order to preserve long-term livelihoods. Emergencies can also have a detrimental effect on the health environment, increasing risks to humans for water and food borne disease caused by proximity to animals.

### **Lessons learnt**

In summary, this review has highlighted that, while the evidence for the direct impacts of livestock interventions on nutritional status is limited, there is considerable evidence that such interventions can improve household access to nutritious foods and the quality of mothers' and young children's diets. Evidence increasingly suggests that agriculture and livestock interventions may be more impactful when they are focused on improving access to, and consumption of, nutritious food and diverse diets than on reducing malnutrition (stunting and wasting) directly.

It is important to note that most of the evidence reviewed in this paper comes from the development literature – this review highlights

a scarcity of studies that have examined the relationships between livestock ownership, consumption of ASF and nutrition in emergencies. While this is certainly a gap that needs to be filled, the development literature does provide important learning for nutrition that can be applied to livestock interventions in emergency contexts. This includes the need to consider:

- Designing interventions to maintain and/or improve access to ASF, especially for the nutritionally vulnerable populations
- Minimising exposure to the pathogens associated with livestock and livestock excreta
- Incorporating aspects of gender and women's empowerment for income generation and choices around expenditure
- Supporting nutrition knowledge and recommended care practices, particularly in relation to infant feeding

### **Recommendations**

As an outcome of this review, several recommendations were made to LEGS in order to better address nutrition in a revised version of the handbook. These included some details by handbook chapter which broadly covered the need to:

- Add 'human nutrition' as a cross cutting theme because there are implications for almost every area covered by LEGS
- Use a nutrition lens throughout the programme cycle that examines both the positive and negative potential impacts of livestock interventions for nutrition
- Emphasise the value of measuring nutrition impacts through improving access to, and consumption of, nutritious food and diverse diets as well as through changes in nutritional status

### **Conclusion**

In conclusion, this paper highlights why greater integration between the livestock and nutrition sectors is necessary to ensure livestock livelihoods and ASF contribute to addressing malnutrition. Not using livestock as a pathway out of malnutrition would be a missed opportunity and, as such, the recommendations outlined in this paper could play an important role in achieving global nutrition goals.

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### **References**

Bonde, Damouko. (2016). Impact of agronomy and livestock interventions on women's and children's dietary diversity in Mali. Rep. Field Exchange Issue 51. Emergency Nutrition Network, Oxford, UK.

FAO. (2020). Nutrition and Livestock - Technical guidance to harness the potential of livestock for improved nutrition of vulnerable populations in programme planning. Food and Agriculture Organization, Rome.

Pica-Ciamarra, U., L.Tasciotti, J.Otte, and A.Zezza. (2011). Livestock Assets, Livestock Income and Rural Households. Cross country evidence from household surveys. the World Bank, FAO, ISS, Washington D.C.

Pickering, A.J., Null, C., Winch, P.J., Mangwadu, G., Arnold, F.J., Prendergast, A.J., Njenga, S.M., Rahman, M., Ntozini, R., Benjamin-Chung, J., Stewart, C.P., Huda, T.M.N., Moulton, L.H., Colford Jr, J.M., Luby, S.P. and Humphrey, J.H. (2019). The WASH Benefits and SHINE Trials: Interpretation of WASH intervention effects on linear growth and diarrhoea. *Lancet Global Health* 2019; 7: e1139-46 Ruel, M.T., A.R. Quisumbing, and M. Balagamwala. (2018). Nutrition-sensitive agriculture: What have we learned so far? *Global Food Security* 17:128-153.

Sadler, Kate and Catley, Andy. (2010). Milk Matters: Improving Health and Nutritional Status of Children in Pastoralist Communities. Field Exchange Issue 51. Emergency Nutrition Network, Oxford, UK.

# How countries can reduce child stunting at scale: lessons from exemplar countries

Research summary<sup>1</sup>

School meals in Senegal,  
Sinthiou Mogo (Matam),  
27 February 2018



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## Nepal, Ethiopia, Peru, Kyrgyz Republic, Senegal

**What we know:** Global levels of stunting remain unacceptably high; progress is needed to reduce national stunting prevalence in order to achieve the World Health Assembly and Sustainable Development Goals (SDG) targets.

**What this article adds:** Several countries have dramatically reduced child stunting prevalence with or without the closing of population inequalities. The progress made by five exemplar countries was reviewed and synthesised to provide guidance on how to accelerate reductions in national stunting prevalence. Despite significant heterogeneity and differences in context, interventions unrelated to health and nutrition contributed to about 50% of child stunting reduction in each country while interventions from the health and nutrition sectors contributed to about 40%. An improved classification of nutrition actions, presented in this article, allows countries to effectively plan, prioritise and invest in strategies that will lead to the intended population level nutrition-related outcomes. Clearly demarcating responsibilities by sectors to deliver on their core sectoral mandates with an equity lens also has strong potential to build an enabling environment for nutrition at the household level.

**A**lthough the global prevalence of childhood stunting has declined over previous decades, it remains unacceptably high. The progress made by five exemplar countries where stunting prevalence has dramatically reduced, despite population inequalities, was reviewed and synthesised to provide guidance on how to accelerate reductions in national stunting prevalence. Exemplar countries are defined as those that have an outsized reduction in child stunting prevalence in a 15 to 20 year period relative to economic growth and include Peru, Kyrgyz Republic, Nepal, Ethiopia and Senegal. Methods included descriptive analyses of cross-sectional data, a deterministic analysis of quantitative drivers of change in linear growth, country-level stakeholder interviews, a review of policy and programme evolution over the time period of study and a resulting integrative analysis of insights.

The review of the burden, trends and distribution of child stunting prevalence revealed

similar progress in stunting reduction across the exemplar nations despite very diverse contexts. Gains in overall development, employment, literacy, female empowerment, household conditions, health and out-of-pocket spending, health worker availability and maternal and child health (among other indicators) were observed across the exemplar countries. Strong stunting reduction was coupled with entire child stunting distribution shifts in the exemplar countries suggesting that child growth faltering is reducing at a national level. Interestingly, wealth inequalities did not reduce and, in fact, even widened in Nepal, Senegal and Ethiopia over time. Child stunting compared with age curve analysis suggests that Ethiopia, Nepal and Kyrgyz Republic have had substantial improvements in length at birth which could indicate improvements in maternal nutritional status and maternal and newborn care. Peru and Senegal had dramatic flattening of the stunting curve over time for children aged 6 to 23 months which suggests improve-

ments in disease prevention and management, better dietary practices and improved household environments.

When examining quantitative drivers, the multivariate analysis models could explain 72–100% of mean stunting improvement across the countries. Despite significant heterogeneity and differences in context, interventions unrelated to health and nutrition contributed to about 50% of child stunting reduction in each country while interventions from the health and nutrition sectors contributed to about 40%. Some of the gaps related to “unexplained” fractions in Kyrgyz Republic, Senegal and Nepal are likely related to food security/dietary intake or maternal new-

<sup>1</sup> Zulfiqar A Bhutta, Nadia Akseer, Emily C Keats, Tyler Vaivada, Shawn Baker, Susan E Horton, Joanne Katz, Purnima Menon, Ellen Piwoz, Meera Shekar, Cesar Victora, Robert Black, (2020). How countries can reduce child stunting at scale: lessons from exemplar countries. *The American Journal of Clinical Nutrition*, Volume 112, Issue Supplement\_2, 1 September 2020, Pages 894S–904S, <https://doi.org/10.1093/ajcn/nqaa153>

born healthcare or nutrition improvement because proxies for these were lacking in those countries. Improvements in maternal education, maternal nutrition, maternal and newborn care and reductions in fertility/reduced inter-pregnancy intervals were strong and common contributors to change. Some variations in drivers were evident across the countries examined, a finding that largely resulted from differing country contexts and status at baseline. For example, reduced open defecation contributed to 17% of the change in stunting in Ethiopia whereas improved Water, sanitation and hygiene (WASH) practices did not emerge as a factor in Kyrgyz Republic.

Key policy, strategy and programmatic investments adopted by countries to reduce child stunting had several commonalities. Effective initiatives included health and nutrition interventions addressing the immediate determinants including those to improve maternal nutrition and newborn outcomes, promote early and exclusive breastfeeding and improve complementary feeding practices. Investments in improving reproductive health practices were also important for increasing contraceptive use, delaying first pregnancy and increasing birth spacing. Other sectoral strategies, such as those to improve economic conditions, parental education and WASH, also played a key role in addressing underlying determinants of child growth. Pivotal to gains were high-level political and donor support as well as sustained financing to improve child health and nutrition overall, investments in granular data, national capacities for moni-

toring and decision-making and capacities for programme implementation at scale.

The authors propose a new framework for categorising drivers of change when mapping child stunting causal pathways and planning interventions and strategies to accelerate stunting reduction. They suggest that nutrition interventions are organised as direct/indirect and inside/outside the health sector. This is to replace the nutrition-specific and nutrition-sensitive divide that emerged from the 2013 Lancet series on maternal and child nutrition. In this new framework (Figure 1), direct or indirect nutrition interventions within the health sector are considered separately alongside other sectoral approaches that aim to improve nutrition in a more supportive manner. Direct nutrition interventions, which in this framework extend beyond stunting reduction to encompass multiple nutrition outcomes and conditions such as reduction of wasting and anaemia, are nearly synonymous with those that were previously named nutrition-specific. However, several approaches that were previously deemed nutrition-sensitive are better reclassified as indirect nutrition strategies (e.g., disease prevention and management and reproductive health). Other interventions, which also contain direct and indirect actions, fall into the other sectoral strategy categories including agriculture and food security, social safety nets (such as conditional cash transfers) and other poverty alleviation strategies, promotion of women’s empowerment, child protection, education and WASH. Within this schema, direct interventions addressing the im-

mediate determinants of all forms of child undernutrition and indirect interventions (that are both inside and outside the health sector) work to alleviate the more distal, underlying determinants. Not all indirect interventions explicitly include a nutrition focus but sectoral agendas can firmly and positively address the underlying determinants of child growth when implemented with a focus on closing social and geographic equity gaps.

A two-phased roadmap is proposed by the authors for reducing child stunting at scale: 1) policy and investment cases for reducing child stunting beginning with a robust diagnostic comprised of a situational analysis, stakeholder consultations and identification of interventions and delivery mechanisms and 2) strengthening of delivery systems and implementation of scaled-up actions identified through the iterative process in Phase I in both the health and nutrition sectors and non-health sectors.

The authors propose that this improved classification of nutrition actions will allow countries to effectively plan, prioritise and invest in strategies that will lead to intended population level nutrition-related outcomes. Given the complex and multi-causal nature of suboptimal growth and development, multi-sector approaches are generally preferred. However, clearly demarcating responsibilities by sectors to deliver on their core sectoral mandates with an equity lens also has strong potential to build an enabling environment for nutrition at the household level.

**Figure 1** Conceptual framework for interventions related to child and maternal undernutrition

Health sector nutrition interventions		Other sectoral strategies	
Direct	Indirect	Direct	Indirect
<ul style="list-style-type: none"> <li>• Promotion of healthy diet and physical activity during childhood, adolescence</li> <li>• Maternal/child food supplementation</li> <li>• Maternal/child micronutrient supplementation, including home fortification</li> <li>• Delayed cord clamping</li> <li>• Support for early immediate breastfeeding initiation</li> <li>• Promotion and support for exclusive and continued breastfeeding</li> <li>• Promotion of age-appropriate complementary feeding practices</li> <li>• Management of moderate acute malnutrition (MAM)</li> <li>• Treatment of severe acute malnutrition (SAM)</li> <li>• Anaemia treatment</li> </ul>	<ul style="list-style-type: none"> <li>• Disease prevention and management strategies, especially diarrhoea</li> <li>• Family planning and reproductive health services</li> <li>• Maternal mental health support</li> </ul>	<ul style="list-style-type: none"> <li>• Iodised or other micronutrient fortified salt</li> <li>• Staple food fortification</li> <li>• Biofortification and agronomic fortification</li> <li>• Policies to reduce prices or increase access to nutritious foods or diverse diets</li> <li>• Policies to limit marketing of unhealthy foods or breastmilk substitutes including labelling</li> <li>• Promotion of healthy diets and age-appropriate complementary feeding in social protection programmes</li> <li>• Nutrition interventions in schools</li> <li>• Nutrition in emergency programmes</li> <li>• Mass and social media on nutrition</li> </ul>	<ul style="list-style-type: none"> <li>• Household food security</li> <li>• Poverty alleviation strategies</li> <li>• Women’s empowerment</li> <li>• Child protection and support services</li> <li>• Universal education with a gender focus</li> <li>• Early child stimulation</li> <li>• Water, sanitation and hygiene (WASH) interventions</li> <li>• Food safety</li> <li>• Sugar-sweetened beverage/sin taxes</li> </ul>

**Cross-cutting strategies:** Health system strengthening data system strengthening community mobilisation monitoring and evaluation for accountability, delivery and implementation approaches for scale financing



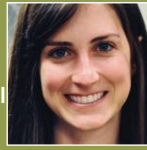
# A review of nutrition-related service delivery packages: What they train providers to deliver

Research summary<sup>1</sup>

By Sascha Lamstein and Kelsey Torres



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project.

## GLOBAL

**What we know:** A range of nutrition-related service delivery packages exists (including training materials, job aids and monitoring and supervision tools) which aims to increase coverage of nutrition and health services to infants and young children.

**What this article adds:** Nutrition service delivery packages are rarely rolled out at scale, resulting in inconsistency of services delivered within and between countries. The United States Agency for International Development (USAID) Advancing Nutrition project reviewed six prominent, globally recognised service delivery packages to enable government and non-governmental implementing partners and their programme managers to better harmonise, combine or adapt the packages or to introduce, strengthen or expand them. The results of the review highlight the need to promote responsive caregiving and early learning, supplement health worker training with counselling skills to ensure that health workers can tailor counselling to individual breastfeeding challenges, particularly in emergency contexts and, depending on context, to expand training to encourage reductions in the intake of sugar-sweetened beverages, salt, processed meats and high-fat foods with limited nutritional value and increases in the consumption of unprocessed or minimally processed fruit, vegetables, legumes and animal-source foods.

### Background

To increase coverage of the nutrition and health needs of infants and young children, governments, donors and implementing organisations have developed a range of service delivery packages – often including training materials, job aids such as counselling cards or decision algorithms and monitoring and supervision tools. Unfortunately, these service delivery packages are rarely rolled out at scale and, therefore, services are inconsistent across countries and even regions within the same country (Lutter *et al.*, 2011; Gillespie *et al.*, 2015; WHO, 2018; Development Initiatives, 2020). In response, the United States Agency for International Development (USAID) Advancing Nutrition project reviewed prominent, globally recognised service delivery packages to enable government and non-governmental implementing partners and their programme managers to better harmonise, combine or adapt the packages or to introduce, strengthen or expand them. The review also focuses on assessment, treatment and counselling knowledge and skills that providers are taught to support infant and young child nutrition (IYCN).

This paper summarises the findings from our review of six of those packages, detailed in Table 1.<sup>2</sup>

While all the packages reviewed focus on front-line services, they have distinct target audiences, objectives, intended beneficiaries and trainees.

Some are designed for community volunteers and others are for paid health workers (primarily nurses and auxiliary nurses), some are for services delivered in homes and community meeting points while others are to be delivered in health facilities. Therefore, one would not expect the content to be the same. All six packages give significant attention to IYCN. However, some of the packages focus more on the assessment, treatment or management of malnutrition while others focus on prevention. The C-IYCF and ENA/EHA training packages focus almost exclusively on counselling.

### Findings

#### *Assessment of nutritional status and development milestones*

Providers are taught to use a variety of measures of the nutritional status for children under five years of age: mid-upper arm circumference (CMAM/MAMI, NACS and CNCC [Caring for the Sick Child course only]), weight-for-length/height (CMAM/MAMI and NACS), weight-for-age (CMAM/MAMI and IMNCI) and bilateral pitting oedema of the feet (CMAM/MAMI and NACS). Only the IMNCI training suggests assessing children for vitamin A deficiency and classifying anaemia. The CMAM/MAMI, NACS and IMNCI packages teach providers to assess children for anaemia by looking at the palmar pallor. The CMAM/MAMI package is the only one that teaches providers to assess children for feeding difficulties (e.g., cleft lip or palate, tongue tie, ab-

normal tone or posture, excessively open/clenched jaw, unable to support head or poor trunk control, body stiff and hard to move or coughing and eye tearing while feeding [signs of unsafe swallowing]). Only the NACS training for facility-based providers and the CNCC Caring for the Newborn at Home course train providers to assess birth weight and classify low birth weight. Only the CMAM/MAMI training and the CNCC Caring for the Newborn at Home course teach providers to assess breastfeeding positioning and technique.

#### *Treatment of anaemia and micronutrient deficiencies and the management of malnutrition*

The C-IYCF and ENA/EHA packages focus exclusively on teaching providers to counsel caregivers of children under two years of age on optimal nutrition practices. Only the CMAM/MAMI, IMNCI and NACS training packages teach providers how to treat malnutrition and provide iron and vitamin A supplements. The IMNCI training also teaches providers to treat a number of common childhood illnesses, demonstrate optimal breastfeeding positioning and treat breastfeeding problems.

#### *Counselling, promotion and support are critical for improving IYCN*

For quality counselling, providers need a number of interpersonal communication (IPC) skills and to be familiar with priority behaviours. The C-IYCF training, as well as the ENA/EHA and NACS training for health workers, teach almost all the IPC skills needed for counselling. The IMNCI training, ENA training for community workers, the NACS training for community volunteers and CMAM/MAMI package teach relatively few counselling skills.

Providers are also taught to model, promote and support specific behaviours during health facility visits, home visits, mothers' group meetings and/or other events. Some of the packages provide

<sup>1</sup> USAID Advancing Nutrition. (2020). Frontline Nutrition Service Delivery: A Comparison of Packages for Policymakers and Program Managers. Arlington, VA: USAID Advancing Nutrition. <https://www.advancingnutrition.org/resources/frontline-nutrition-service-delivery-comparison-packages-policymakers-and-program>

<sup>2</sup> Note that, when available, we reviewed generic (country/context-agnostic) materials. For the NACS package, no such generic training materials were available, so we looked at those that were developed for training health workers and community volunteers in Zambia. NACS training materials used in other countries may vary.

**Table 1** List of service delivery packages reviewed

#	Title of the service delivery	Acronym in use	Reference
1.	Caring for Newborns and Children in the Community package	CNCC	WHO, 2015
2.	Community-Based Infant and Young Child Feeding Counseling Package	C-IYCF	UNICEF, 2012
3.	Community-Based Management of Acute Malnutrition Management of At Risk Mothers and Infants	CMAM MAMI	FANTA, 2018 ENN, 2018
4.	Essential Nutrition Actions/Essential Hygiene Actions Framework	ENA/EHA	USAID, 2015
5.	Integrated Management of Childhood (and Neonatal) Illnesses package	IMCI/IMNCI	WHO and UNICEF, 1997 WHO and UNICEF, 1999 WHO and UNICEF, 2006 WHO, 2014
6.	Nutrition Assessment, Counselling and Support package	NACS	FANTA, 2016

counselling cards and key messages (C-IYCF, CNCC and CMAM/MAMI) while others (ENA/EHA, NACS and IMNCI) teach providers the importance of those behaviours with the assumption that they use their counselling skills to promote them. This is what we found:

**Breastfeeding practices**

Almost all the training packages teach providers to counsel women on optimal breastfeeding practices including early initiation of breastfeeding, feeding infants colostrum, avoiding prelacteal feeding, avoiding the use of artificial teats, pacifiers or bottles, breastfeeding positioning and attachment, breastfeeding on demand/responsively, breastfeeding exclusively for six months, continuing breastfeeding for at least 24 months and breastfeeding before and after a child is ill. Fewer training packages taught providers to explain the early signs of hunger (only the C-IYCF training), how to express breast milk and feed an infant with a cup (C-IYCF and CMAM training, ENA/EHA training for health workers and CNCC course on Caring for the Child's Healthy Growth and Development) or breastfeeding of children born preterm, with a low birth weight or small-for-gestational-age (C-IYCF and CMAM training). All but the NACS training prepared providers to counsel women on breastfeeding difficulties such as cracked nipples, engorgement or mastitis. However, only the C-IYCF, CMAM and CNCC training went into detail about how to prevent and manage these. All but the IMNCI and CNCC

training provide for considerations for breastfeeding while HIV-positive and none address breastfeeding in the context of emergencies.

**Complementary feeding practices**

All the training packages cover complementary feeding practices, emphasising the introduction of complementary foods at six months, feeding children a diverse diet and feeding children actively or responsively at the right quantity of food and at the right frequency. All packages except for the IMNCI training specifically mention the need to feed children plenty of fruit and vegetables. However, only the ENA/EHA, CMAM and NACS training packages mention feeding children fortified complementary foods. Only the NACS package mentions reducing the intake of free sugars and avoiding sugar-sweetened beverages. None of the packages discuss the need to control salt intake, increase potassium intake and avoid processed meats and high-fat foods with limited nutritional value.

**Learnings**

Based on this review, USAID Advancing Nutrition makes the following recommendations to government and non-governmental implementing partners to support effective implementation:

*Responsive caregiving, early learning and supporting the growth and development of children with disabilities* are all critically important in their own right and indirectly contribute to nutrition practices and outcomes. When using any of the packages reviewed, trainers may wish

to look at the CNCC course on Caring for the Child's Healthy Growth and Development to teach providers how to assess early childhood development (ECD) milestones and at the counselling materials being developed by USAID Advancing Nutrition for the promotion of responsive caregiving and early learning.

*Training health workers on the full slate of IPC skills needed for counselling* can be done with C-IYCF, ENA/EHA or NACS. When using the other packages or training for frontline health workers and volunteers, it may be helpful to supplement the training with the counselling skills outlined in these packages to ensure thorough and detailed coverage.

Although breastfeeding counselling is included in almost all of the training packages, *guidance on how to deal with breastfeeding challenges* was less common. Trainers may wish to look at the MAMI tool (which goes further than other packages) and seek supplemental materials (such as the forthcoming WHO training on breastfeeding counselling and the Global Health Media videos<sup>3</sup> on breastfeeding) to ensure that health workers are adequately trained to tailor the counselling to personal breastfeeding challenges, especially in an emergency context.

Depending on context, *additional supplementary training may be required* to encourage reductions in the intake of sugar-sweetened beverages, salt, processed meats and high-fat foods with limited nutritional value and increases in the consumption of unprocessed or minimally processed fruit, vegetables, legumes and animal-source foods.

**Conclusion**

This review has demonstrated the abundance of packages of materials for the delivery of nutrition services for the prevention and treatment of malnutrition – both underweight and overweight – and included the multitude of micronutrient deficiencies. It has also drawn attention to the need to harmonise, sustain, scale and strengthen these in certain critical areas including breastfeeding support, overcoming breastfeeding challenges, responsive care and early learning as well as adaptations needed when working with children with disabilities.

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<https://globalhealthmedia.org/videos/>

**References**

Development Initiatives. (2020). 2020 Global Nutrition Report: Action on equity to end malnutrition. Bristol, UK: Development Initiatives.

Emergency Nutrition Network (ENN), GOAL, London School of Hygiene and Tropical Medicine (LSHTM), and Save the Children. (2018). C-MAMI Tool. Ver. 2. Oxford: ENN.

Food and Nutrition Technical Assistance III (FANTA) Project. (2016). Nutrition Assessment, Counseling, and Support (NACS): A User's Guide. Ver. 2. Washington, DC: FHI 360/FANTA.

Food and Nutrition Technical Assistance III (FANTA) Project. (2018). Training Guide for Community-Based Management of Acute Malnutrition (CMAM). Washington, DC: FHI 360/FANTA.

Gillespie, Stuart, Purnima Menon, and Andrew L Kennedy. (2015). Scaling up impact on nutrition: what will it take?. *Advances in nutrition* 6(4), 440–451. <https://doi.org/10.3945/an.115.008276>

Lutter CK, Daelmans BMEG, de Onis M, Kothari MT, Ruel MT, Arimond M, Deitchler M, Dewey KG, Blössner M, Borghi E. (2011). Undernutrition, poor feeding practices, and low coverage of key nutrition interventions. *Pediatrics* 128:e1418–27.

United Nations Children Fund (UNICEF). (2012). Community Based Infant and Young Child Feeding. New York: UNICEF.

United States Agency for International Development (USAID), John Snow, Inc. (JSI), Helen Keller International (HKI), and CORE Group. 2015. Essential Nutrition Actions and Essential Hygiene Actions Framework. Washington, DC: USAID.

World Health Organization (WHO) and United Nations Children's Fund (UNICEF). (1997). Integrated Management of Childhood Illness (IMCI) In-Service Training: Set of Training Modules, Facilitator's Guides and Course Director's Guide. Geneva: WHO.

World Health Organization (WHO) and United Nations Children's Fund (UNICEF). (1999). Guidelines for Follow-Up after Training in the WHO/UNICEF Course on Integrated Management of Childhood Illness (IMCI) for First-Level Health Workers. Geneva: WHO.

World Health Organization (WHO) and United Nations Children's Fund (UNICEF). (2006). Integrated Management of Childhood Illness (IMCI) Complementary Course on HIV/AIDS. Geneva: WHO.

World Health Organization (WHO). (2014). Integrated Management of Childhood Illness (IMCI) Set of Distance Learning Modules. Geneva: WHO.

World Health Organization (WHO). (2015). Caring for Newborns and Children in the Community: Package of Resources. Geneva: WHO.

World Health Organization (WHO). (2018). Global nutrition policy review 2016–2017: country progress in creating enabling policy environments for promoting healthy diets and nutrition. Geneva: WHO.

A family outside their home in the Somali Region, Ethiopia



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# Family MUAC: A review of evidence and practice

By Emilie Buttarelli, Sophie Woodhead and Dolores Rio

## Research summary<sup>1</sup>



Dr Emilie Buttarelli is a bio-cultural anthropologist (Health Science, PhD) with experience in maternal and child health and nutrition behaviours and determinants. Prior to joining the United Nations International Children's Fund (UNICEF), Emilie conducted social science research and managed emergency projects in the West and Central Africa region.



Sophie Woodhead is a nutrition specialist with UNICEF in the West and Central Africa Regional Office. Prior to joining UNICEF, Sophie worked with Action Against Hunger on community-based management of acute malnutrition programmes in countries across sub-Saharan Africa and South Asia.



Dolores Rio is a nutrition specialist for UNICEF in the West and Central Africa Regional Office, leading the unit on prevention and care for children with severe acute malnutrition. She has worked for UNICEF at different levels for 12 years before which she spent seven years working for various non-governmental organisations in Africa.

## GLOBAL

**What we know:** There has been broad uptake of the 'Family MUAC' approach in recent years – whereby mothers, fathers and other caregivers use mid-upper arm circumference (MUAC) measurements to identify wasting in their children.

**What this article adds:** Evidence and practice of the use of Family MUAC in community-based management of acute malnutrition programmes in multiple contexts were reviewed. In terms of implementation, the review found that there is no 'one-size-fits-all' approach for teaching caregivers how to use a MUAC tape, interpret a MUAC measurement or check for oedema and that most implementation challenges are linked to the sustainability of the approach. The review also shows that monitoring, evaluation and follow-up actions are crucial in ensuring effectiveness and sustainability. In terms of outcomes, the review found little evidence linking Family MUAC to a shorter length of stay in the programme and/or an impact on programme performance indicators. A recent trial, however, indicates that children of caregivers who received MUAC training were more likely to recover which could be explained by a better care-seeking behaviour. The Family MUAC approach can also lead to an improved coverage of screening. Despite different tools, approaches and calculations to estimate and compare costs, it appears that a screening strategy that relies on caregivers is less costly than one that relies on community health workers. To ensure the sustainability of the approach, the authors recommend integrating Family MUAC into the health system to ensure continued training and monitoring and evaluation.

### Introduction

In the 'Family MUAC' approach, mothers, fathers and other caregivers are trained to identify wasting in their children using a mid-upper arm circumference (MUAC) tape. This approach was developed with the objective of increasing the frequency and coverage of screening for wasting and ultimately detecting more children with wasting for early referral. Since the approach was first trialled by the Alliance for International Medical Action (ALIMA) in Niger in 2012 (Blackwell *et al.*, 2015), there has been broad uptake by national ministries, international non-governmental organisations (INGOs) and United Nations (UN) agencies. In the context of COVID-19, the adoption and roll out of the Family MUAC approach has been the most common modification to wasting treatment services to ensure continuity of screening at community level while limiting the risk of contamination (The State of Acute Malnutrition, 2020). To support continued learning as this approach moves to scale, the United Nations International Children's Fund (UNICEF) West and Central Africa Regional Office conducted a review of evidence and practice.

tify children with wasting. The following sources were used to identify documents for inclusion: electronic bibliographic databases to locate peer-reviewed literature using a set of defined keywords, previous issues of Field Exchange, the State of Acute Malnutrition website, websites of known implementers of Family MUAC, reference lists of relevant studies, Google and Clinical Trials to identify any other recent/future evidence. In addition, non-governmental organisation (NGO) partners active in the implementation of this approach in the West and Central Africa region were contacted.

### Results

A total of 46 resource documents were included; 40 were operational documents and six were research articles. Resources covered 10 countries in West and Central Africa, five in east and southern Africa and two in South Asia.

### Implementation of Family MUAC

From the review, it is clear that there is no one-size-fits-all approach to teaching caregivers how to use a MUAC tape, interpret a MUAC measurement or check for oedema. Implementers have

### Methods

The review was mainly oriented around the effectiveness and cost-effectiveness of the Family MUAC approach to iden-

<sup>1</sup> UNICEF. (2020). Rapid review: Screening of Acute Malnutrition by the Family at community level. <https://www.unicef.org/wca/reports/screening-acute-malnutrition-family-community-level>

used a variety of approaches and platforms for training, either opting for a facility or community-based approach. The selection of entry points seemingly depends on the context and the objectives and resources of the implementer. The main issue regarding training is sustainability which depends on the entry points selected and/or the integration of the training into the health system.

The review also shows that monitoring, evaluation and follow-up actions are as important as the training itself and are crucial in ensuring the effectiveness and sustainability of the approach. However, there is no standardised set of indicators and organisations use different tools and metrics which tend to be linked to internal monitoring and evaluation (M & E) systems as well as donor reporting requirements.

Most of the challenges related to implementation are linked to the sustainability of the approach and seem to plead for its integration into the health system or national protocols to ensure that training family members on MUAC measurement becomes routine at facility and community levels. Another noticeable challenge is the fact that, despite engendering great empowerment at community-level, the Family MUAC approach can face the same barrier as the community-based management of acute malnutrition (CMAM) services, namely distance to health facilities. It is therefore worth exploring how Family MUAC can be linked to the provision of severe acute malnutrition (SAM) treatment

by community health workers (CHWs) in order to overcome this issue and bring treatment within closer reach.

### *Outcomes of the Family MUAC approach*

Available documentation overwhelmingly demonstrates the capacity of caregivers to accurately measure their child's MUAC. However, operational experiences highlight that capacity may decline as time passes after the last training. In terms of timing of detection, there are promising results in operational findings and peer-reviewed studies supporting earlier detection. We found little evidence linking Family MUAC to a shorter length of stay in the programme and/or an impact on programme performance indicators. However, a recent trial (Daures *et al.*, 2020) indicates that children of caregivers who received MUAC training were more likely to recover which could be explained by better care-seeking behaviour resulting from such training. It is difficult to assess the impact of the Family MUAC approach on coverage of treatment independently from other factors (e.g., distance from a health facility) and this could explain why the impact on coverage for this approach is still unclear. However, importantly, our review indicates that Family MUAC can lead to an improved coverage of screening. Despite different tools, approaches and calculations to estimate and compare costs, it also appears that a screening strategy that relies on caregivers is less costly than one that relies on community health workers.

## **Conclusions and Recommendations**

Based on the review of the available documentation, three key recommendations are proposed to support the scale-up of this screening approach to support effective treatment services for children with wasting and ensure the sustainability of this approach:

### *1. Integrate Family MUAC into the health system*

This requires advocacy for integration of the Family MUAC approach into the health system/national protocols. It is also necessary to identify and use existing community mechanisms (entry points) to integrate Family MUAC training, use lessons learned from existing implementation in the country and coordinate with Ministries of Health/partners.

### *2. Ensure continued training*

A strategy must be designed for refresher courses to ensure the continued uptake and regular practice of the approach. The role of mass communications should also be considered to ensure continued capacity and awareness of the approach at household level.

### *3. Design a monitoring and evaluation strategy*

An M&E strategy must be defined at the community and health centre levels, using a small set of feasible and reliable indicators that are standardised at country and global levels. A strategy should also be designed to further assess the effectiveness of the approach in different contexts. Indicators of effectiveness should be used (earlier detection/increased coverage/improved quality of treatment) and comparisons with other standard mechanisms made to support advocacy and scale-up.

There is no standardised implementation of the Family MUAC approach in the West and Central Africa region. However, certain similarities can be observed across contexts in terms of training. M&E mechanisms could be harmonised by implementers to improve visibility of the effectiveness of the approach in different contexts and to support advocacy for further scale-up.

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## **References**

Blackwell, N., Myatt, M., Allafort-Duverger, T., Balogoun, A., Ibrahim, A., Briend, A. (2015). Mothers Understand And Can do it (MUAC): a comparison of mothers and community health workers determining mid-upper arm circumference in 103 children aged from 6 months to 5 years. *Arch Public Health*, 73(1):26.

Daures, M., Phelan, K., Issoufou, M., Kouanda, S., Sawadogo, O., Issaley, K., Cazes, C., Séri, B., Ouaro, B., Akpakpo, B., Mendiboure, V., Shepherd, S., & Becquet, R. (2020). New approach to simplifying and optimising acute malnutrition treatment in children aged 6-59 months: the OptiMA single-arm proof-of-concept trial in Burkina Faso. *The British journal of nutrition*, 123(7), 756-767. <https://doi.org/10.1017/S0007114519003258>

The State of Acute Malnutrition. (2020). Tracker: COVID-19 Adaptations in the Management of Acute Malnutrition. <https://acutemalnutrition.org/en/innovations-and-covid19-adaptations>



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## Proposal of a Quality of Care Index

Summary of research<sup>1</sup>

Water trucking in a drought-affected area of Gonka Kebele, Ethiopia

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## GLOBAL

**What we know:** Efforts are needed to ensure provision of effective, high-quality care across health services.

**What this article adds:** While health management information systems continue to develop, periodic health facility surveys like the Service Provision Assessment (SPA) provide information to monitor progress and target interventions. However, these surveys are complex and consensus around key quality of care indicators or summary measures is lacking. This report proposes a short list of indicators that measure readiness for and provision of highly effective interventions and propose a quality of care index (QOCI) that spans reproductive, maternal, newborn and child health and nutrition (RMNCHN) as well as Water, sanitation and hygiene (WASH). An analysis using the QOCI is included for the seven countries that have completed a national SPA survey since 2013: Bangladesh, Democratic Republic of Congo, Haiti, Malawi, Nepal, Senegal and Tanzania. QOCI scores revealed differences within countries as well as differences in and among the services themselves. This study serves as a starting point for further discussion on how to create a concise and practical summary measure of quality of care so that decision makers and stakeholders can identify weakness within the health system and address gaps through targeted improvement efforts.

**A**s the use of health facilities along the continuum of care for women and children increases globally, efforts are needed to focus on the provision of effective, high-quality care across services to end preventable maternal and child morbidity and death. It is no longer enough to measure the coverage of reproductive, maternal, newborn and child health and nutrition (RMNCHN) interventions without considering whether the services provided by facilities are adequate. Advancements in the measurement of the quality of care are however needed.

The Service Provision Assessment (SPA) is a health facility survey that provides a comprehensive overview of a country's health service delivery. It is one type of survey pro-

posed by The Demographic and Health Surveys Program, one of the principal sources of international data on the provision of health services. Although critiqued for being complex or for their data being difficult to use, periodically conducted SPA surveys, or similar national health facility surveys that include observation of services, are critical sources of information on quality of care. Provision of care and selected services can be captured through health management information systems at lower administrative levels, even at the facility level, and at more frequent intervals. However, these systems are still under development and are often limited by lack of representativeness, incomplete reporting and not typically being publicly available.

This paper presents an initial attempt to select a short list of indicators that measure readiness for and provision of highly effective interventions and proposes to create a quality of care index (QOCI) – one singular measure of services built from data that are available in SPA. A set of RMNCHN and Water, sanitation and hygiene (WASH) indicators were determined based on scientific evidence, international guidelines and with input from technical experts. RMNCH indicators covered five services – family planning, antenatal care (ANC), delivery care, immunisation and child curative care. The final list of 17 indicators selected reflects structural readiness at the facility level (e.g., does the facility have first-line antibiotics?) as well as process components of quality service delivery which are measured at the client level (e.g., were children assessed for dehydration?).

An analysis using the QOCI is included for the seven countries that have completed a national SPA survey since 2013: Bangladesh, Democratic Republic of Congo, Haiti, Malawi, Nepal, Senegal and Tanzania. Quality could not be directly compared across countries given the differences in indicators and the timing of surveys and thus the findings are reported separately for each country.

Within many countries, the quality of care varied from region to region. Regional variation was most prominent in the DRC, with 48 points between the highest- and lowest-scoring regions. The three countries with the lowest variation among regions were those with the fewest regions, Bangladesh, Malawi and Nepal.

<sup>1</sup> Mallick, Lindsay, Rukundo K. Benedict, Courtney Allen, and Bradley Janocha. (2020). Proposal of a Quality of Care Index (QOCI). DHS Methodological Report No. 29. Rockville, Maryland, USA: ICF.

QOCI scores also revealed differences in and among the services themselves. In five of the seven countries included, WASH was the highest-scoring service (Bangladesh, Haiti, Malawi, Nepal and Senegal), ranging from 66% to 81% of facilities with basic WASH services. Conversely, the immunisation service was the lowest scoring area in three countries (Bangladesh, Malawi and Nepal) and the second lowest-scoring domain in the DRC. Although immunisation was the second highest-scoring service in Tanzania, the availability of immunisations at facilities ranged by 88 percentage points between its highest- and lowest-scoring regions. Within ANC, the blood pressure indicator scored high across most countries. In five out of the six countries in which it was measured, more than 70% of clients had their blood pressure measured. Across all countries, the

percentage of facilities with oral rehydration salts (ORS) or zinc in stock for diarrhoea was also high. In five of this study's seven countries, more than 80% of facilities provided ORS or zinc for diarrhoea. In contrast, few clients had a full nutritional status assessment. Of the facilities in the DRC, Haiti, Malawi, Nepal and Tanzania, 2% or fewer included a nutritional status assessment during child curative care.

Scores for individual indicators ranged even more dramatically. In Senegal, for example, the ANC service area index score is 49 but this area also had the highest and lowest scoring indicators (blood pressure measurement and breastfeeding counselling, respectively).

Where comparable items were available across countries, the analysis found that nutritional status was rarely assessed during child curative

care visits. Conversely, availability of ORS or zinc for diarrhoea, WASH resources, immunisations and blood pressure measurements during antenatal care were common.

This report does not provide external validation for the index or the indicators. Rather, both the index and indicators were chosen to serve as tracers for quality of care – a starting point for launching a conversation about which areas need to be more holistically explored to improve quality of care so that decision makers and stakeholders can identify weakness within the health system and address gaps through targeted improvement efforts. Ideally, the indicators could be assessed alongside health outcome data from population surveys or health management information systems to better understand gaps within the health system.

## Conclusion of the R4ACT workshop and 'Nanterre Declaration'

Research summary<sup>1</sup>



A workshop was convened on 22nd November 2019 with a group of researchers, donor and health, nutrition and Water, sanitation and hygiene (WASH) advisers from multiple organisations to translate evidence on water quality into concrete, practical actions to reinforce WASH and nutrition integration. Discussions around the results of a recent review<sup>2</sup> focused on the systematic inclusion of interventions to improve household water quality in the package of activities accompanying the treatment of acute malnutrition. The results of the review were presented followed by the WASH'Nutrition strategy (developed in 2012 and consolidated by Action Against Hunger (ACF) and 17 organisations), generic protocols for

### Box 1 Selected WASH and nutrition activities

#### Facility-level activities:

1. Improve the water system in health facilities
2. Systematically coordinate delivery of household water treatment adapted to context with severe acute malnutrition management
3. WASH experts train health staff to a) run the health centre water system and b) build caregivers capacity on the correct use of household water treatment products

#### Activities at community and household level:

4. Develop behaviour change approaches on water treatment in areas covered by SAM treatment services
5. Use of participatory methodology to select the most appropriate household water treatment method
6. Information, knowledge and data sharing



A child washing his hands in Bujumbura, Burundi

community-based management of acute malnutrition (CMAM) and on WASH activities related to water quality. Participants were divided into two working groups and asked to prioritise three key integrated activities at health facility level and three at community/ household level (Box 1) indicating one relevant indicator for each activity as well as barriers, opportunities and potential mitigation solutions. Each organisation then selected the activities they committed to implement in their programmes. In the form of a 'Nanterre declaration', participants committed to seek funding for and implement integrated WASH and nutrition projects and programmes to achieve nutrition security and make nutrition treatment more effective, efficient and sustainable.

<sup>1</sup> Conclusion of the R4ACT workshop and "Nanterre Declaration" endorsed by participating organisations, organised by Action Against Hunger, 22/11/2019, Nanterre, France.

<sup>2</sup> See research snapshot in this issue of *Field Exchange* entitled "Impacts of WASH on acute malnutrition: from available scientific evidence to informed action"

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15 months old girl, and her mother, at home in Yobe State, Nigeria  
 © WFP/Arete/Damilola Onafuwa

**Back cover**

Aerial view of Dikwa garrison town, Nigeria  
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**About ENN**

Emergency Nutrition Network (ENN) is a UK registered charity that strives to enhance the effectiveness of nutrition policy and programming by improving knowledge, stimulating learning and building evidence. We are passionate about being field-driven and are globally recognised as thought leaders and conveners in nutrition.

ENN is based in the UK but works globally and is made up of a team of technical experts in nutrition with decades of collective experience in the field. We work alongside governments, the United Nations, non-governmental organisations or charities, and research institutions worldwide to look critically at existing practices, raise awareness of issues and drive change so that those working to tackle malnutrition can do the best possible job. We do this by:

1. Capturing what works and what is needed to reduce malnutrition – working with people implementing programmes to help them examine their experiences and document their achievements and challenges.
2. Coordinating technical bodies to increase the global understanding of malnutrition – particularly focusing on the most nutritionally vulnerable including infants and children, adolescent girls and mothers who are pregnant or are feeding their infants.
3. Supporting global efforts to reduce malnutrition – bringing our knowledge and technical expertise to strengthen the activities of organisations working to reduce malnutrition at the global level.

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