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Emergency Nutrition Network



Special section on complementary feeding in emergencies

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ENN and UNICEF

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Training of the District Nutrition Coordination Committee on MNPs in Dowa, Malawi, 2017

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Dear readers,

A warm welcome to the 68th edition of Field Exchange. As we bring you this edition, the world is facing a series of challenges: climate crises, conflicts and economic shocks, including the ongoing economic fallout from the COVID-19 pandemic, now compounded by the war in Ukraine. These are all negatively affecting food security and the ability to access adequate and nutritious diets. As many as 828 million people go to bed hungry every night. The number of those facing acute food insecurity has soared since 2019 from 135 million to 345 million. A total of 50 million people across 45 countries teeter on the edge of famine (page 72).

These global crises are having a particular impact on the diets of young children, making our featured special section on complementary feeding in fragile and emergency contexts all the more timely. We are delighted to bring you this selection of articles in partnership with UNICEF, who share the latest programming guidance, research and learning obtained from multiple contexts. The [global views piece \(page 34\)](#) by Moloney et al. introduces this special section, outlining why efforts to improve young children's diets are so important and how UNICEF is using a multi-systems approach to address this through their Action Framework. The special section of this print edition features 10 articles including field articles, case studies, views pieces and report summaries. You can also find additional articles online,¹ which complement this print edition to form a much larger special series.

In the broader issue, we feature several report summaries urgently calling for action in response to current global threats. The sixth [Global Report on Food Crises \(page 72\)](#) recognises that the international community has stepped up to such calls in response to the need to mitigate famine, but that global humanitarian and development funding for food crises is failing to match growing demands. UNICEF's [Child Alert \(page 73\)](#), issued in May 2022, highlights that, with child wasting rising rapidly, greater global prioritisation of both preventing and treating it is required as an essential child survival intervention. Furthermore, a [report by Tearfund \(page 74\)](#) illustrates the competing – and urgent – demands on national priorities and budgets, with climate adaptation costs exceeding national spending on healthcare in 11 countries in sub-Saharan Africa. The report calls for the international community to honour climate finance promises already made to low-income countries to unleash the potential within communities to help themselves, autonomously and sustainably.

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Health and nutrition officers in South Sudan enjoy their shared copy of Field Exchange

Two articles highlight the potential of cash transfers to enable vulnerable populations to adopt positive nutrition practices. Work by [Save the Children in Yemen \(page 20\)](#) illustrates how unconditional cash transfers can increase household food security and child diet diversity, and may also increase adherence to wasting treatment if given upon graduation from treatment. An article from Kenya by [Angood et al \(page 59\)](#), where cash transfers have been delivered in association with nutrition counselling, highlights the importance of strong linkages between social protection and nutrition systems for joint targeting and overall systems strengthening for more robust, effective delivery. In the current economic climate, social protection measures become an even more important mechanism for protecting the diets and health of vulnerable populations.

Investing in more and higher-quality data can support the effective targeting of appropriate interventions. We feature a pair of articles on the National Information Platform for Nutrition (NIPN) initiative, which was launched by the European Union in 2015. The views piece by [Baile \(page 12\)](#) provides an overview of the initiative, as well as detailing the progress made and the lessons learnt from NIPN in nine countries to date. A field article by [N'Dri et al \(page 30\)](#) reports on the support NIPN has provided in establishing an effective multisector information system in Ivory Coast. As the authors point out, the task of developing an effective monitoring and evaluation system for multisector nutrition responses is formidable – it takes time, resources and dedication, alongside strong coordination and, above all, collaboration.

Ideally, cases of wasting are caught early to prevent deterioration to severe wasting, including in those individuals that may go on to require inpatient treatment. Community engagement and mid-upper arm circumference (MUAC) screening are crucial to this. An [exploration of MUAC screening \(page 27\)](#) by caregivers in Mali, carried out by the International Rescue Committee, found key barriers include false preconceptions, the lack of tangible benefits and low social accountability. Potential strategies to overcome these barriers are being piloted and include active engagement of women's groups, husbands and imams. When treatment for severe wasting is required, sensory stimulation and play therapy are recommended by WHO, but their use has rarely been documented. Experience from India, described here by [Kamble et al \(page 10\)](#), highlights the benefits of these activities for developmental milestones and the feasibility of their inclusion alongside standard inpatient treatment at the Nutrition Rehabilitation Centre at Bai Jerbai Wadia Hospital for Children, Mumbai.

Finally, as ever, we also provide a range of summaries and snapshots of the latest research, reports and news items from the field. Do check them out and don't forget the bonus online articles from the complementary feeding in emergencies special section that don't appear here in print, but are just as valuable reading.

Anne Bush (*editor*)
Philip James (*editor*)
Nicki Connell (*editor*)

¹ <https://www.enonline.net/fex/68/en>



Part of the group work in the Uganda NIE training

© A. Perry/NIE/NTN, Uganda, 2011



Infant and young child feeding in emergencies (IYCF-E) repository

Based on the need identified to develop a system to compile and share new IYCF-E research, the Infant feeding in emergencies (IFE) Core Group recently launched the Infant and young child feeding in emergencies (IYCF-E) repository¹, which provides a summary of publications on IYCF-E since January 1st, 2022. It is updated on a quarterly basis.

The repository currently includes 37 publications that provide emerging evidence from diverse countries, e.g., Iraq, Bangladesh, Colombia, Uganda, Ethiopia, Nigeria, Indonesia, Lebanon, Italy, Turkey, the United States, Australia, Guinea-Bissau, Thailand, Israel, Brazil, Canada, Poland, Croatia, Germany, Lithuania, and Ukraine.

Topics include barriers to IYCF-E; violations of the international Code of marketing of breastmilk substitutes; issues related to implementing the 'Operational guidance on IFE' regarding infant formula distribution; infant feeding in the context of Ebola, HIV and COVID-19; complementary feeding programmes; the impacts of natural disasters such as hurricanes, earthquakes and wildfires; the projected impacts of climate change on IYCF; and the determinants of breastfeeding among refugee mothers after resettlement.

The next update is due in January 2023 and will include new literature published between October and December 2022, as well as newly identified literature from previous months.

The repository is compiled on behalf of the IFE Core Group by the Johns Hopkins Center for Humanitarian Health at the Johns Hopkins Bloomberg School of Public Health, the Friedman School of Nutrition Science and Policy at Tufts University and the Gillings School of Global Public Health at the University of North Carolina at Chapel Hill.

¹ <https://www.enonline.net/ife/iycferepository>

Training in the time of COVID-19

Andrew Seal is an Associate Professor in International Nutrition at University College London.

Carla El Mallah is a PhD candidate in Biomedical Sciences/Nutrition at the American University of Beirut and NIE course organiser.

Omar Obeid is a Professor of Nutrition at the American University of Beirut.

The Nutrition in Emergencies (NIE) Regional Training Initiative started in 2009 and, with initial funding from the Office of United States Foreign Disaster Assistance, established NIE training courses at the American University of Beirut (AUB) in Lebanon, the Asian Disaster Preparedness Centre (ADPC) in Thailand and the University of Makerere in Uganda. A one-off course was also run in Japan in 2017 in collaboration with the Network for Action against Malnutrition. The initial set up of the courses and their evaluation were described in a Field Exchange article back in 2012.¹

The aim of the initiative was to establish high quality training courses that could be sustained when donor funding for staff development – which is typically rare, short term and unpredictable – became unavailable. To achieve this, host institutions planned to recoup their costs by charging fees to participants which, in both Lebanon and Thailand, was successful. Following the end of project funding, a further 12 courses were run by AUB and ADPC over the next eight years with more than 260 participants completing the face-to-face training. The COVID-19 pandemic then arrived and although no courses were run in 2020, in 2021 AUB decided to adapt and run the complete course in an online format.

The AUB corporate Cisco WebEx platform was used to run the course with individual

accounts created for participants attending the course. Lectures and computer practical sessions were relatively easy to move online. Participants could engage with the presenter online and break out 'rooms' were used for group work and discussions. By far the biggest challenge was to adapt the day-long simulation to the online format. While WebEx could be used to create different virtual offices and some common meeting spaces such as an airport, coffee shop, camp, meeting room, etc., the role playing of characters felt much harder and the numerous person-to-person interactions that bring the usual exercise to life were hindered. Thirteen participants from six countries (Lebanon, Palestine, Saudi Arabia, Algeria, Somalia and the USA) took part in the course with all successfully completing it.

The success of this novel format, considering both the pandemic and the broader localisation agenda, raises the question of whether online remote disaster management can be the 'new normal'. Feedback from participants was positive and, overall, it was felt that the movement to the online platform did not compromise the quality of the training. Arguably, online simulations do capture some aspects of training better than a face-to-face experience. Also, the virtual format of the course provides the opportunity for people with limited availability to benefit from the training.

Moving forward, online training can provide opportunities to carry out human resource development at a lower cost with greater flexibility and with a reduced carbon footprint – as required under commitment two of the Climate Change Charter². However, format changes must be balanced against the advantages of face-to-face training and the unique learning and development opportunities that this can provide. Taken together, we believe that this calls for a blended and flexible approach to augment learning in an uncertain world.

¹ <https://www.enonline.net/fex/42/experiences>

² COMMITMENT 2: Maximise the environmental sustainability of our work and rapidly reduce our green-house gas emissions <https://www.climate-charter.org/>

Infant and young child feeding: Remote counselling eLearning

To respond to the challenges highlighted by the COVID-19 pandemic, a new eLearning course has been launched which targets infant and young child feeding (IYCF) counsellors. The course is designed to equip learners with the knowledge and skills to remotely counsel clients on understanding, adopting and sustaining optimal IYCF behaviors and practices during infectious disease outbreaks. This course was developed by READY, a USAID/Bureau for Humanitarian Assistance-funded consortium of partners led by Save the Children, augmenting the global capacity of non-government organisations to respond to major infectious disease outbreaks.

In 2021, a global survey was conducted to understand which programmatic adaptations for COVID-19 were most adopted by frontline workers and field practitioners. The survey found that remote counselling services supporting the adoption of IYCF behaviours and practices was the least implemented adaptation. With further investigation, it was found that –

despite the strong need for remote counselling services at a time when access to skilled IYCF support was lacking – there was a gap in capacity strengthening tools on how to implement remote counselling.

To meet this identified gap in the delivery of IYCF services during COVID-19, IYCF Remote Counseling builds on the skills that IYCF counsellors already possess, and translates these to remote delivery. To achieve this, the course uses audio and scenario-based exercises, knowledge checks, and opportunities for self-reflection. By the end of the course, learners are able to remotely assess the nutrition situation of their client and their child, analyse potential feeding challenges, and act to address those challenges. The course also provides additional considerations for IYCF counselling in specific remote settings including infectious disease outbreaks, conflict areas, and during migration or displacement events.

The course is designed for low-bandwidth environments, is mobile-optimised and can



be played across a range of browsers and platforms. User feedback will be used to strengthen future versions of the course and future IYCF capacity-building initiatives, particularly those occurring in outbreak settings. While only recently launched – in early 2022 – the course currently has over 400 learners enrolled from over 70 countries. Based on demand, this course will be republished in Arabic, French, Indonesian, and Spanish in October 2022.

For more information about the course, please visit <https://www.ready-initiative.org/ready-training/elearning-iycf-remote-counseling/>

Wasting and stunting': Two new publications from the research-influencing sub-working group

The research-influencing sub-working group of the Wasting and Stunting Technical Interest Group (WaSt-TIG) has recently published two papers aimed at researchers working in this field.

The first is a peer-reviewed perspectives piece published in the *Journal of Nutrition* (Sadler et al, 2022), which summarises the learnings from the Wasting and Stunting Project to date – a project that aimed to better understand the complex relationship between wasting and stunting and examine whether current separations that were apparent in approaches to policy, financing, and programmes were justified or useful. The article brings a wasting and stunting lens to how research is designed and financed for the nutrition community to better understand, prevent, and treat child undernutrition. The authors discuss key lessons learned, focusing on the synergy and temporal relationships between children's weight loss and linear growth faltering, the various factors that drive diverse forms of undernutrition, and how to best identify and target those most at risk. They conclude that supporting progress in all these

areas requires research collaborations that highlight the value of research that moves beyond a focus on single forms of undernutrition and ensures that equal attention is given to wasting compared to other forms of malnutrition.

The second paper is a technical brief that explores research methods for studies looking at the relationship between wasting and stunting (James & Khara, 2022). The brief aims to share the extensive experience of the WaSt-TIG in scrutinising this relationship, with the aim of inspiring and facilitating others to do the same. Data used by the group includes multiple datasets drawn from diverse settings, collected using a variety of objectives and methodologies. The authors start with an overview of the main characteristics of cross-sectional and longitudinal data and how these different types of data have been used by the WaSt-TIG. In doing so, they set out some of the strengths and limitations of both, discussing which research questions lend themselves to each type of data.

The second part of the brief then summarises some of the best practices that arose from the collective experience of the WaSt-TIG, focusing



on the choice of outcomes and exposures, the consideration of seasonality, the duration of the studies, the frequency of data collection, pooling datasets, and data cleaning. The brief finishes with reflections on systematic reviews and provides short concluding remarks.

The lessons learned may help researchers and programmers involved in similar research and they are relevant not only for the design and planning of new studies but also for the analysis of existing datasets through the lens of wasting and stunting.

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- James P and Khara T (2022) Research methods for studies looking at the relationship between wasting and stunting. <https://www.enonline.net/wast-tigtechnicalbriefingpaper2022>
- Sadler K, James P, Bhutta Z et al (2022) How can nutrition research better reflect the relationship between wasting and stunting in children? Learnings from the wasting and stunting project. *The Journal of Nutrition*. <https://academic.oup.com/jn/advance-article/doi/10.1093/jn/nxac091/6605596>



en-net summary: 2022

en-net is a free and open resource that helps field practitioners gain access to prompt technical advice in addressing operational challenges for which answers are not readily accessible. This article summarises some of the key en-net posts and debates which took place during the spring and summer of 2022.

Spring 2022

Contributions

Ali MacLaine, Anon, Brooke Bauer, Everlyn Matiri, Justine Aenishaenslin, Lwiindi Madabwali, Muhammad Jaffar Ali and Syed Saeed Qadir

Over the period March to May 2022, 35 questions were posted on en-net, generating 113 responses. The forum area for *Infant and young child feeding interventions* generated most discussions, followed by the *Management of wasting/acute malnutrition* and *Assessment and Surveillance* areas. Twenty-six vacancy notices and announcements were posted which accumulated 21,865 views on the website and three training announcements attracted over 3,000 views.

This update has chosen to highlight one particular question of interest raised in the *Infant and young child feeding interventions* area which sought experiences of interventions or programmes that have involved religious leaders as a core component to disseminate maternal, infant and young child nutrition (MIYCN)/infant and young child feeding (IYCF) messages, for example through sermons or *khutbah*, or where support groups were led by or in part by religious leaders.

Models were also sought of approaches whereby a religious leader's wife might support her husband by leading meetings and providing counselling and messaging for women, while the religious leader would communicate with men's groups. Several examples were shared from different contexts.

World Vision's model, Channels of Hope, which is used to engage faith/religious leaders to support behaviour changes, includes a module on maternal, newborn and child health, **Channels of Hope for Maternal, Newborn and Child Health**¹.

Catholic Relief Services have a multi-country project, Strengthening the Capacity of Women Religious in Early Childhood Development (**SCORE-ECD**)², which, through their congregations, reinforces the capacity of Catholic Sisters who help families to understand the importance of nutrition, feeding and communicating early and effectively with their children. Catholic Relief Services have also developed other models engaging directly with religious leaders on MIYCN.

In Punjab, Pakistan, the **Multi Sectoral Nutrition Center**³ (MSNC) is implementing a Multi Sectoral Nutrition Strategy and has oriented government institutions on nutrition sensitive and specific interventions, applying a nutrition lens to the annual development budgeting. MSNC has a strong nutrition governance element whereby District, Tehsil and Union Council Malnutrition Addressing Committees are playing a

pivotal role in engaging government departments. As part of this, MSNC has engaged the Religious and Aqaf Department to raise awareness of the population attending Jumma prayers. It has developed information, education and communication (IEC) material and trained *Ulema* (Islamic scholars) and *Khateeb*s (orators) to deliver information during Jumma sermons.

Research findings from 10 years ago by Save the Children in Afghanistan were also shared. This research examined where mothers obtained information and support on breastfeeding and found that religious leaders were their number one source of information: women would talk to their husbands who would speak to the Mullah (mosque leader) and report back. The Mullah tended to give the mothers a *ta'wiz* – religious words written on a piece of paper and sewn into clothes or kept on a necklace. The mothers reported that this worked. Recommendations of the research were to examine ways to give the Mullahs some basic breastfeeding information that they could relay to the husbands and mothers.

More recently in Afghanistan, Welthungerhilfe (WHH) reported several interventions involving religious leaders as a core component for their MIYCN/IYCF approach. An article detailing this work has previously been published in Field Exchange, <https://www.enonline.net/fex/nutritioninquran>.

The discussants confirmed the value of these types of approaches. They may be especially useful in influencing feeding practices in populations with strong cultural beliefs or traditional practices that have been a hindrance in improving MIYCN practices despite significant capacity building attempts by health workers and communities. It was suggested that religious leaders might influence the community on breastfeeding as a right of the child in their sermons and through community engagement, as well as in imparting information on best practices. Respecting the rights of the mother would also need careful consideration in such a scenario.

To read more or to join this discussion, go to <https://www.en-net.org/question/4567.aspx>

To join any discussion on en-net, share your experience or post a question, visit www.en-net.org.uk or www.fr.en-net.org

For any feedback on the site, please write to post@en-net.org

¹ <https://www.wvi.org/church-and-interfaith-engagement/channels-hope-maternal-newborn-and-child-health>

² <https://www.crs.org/stories/raising-score-early-childhood-development>

³ <https://www.facebook.com/MSNCPunjab>



A mother and her 18 month old son avail of stunting prevention services to pregnant and lactating women in Pakistan

Summer 2022

Contributions

Alessandro, Mohammed Al-Othmani, Andrea, Maryse Arendt, Brooke Bauer, Jay Berkley, Jodine Chase, Alison Donnelly, Michael Golden, Karleen Gribble, Rukhsana Haider, Dhiraj Karki, Vrinda Kiradoo, Marie McGrath, Mija, Isabelle Modigell, Pamela Morrison, Jules Maneraguha, Roberta Petrucci, Vicky Sibson, Daniel Takea

Over the summer period (June–August 2022), 35 questions were posted on en-net, generating 98 responses. Thirty-three vacancy notices and announcements were posted, which have accumulated 18,612 views on the website.

In the **Management of wasting/acute malnutrition** area, a discussion took place focusing on how to treat moderate acute malnutrition (MAM) cases presenting with medical complications, debating whether it was appropriate to admit them as inpatients and treat them as severe acute malnutrition (SAM) with all the accompanying nutritional and medical treatment. There are currently no WHO guidelines concerning the management of moderate wasting in children, although guidance for this area is anticipated in 2023, as a result of the current WHO guidelines review process. Discussants noted that there is great variation in the clinical presentation and progress of MAM patients with medical complications. To date, treatment has had to follow a pragmatic approach supported by comprehensive clinical evaluation.

To read more or to join this discussion, go to <https://www.en-net.org/question/4632.aspx>

In the **Infant and young child feeding interventions** area, discussions included topics such as disparities in guidelines regarding the duration of boiling to ensure that the water used for infant formula is safe and that teats/bottles are sterilised, and whether this varies in different contexts; whether generic guidelines and tools for infant and young child feeding in emergencies (IYCF-E) social behaviour change communication are adequately adapted to different contexts and informed by locally specific formative research; how infant and young child feeding (IYCF) counsellors can respond to requests for infant formula from emergency-affected mothers/caregivers who are not eligible to receive it according to pre-established eligibility criteria; a search for examples of cash and IYCF messaging; and what distinguishes counselling from education in complementary feeding, and what good counselling looks like.

The forum area also hosted announcements to alert people to new resources, including the IYCF-E Hub, “a global portal to the most relevant resources related to infant and young child nutrition in humanitarian contexts!”, which offers the opportunity to filter search results by language including French and Spanish: <https://iycfehub.org/>

You can subscribe to receive email updates on new research here: <https://www.enonline.net/ife/iycferepository>

To read more or join any of these discussions, visit the Infant and young child feeding interventions area: <https://www.en-net.org/forum/4.aspx>

To join any discussion on en-net, to share your experience or to post a question, visit www.en-net.org.uk or www.fr.en-net.org

For any feedback on the site, please write to post@en-net.org

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Siblings eating ready-to-use therapeutic food (RUTF) with the support of a caregiver

A decision-making tool for the use of simplified approaches in exceptional circumstances

Approximately 13.6 million children under five years of age suffer from severe wasting globally with cases continuing to rise in areas affected by conflict and climate shocks, precisely where the risk of child mortality is already highest. While treatment services are now available in over 75 countries, only a third of all children will receive treatment due to limited access and coverage. Further compounding the situation are several impending food crises in regions already affected by child wasting and the fact that the cost of ready-to-use therapeutic food is projected to increase by up to 16% over the six months from May 2022 (UNICEF, 2022), potentially reducing access to this life-saving treatment.

To support implementers in adapting wasting treatment services to ensure both continuity and availability, the Global Simplified Approaches Working Group has developed a decision-making tool for use in exceptional circumstances – defined as complex and/or challenging contexts resulting in negative effects on treatment services or the target population, such as health system closure/collapse or a break within the food pipeline. Aimed at national level implementers – including Ministry of Health workers, United Nations (UN) and other non-governmental organisation staff – this tool seeks to facilitate the decision-making process as to which modifications to implement based on the context. This new *Decision Making Tool for the use of Simplified Approaches in Exceptional Circumstances* includes a Briefing Paper (Simplified Approaches Working Group, 2022a) that provides the background to the simplified approaches and frames the use of these approaches in the context of exceptional circumstances. This briefing paper is accompanied by Decision

Making Guidance (Simplified Approaches Working Group, 2022b) which walks the user through the considerations for which simplified approaches should be used in exceptional circumstances based on barriers specific to their context.

The term ‘simplified approaches’ refers to several modifications and simplifications to the existing national and global protocols for the treatment of child wasting. These modifications have been designed to improve effectiveness, quality and coverage and to reduce the costs of caring for children with uncomplicated wasting. The simplified approaches have also been used to maintain service availability and continuity in exceptional circumstances until standard programming can resume. As of 2021, the World Health Organization (WHO) is in the process of revising the current treatment protocols and several of the simplified approaches are being evaluated by the Guideline Development Group for possible inclusion in the new WHO wasting guidelines. The use of simplified approaches is already deemed appropriate by UN agencies in exceptional circumstances, where warranted.

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Testing double-fortified salt with iodine and folic acid in Ethiopia

Nutrition International launched a new three-year project in collaboration with the Government of Ethiopia, the University of Toronto, the University of California at Davis, and the International Federation for Spina Bifida and Hydrocephalus, which aims to develop, test and bring to market double-fortified salt with iodine and folic acid in Ethiopia.

Ensuring that women have adequate folic acid intake before conception reduces the risks of folate-deficiency anaemia and the number of births affected by neural tube defects, which can result in early neonatal deaths or long-term disabilities. The prevalence of neural tube defects is more than eight times higher in Ethiopia compared to other African nations. Across the country, diets lack foods rich in folate, with folate insufficiency among women varying from 60-100% between regions.

The Government of Ethiopia has mandated salt iodisation since 2011 and adequately iodised salt currently reaches more than 90% of the population, reducing the prevalence of iodine deficiency disorders, such as goitre. Double-fortified salt with iodine and folic acid has the potential to be a sustainable at-scale solution for increasing the population's intake for both iodine and folate.

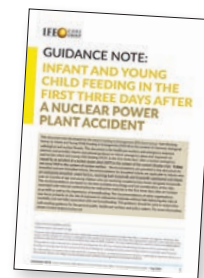
More than 20 years ago, double-fortified salt with iodine and folic acid was developed in a laboratory at the University of Toronto. This project will support its production within Ethiopia using the same Central Iodization Facilities that were created to iodise salt mechanically. The project is designed to kickstart the eventual move to replace all iodised salt in the country with double-fortified salt and will test its acceptability and biological effect in the country's population, engaging government institutions and salt producers in Ethiopia and sharing findings with international organisations and other relevant stakeholders.

For more information, please see: <https://www.nutritionintl.org/news/all-news/nutrition-international-and-partners-launch-project-to-test-new-double-fortified-salt-product-intended-to-reduce-the-risk-of-neural-tube-defects-in-ethiopia/>



Salt production in Ethiopia

Update on the GNC Technical Alliance Global Thematic Working Groups



The Global Nutrition Cluster Technical Alliance (the Alliance) aims to provide predictable, timely and coordinated nutrition technical assistance to meet the nutrition needs of people affected by and at risk of emergencies. The Alliance's primary function is to provide technical advice, facilitate rapid, consensus-driven stop-gap guidance in the absence of established normative guidance, and provide specialised technical expertise. The mechanism is led by UNICEF and co-led by World Vision, with a leadership team including the Global Nutrition Cluster Coordination Team, ENN, and Action Against Hunger.

Within the Alliance, the Global Thematic Working Groups (GTWGs) are groups of key experts convening to develop timely consensus-driven, technical stop-gap guidance. There are currently five GTWGs centred around various thematic areas, namely infant feeding in emergencies (IFE) (for which the IFE Core Group acts as the GTWG), wasting, nutrition information systems (NIS), and nutrition and cash and voucher assistance (CVA) as well as a newly established management of small and nutritionally at-risk infants under six months and their mothers (for which the MAMI Global Network has agreed to fill the role of the GTWG). Additionally, two time-bound taskforces have been established to develop guidance on nutrition in Ebola treatment units and women's nutrition in emergencies.

Over the course of this year to date, in response to escalated questions from Ethiopia, Ukraine, Afghanistan, Yemen, Nigeria, and Haiti, the GTWGs have developed various guidance documents and learning pieces. While not all can be mentioned here, there follows some of the highlights. The IFE Core Group has developed nuclear radiation and chemical/biological warfare incidence guidance¹ for appropriate IFE responses, as well as [country level case studies \(page 41\)](#) on complementary feeding in emergencies. The Wasting GTWG has been supporting the mapping of national wasting guidelines, wasting prevention initiatives, and an analysis of the cost of not treating wasting as well as harmonising costing and cost effectiveness methodologies. The NIS GTWG has established country focused taskforces to support national nutrition survey planning and data quality verification in several specific countries. The CVA GTWG has mapped out promising practices and ways of overcoming challenges in CVA for nutrition programming and developed related capacity building tools.

As nutritional needs are expected to grow in many contexts over the coming months, the Alliance remains committed to responding to in-country technical needs and supporting country level practitioners.

Should you need technical guidance, please reach out using the Alliance's request page, at <https://ta.nutritioncluster.net/request-support>

¹ <https://www.enonline.net/ifenuclearguidance>

GNC Learn

Cluster Coordination, 'Information Management' and 'Nutrition in Emergencies'.

The aim of the platform is to strengthen the capacity of all individuals, groups and organisations working in nutrition in emergencies. The platform is suitable for those who already work in the nutrition sector or those who are considering a career in nutrition in emergencies. Courses available cover a wide range of skills and interests that support professional growth.

GNC Learn is a free platform that offers a variety of ways to learn with most modules available in English, French and Spanish.

For more information, please visit the GNC Learn platform at <https://www.nutritioncluster.net/gnc-learn>

The 'GNC Learn' platform

The Global Nutrition Cluster's online learning platform – GNC Learn – was piloted in 2021 with the participation of 14 countries, during which 60 mod-

ules were completed. Due to the success of the pilot, a more comprehensive version of the platform was officially launched in June 2022, with over 125 modules spanning 'Nutrition

COVID-19 within the nutrition analytical framework

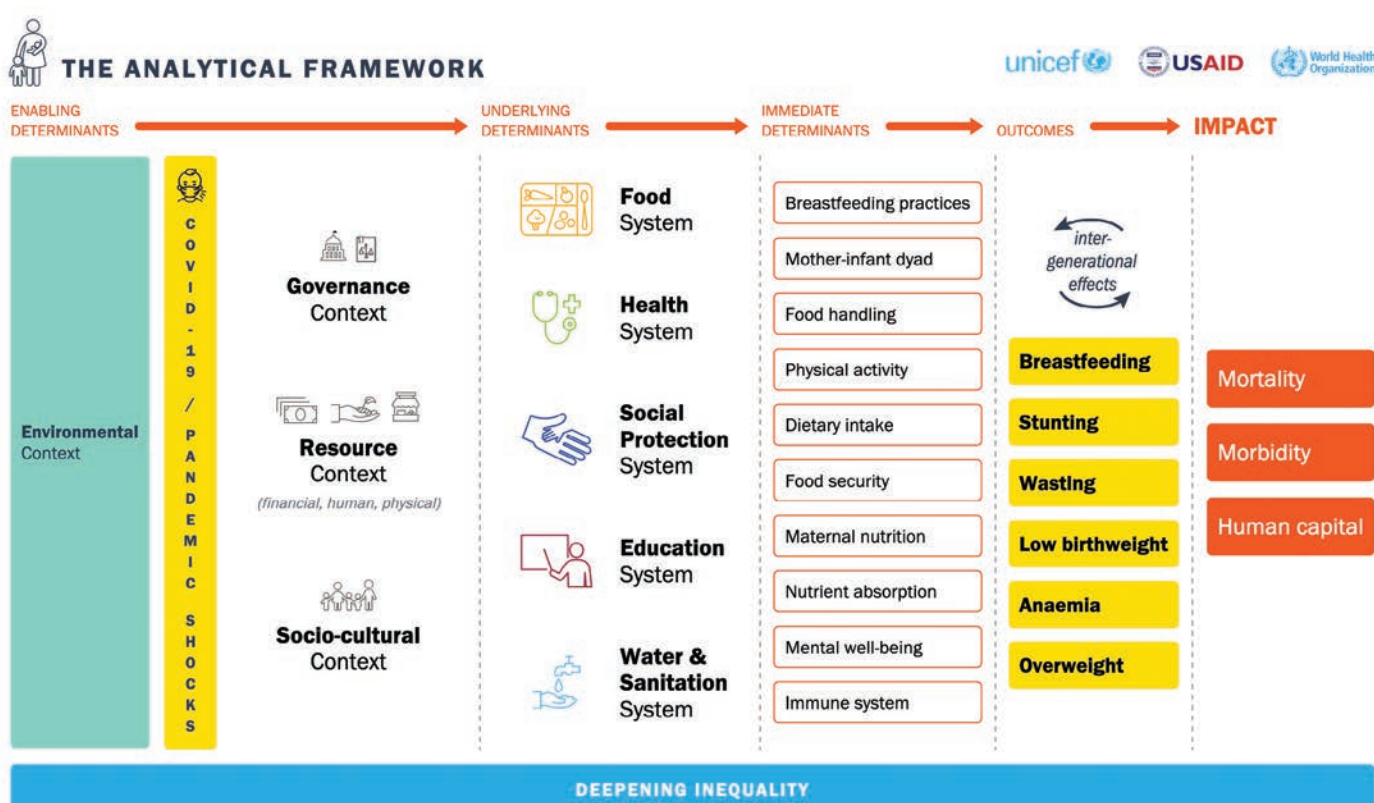
In July 2022, USAID Advancing Nutrition, jointly with UNICEF, USAID, and the World Health Organization, published a comprehensive nutrition and COVID-19 analytical framework (Figure 1) that focuses on the pathways connecting the secondary impacts of the COVID-19 pandemic on nutrition outcomes in both children and adults. The framework is

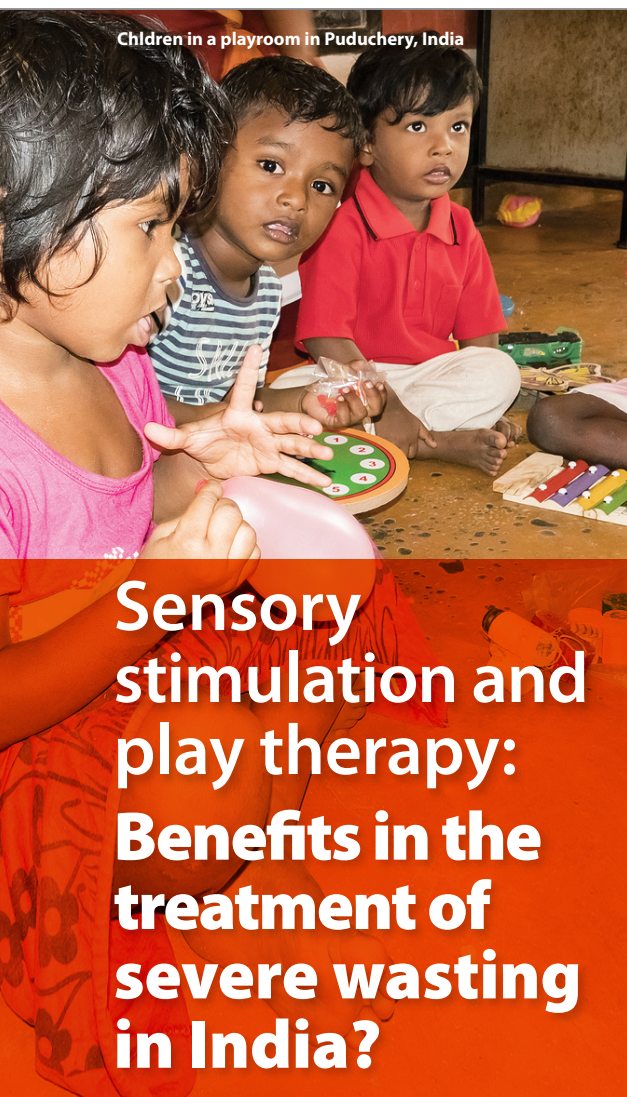
well placed to allow policymakers and implementers to better identify and assess potential pathways between the pandemic and nutrition, as well as providing a useful tool for planning policies and interventions. The framework is also practical for identifying data gaps and can serve as a structure to model efforts across multiple pathways.

The analytical framework groups factors into different categories and sub-categories. Five overarching categories organise the model: enabling determinants, underlying determinants, immediate determinants, outcomes, and impact.

A detailed breakdown of the comprehensive analytical framework, as well as an interactive version of the framework which contains expandable tabs, PowerPoint slides, and an Excel file with comprehensive data sources, can all be found at <https://www.advancingnutrition.org/resources/covid-19-and-nutrition-analytical-framework>

FIGURE 1: THE NUTRITION AND COVID-19 ANALYTICAL FRAMEWORK





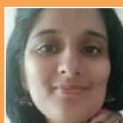
Children in a playroom in Puduchery, India

© Bigstock/CatherineL-Prod

Sensory stimulation and play therapy: Benefits in the treatment of severe wasting in India?



Nisha Kamble is an Occupational Therapist working with the State Centre of Excellence in Paediatric Nutrition at the B.J. Wadia Hospital for Children, Mumbai.



Radhika Mathur is a Paediatrician and Senior Project Medical and Research Officer working at the State Centre of Excellence in Paediatric Nutrition at the B.J. Wadia Hospital for Children in Mumbai.



Vrushabh Gavali is a Consultant Paediatric Neurologist working in the Department of Paediatric Neurology at B.J. Wadia Hospital for Children, Mumbai.



Sanjay Prabhu is a Senior Paediatric Consultant in charge of the State Centre of Excellence in Paediatric Nutrition at the B.J. Wadia Hospital for Children, Mumbai.



Bhaskar Krishnamurthy is an Assistant Professor in the Department of Clinical Pharmacology at Seth GSMC and KEM Hospital, Mumbai.



Minnie Bodhanwala is the Chief Executive Officer of the Wadia Group of Hospitals.

Background

Across the globe, an estimated 45.4 million children under the age of five are affected by wasting (UNICEF/WHO/World Bank, 2021). Those children suffering from severe wasting are at an exceptionally high risk of poor growth outcomes and are also thought to be at a high risk of motor and cognitive delays as brain development is further inhibited with increasing severity of malnutrition (Prado & Dewey, 2014). Children are particularly vulnerable to malnutrition in their first two years of life when growth velocity and brain development are especially high.

As per the World Health Organization (WHO) guidelines (WHO, 2013), the management of complicated severe wasting in inpatient settings is divided into three phases: stabilisation, transition and rehabilitation. Once children with severe wasting have recovered their appetite and have been treated for medical complications, they enter the rehabilitation phase which aims to promote rapid weight gain, stimulate emotional and physical development and prepare the child for normal feeding at home. Following those recommendations, Indian healthcare guidelines include the provision of sensory stimulation and play therapy as detailed in Step Nine of the inpatient treatment of children with severe wasting (Government of India, 2011).

Sensory stimulation and play therapy for children with severe wasting

Sensory stimulation integrates various ways to promote expressive behaviours. It helps babies and children to learn and reach developmental milestones through the activation of one or more of our five senses: seeing, hearing, touching, tasting and smelling.

Play therapy is an interactive method used to interact with children. This model includes developmental play capacities (cognitive, physical and social play skills) and individual play styles (internal control, freedom to suspend reality and intrinsic motivation). Play reflects the child's cognitive, motor, language and social skills. Physical play helps the children to refine locomotion, hand-eye coordination and manipulation skills (Cooper, 2000). Play therapy is used to achieve optimal arousal and to develop cognitive and social skills (Gardner et al, 1999).

According to Kerac et al (2010), there is a lack of data on the current practice of the basic WHO recommendations for play and

stimulation activities for children with severe wasting at hospitals and healthcare centres and there is need to better document the feasibility of conducting sensory stimulation and play therapy. A few, more recent studies have begun to document the subject.

A study in Ethiopia found that, for children with severe wasting, sensory stimulation and play therapy enhances the improvement of gross motor functions when combined with standard nutrient-rich diets but it can enhance these gross motor functions even when such standard dietary care is not available (Abessa et al, 2019). Hence, family-based sensory stimulation and play therapy in a low-income setting have the potential to improve the development, linear growth and nutritional outcomes in children with severe wasting.

In Malawi, the provision of a four-day programme of counselling and psychosocial stimulation to primary caregivers and their children who were hospitalised with severe wasting did not result in improved developmental or nutrition outcomes, likely due to the programme's short duration. Other studies of psychosocial stimulation interventions for children with severe wasting, which showed positive effects on child development, were more rigorous and continued beyond discharge from inpatient care (Daniel et al, 2021).

Our study

To understand the developmental outcomes resulting from sensory stimulation and play therapy in patients with severe wasting, we conducted a short-term observational study at the Nutritional Rehabilitation Centre (NRC) at Bai Jerbai Wadia Hospital for Children, an urban tertiary paediatric care centre in Mumbai. This article aims to share our results with the hope that our learnings will inform other practitioners and, in turn, benefit children from high-burden countries.

The NRC at Bai Jerbai Wadia Hospital for Children is a referral site for a large catchment area surrounding the city of Mumbai with an increased population density of lower- and lower middle-income groups which contributes to relatively high numbers of child admissions with severe wasting. This study was conducted to understand the developmental outcomes after sensory stimulation and play therapy in various developmental domains in patients with severe wasting admitted to the NRC and to identify any difference between children with co-morbidities as compared to those without co-morbidities. Being a tertiary care centre, many of our patients

Table 1 Paired t-test comparing social age pre and post intervention

Domain	Pre intervention Mean $\pm$ SD	Post intervention Mean $\pm$ SD	Difference (Change)	t-value	p-value
Gross motor	61.33 $\pm$ 27.23	69.78 $\pm$ 26.08	-8.45 $\pm$ 16.94	-3.526	0.001*
Fine motor	65.90 $\pm$ 26.39	71.28 $\pm$ 25.73	-5.38 $\pm$ 13.79	-2.760	0.008*
Language	64.44 $\pm$ 29.78	68.16 $\pm$ 27.10	-3.71 $\pm$ 18.87	-1.391	0.170
Social	59.53 $\pm$ 26.72	75.64 $\pm$ 23.69	-16.11 $\pm$ 20.66	-5.517	< 0.001*
Cognition	19.38 $\pm$ 22.67	19.64 $\pm$ 19.49	0.26 $\pm$ 24.00	-0.076	0.939

n=50 * indicates a statistically significant difference

Table 2 Comparison of the change in social quotient pre- and post-intervention for children with co-morbidities and those without co-morbidities

Domain	With co-morbidity (n=12) Mean $\pm$ standard deviation	Without co-morbidity (n=38) Mean $\pm$ standard deviation	p-value
Gross motor	7.78 $\pm$ 7.85	8.66 $\pm$ 19.02	0.818
Fine motor	9.63 $\pm$ 9.66	4.04 $\pm$ 14.71	0.139
Language	5.48 $\pm$ 9.19	3.16 $\pm$ 21.10	0.594
Social	10.49 $\pm$ 9.58	17.90 $\pm$ 22.90	0.117
Cognition	0.49 $\pm$ 1.96	0.19 $\pm$ 27.60	0.970

have co-morbid conditions such as cerebral palsy, congenital cardiac defects, chronic respiratory illness or abnormal anatomical conditions such as a cleft lip/palate which can affect overall improvement in neurodevelopmental outcomes after play therapy. Moreover, there is no literature available that differentiates the developmental outcomes between these two groups. We excluded children with congenital deformities, uncontrolled epilepsy and a history of recent surgery as it was not possible to provide interventions to those children at the time.

After the stabilisation phase, the children were assessed by the occupational therapist and given sensory stimulation in conjunction with structured play therapy. The Vineland Social Maturity Scale (VSMS) was used to assess the initial developmental parameters in five domains, namely: gross motor, fine motor, language (expressive and receptive), socio-emotional and cognition. VSMS is a scale used to measure the adaptive abilities, or social competence, in a purposeful manner in various social settings in each domain. It therefore assesses the child's ability to adapt to various social challenges which in turn is termed social adaptive behaviour. Social adaptive behaviour is measured in the form of social age in the various domains in VSMS. The social quotient in each domain can then be calculated by representing the social age as a proportion of the chronological age. The scoring is often interpreted as 90-100% being normal, 80-90% as low-normal and less than 80% as inadequate.

A minimum of 10 play sessions each lasting 40 minutes were held in the presence of the caregiver in the playroom only, or both in the playroom and the playground, depending on the age and health status of the child. By attending play sessions, the parents were actively included and were encouraged to continue these activities at home after discharge. Children were reassessed using VSMS post-intervention.

Our observations

Out of 86 admissions in the NRC from January 2020 to March 2021, 50 patients (58.1%) aged between one month and five years were recruited for sensory stimulation and structured play therapy. Amongst those admitted, we excluded children with deformities, uncontrolled epilepsy and a history of recent surgery.

There were 12 patients enrolled in the study who had co-morbidities and 38 who did not have co-morbidities. The developmental outcomes were summarised in terms of pre- and post-intervention social age. Statistical significance was set at $p < 0.05$.

There was a significant difference in gross motor, fine motor and social development pre- and post-intervention which indicates that the intervention was successful.

When comparing the changes of social quotient observed between the two groups (children with co-morbidities and those without co-morbidities), we observed no statistically significant difference in any of the domains (Table 2). There was no difference in the milestone improvement, post-intervention, between children with pre-existing co-morbidities and those without.

Discussion

In this experience, we observed that children treated for severe wasting benefited from the sensory stimulation and play therapy that was provided in addition to the nutrition rehabilitation in the gross motor, fine motor and social domains. Similar findings were seen in a pilot study conducted across 10 NRCs in India where it was concluded that sensory stimulation and play therapy are an integral part of the management of inpatient severe wasting and that maternal involvement in play therapy is crucial (Kumar et al, 2021). This benefit was independent of the presence or absence of co-morbidities.

Currently, the treatment of severe wasting in the NRC is primarily to provide medical nutrition therapy. The inability to provide sensory stimulation and play therapy has been a neglected aspect of the holistic management of severe wasting. Children who are wasted also suffer from delays in motor and cognitive milestones so a focus on this area of development appears to be warranted in order for all children to thrive and achieve their potential. After the stabilisation phase, there is a window of opportunity to provide sensory stimulation and to involve the child in play activities which may in turn make their stay in the NRC an enriching experience. Although not explored in this study, there may be particular benefit for children who are wasted and have nutritional oedema who otherwise tend to remain either withdrawn or are irritable.

In our NRC, we have a dedicated occupational therapist who offers this service to all patients admitted for treatment. As per the WHO recommendation, and based on our experience, we strongly advise regular sensory stimulation and play therapy for a severely wasted child by either an occupational therapist or a health care worker who is trained by an occupational therapist to provide the same at each nutrition centre. The approximate cost for the equipment, which includes toys, games, etc., would be around USD 500 per centre which does not have an occupational therapy department or a linked District Early Intervention Centre (DEIC). However, if the latter is available then the cost would further reduce to around USD 100 which can be considered value for money.

Nevertheless, we identified certain challenges during our implementation of this intervention including a lack of maternal motivation and determination as well as the occasional lack of family support. This leads to a discontinuation of continued stimulation at home after discharge. We were able to gather this information based on regular post discharge follow-ups and reviews which were initially maintained weekly followed by bi-monthly.

Further to this, we do understand that home-based management of uncomplicated severe wasting is important and for that reason it is important to have a strong home-based Early Child Development component as well (Kumar et al, 2021).

The main limitation of this study was that there was no control group in this setting. Due to the standards of care recommended by the WHO, it would be unethical to deprive any patient of the therapy so the inclusion of such a control group was unfeasible. Without a control, it is difficult to determine whether the positive impacts were attributed to the intervention alone, hence a strong recommendation for introducing sensory stimulation and play therapy cannot be made at this point despite these promising findings.

Conclusion

The results of our study suggest that receiving sensory stimulation and play therapy benefits

children who have severe wasting, especially in the gross motor, fine motor and socio-emotional domains. The presence or absence of co-morbidity did not affect the outcome which indicates that sensory stimulation is as beneficial when children have co-morbidities as when they do not.

Based on both our clinical experience and these findings, we believe that sensory stimulation should preferably be included in all NRCs via occupational therapists, trained health care workers or linkage to DEIC. The components of this therapy should also be integrated in the follow-up programme and carried out by frontline health workers. Stating this, we also think that more research should be conducted across multiple centres in various countries to develop concrete guidelines for this promising intervention.

For more information, please contact Radhika Mathur at dr.radhikamathursharma@gmail.com

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Group work during NIPN Uganda workshop

Views

National Information Platform for Nutrition: An overview



Barbara Baille is a Nutrition Advisor at Capacity for Nutrition-National Information Platforms for Nutrition (C4N-NIPN) Global Coordination team, a component implemented by the GIZ and based in Brussels, Belgium.

What is NIPN?

The National Information Platforms for Nutrition (NIPN) initiative was launched by the European Union in 2015 with the goal of supporting partner countries who are part of the global Scaling Up Nutrition movement. These countries have committed to delivering evidence-based programmes and interventions to improve human nutrition in their progress towards the 2030 Agenda for Sustainable Development Goal number 2 – to “end hunger, achieve food security and improved nutrition and promote sustainable agriculture”. Responding to the need to maximise the use of existing data while also creating the demand to fill data gaps, the main objective of the NIPN initiative is to create country-led and country-owned information platforms for nutrition to strengthen national capacities in the analysis of nutrition information and data, in order to better inform policymakers in the areas of policy, programme and investment for nutrition.

The first phase of the initiative was implemented in nine countries: Bangladesh, Burkina Faso, Ivory Coast, Ethiopia, Guatemala, Kenya, Lao PDR, Niger, and Uganda. To support each country's implementation and to coordinate

technical assistance and capacity building, a Global Support Facility was established in 2015. As of 2020, the Global Coordination Facility has been managed by Capacity for Nutrition (C4N), a joint action financed by the EU and the German Federal Ministry for Economic Cooperation and Development and implemented by Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ).

NIPN partners work under one common results framework that focuses on: strengthening technical ability to provide relevant nutrition information and analysis, enhancing the demand by policy makers for NIPN outputs, and strengthening the national ownership of NIPN.

Between 2021 and 2022, all NIPN platforms – except for Bangladesh, where the project closed in early 2022 due to other government priorities – have gradually entered the second funding cycle of the initiative, NIPN Phase II. In this new phase, GIZ delivers technical and programme management assistance for the implementation of the platforms in Ethiopia and Niger. In Burkina Faso, Ivory Coast, Kenya, Lao PDR, and Uganda, UNICEF provides the technical and programme management assis-

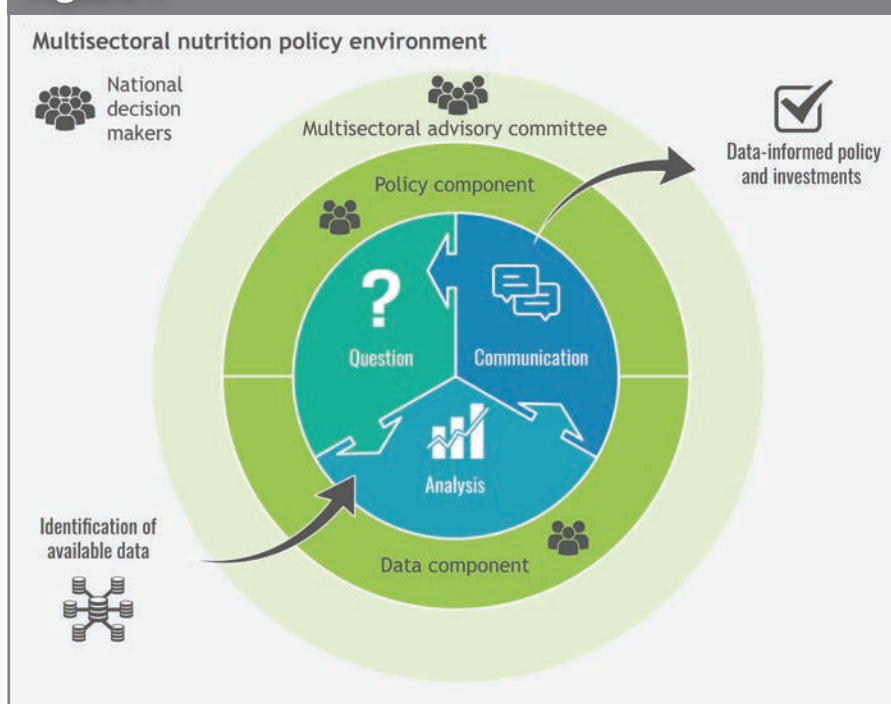
tance. In Guatemala, the Centro Agronómico Tropical de Investigación y Enseñanza delivers technical and programme management assistance.

How does NIPN work?

NIPNs are embedded in national host institutions and work closely with national multi-sector coordination systems for nutrition. In each country, a core NIPN team comprises two components – policy and data – that are jointly responsible for implementing the NIPN operational cycle (Figure 1). For the policy component, host institutions convene and facilitate a multi-sector advisory committee, lead policy-relevant question formulation based on government priorities and, in coordination with relevant local partners (researchers, technical and financial partners etc.), interpret data analysis and ensure the strategic communication of actionable recommendations based on the findings.

For the data component, host institutions collate multi-sector data in a central repository and analyse the data to answer policy-relevant questions. As such, NIPNs are highly complex, dynamic, multi-layered collaborations. The core team must also collaborate with sectoral government ministries and other partners in the nutrition coordination system to: a) identify priority nutrition policy questions through workshops where all relevant partners are invited, b) gather the existing data needed for evidence on nutrition and c) clearly present the evidence and formulate strong recommendations to maximise the chances of uptake. The collaboration between the mandated NIPN host institutions is formalised in a contract or memorandum of understanding, linked to a funding agreement with development partners.

Figure 1 NIPN operational cycle



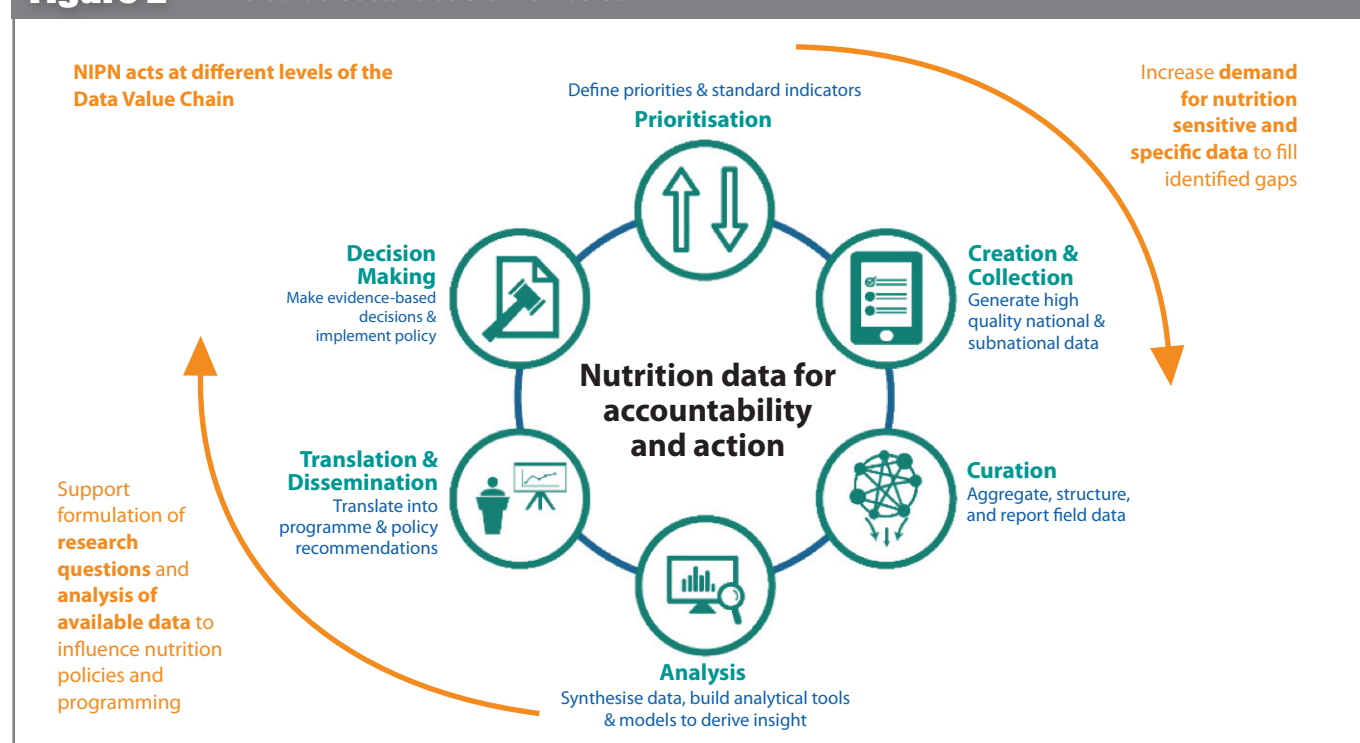
How can NIPN contribute to positive change in the nutrition data environment?

NIPN acts at different levels of the Data Value Chain for Nutrition (Figure 2). The support provided to the research questions formulation process by the core NIPN teams in countries, using available data in each country, strengthens stakeholders' capacity to analyse and disseminate information. It also allows for the identi-

cation of nutrition (sensitive and specific) data gaps, advocating for action to fill these gaps. Of these gaps, nutrition specific and nutrition sensitive programme coverage as well as accessibility to real-time data are some of the most common issues in countries.

Since its inception, NIPN has contributed to key results that have played a role in improving the nutrition data environment in several countries, such as the creation of national data repositories

Figure 2 NIPN around the Data Value Chain for Nutrition



Source: DataDENT

Box 1 Case study - NIPN in Ethiopia

The Ethiopia case study pointed out several benefits that can be attributed to the inclusion of NIPN in a high level multi-sector committee such as the Monitoring, Evaluation and Research Steering Committee (MER-SC) of Ethiopia. As the MER-SC is a **formal multi-sector committee**, attended by sensitive sectors to nutrition, with roles and responsibilities in support of the overall coordination and implementation of national **nutrition and food security** strategies and programmes, NIPN's products and outputs receive increased visibility, are discussed with different sectors, and can more easily **inform and potentially influence and make specific policy recommendations**.

Likewise, the MER-SC can guide and influence the work of NIPN in line with its needs and objectives. **NIPN products and tools can thus be more specifically designed to meet national nutrition plan needs.**

The case study also points to the limitation that, although the MER-SC includes most relevant ministries in Ethiopia, several of these do not actively participate or attend meetings. More high-level advocacy may be required to reverse this trend which could be supported by NIPN.

for nutrition (Ethiopia, Burkina Faso, Niger) which allow for maximising the use of existing data and findings. NIPN has also contributed to increased collaboration and synergies between sectors that are sensitive to nutrition (Box 1)¹.

The initiative has also led the assessment of information systems for nutrition and the mapping of nutrition data in countries to support the identification of data gaps (Burkina Faso, Lao PDR, Niger, Ivory Coast, Ethiopia, Kenya) and investigations into the factors that influence policymaking for nutrition (Bangladesh, Niger, Uganda, Guatemala). The NIPN platforms can also serve to monitor national multi-sector plans for nutrition.

Lessons learned so far

Since its launch in 2015, the NIPN initiative has gathered key lessons which were synthesised in the mid-term review exercise published in 2018 (European Union, 2021). A key message that was identified was that a functional NIPN requires a mature nutrition coordination mechanism that has defined what is expected from the NIPN and how the NIPN will be embedded in existing structures whose mandates align with NIPN functions. Also, multi-sector collaboration platforms are more likely to succeed when three sets of conditions (aligned institutional mandates, logics and capabilities; effective leadership and functional capacities; and trust and credibility) point in the same positive direction. Guatemala, Niger and Lao PDR are good examples of this successful condition: country context and institutional logics were considered from the design phase of the project which resulted in high-level political support, contributing to the progress and success of the platform in the early implementation phase.

The mid-term review also found that investment in strengthening leadership skills and the strategic capacity of a core team in the first months of implementation will help to avoid early setbacks in any multi-sector collaboration.

According to the investigating team: *“in countries where lead(s) promoted commitment to improving nutrition outcomes and created a shared understanding of the NIPN objectives, the platform teams had more clarity about their respective roles and responsibilities. In countries where lead(s) were able to motivate host institutions and partners to collaborate, good teamwork was observed, and actions were put in place to build credibility more rapidly. Where platform lead(s) identified windows of opportunity and developed strategies for bringing key stakeholders on board, it was easier to kick-start the evidence-informed policy dialogue. In countries where platform lead(s) had the capability to organise, plan and track progress, timely implementation of the operational cycle and delivery of concrete outputs was observed. When the platform lead could demonstrate transparency in his or her actions, there was a positive impact across the collaborations”.*

Multi-sector platforms should also be flexible and adaptive, learn by doing and make iterative adjustments to how the platform is operating. Finally, proactive and continuous risk manage-

ment must address conditions such as strengthening leadership skills and strategic capacity to ensure the success of the platforms.

Next Steps: The sustainability of NIPN

2022 marks a new chapter of implementation for the NIPN platforms, with its transition into Phase II. An official launch with partners and donors is planned for October 2022 with the focus on the major upcoming challenge for NIPN: accelerating results to achieve the sustainability of the platforms. The road to sustainability is long and requires many steps; NIPN partners and stakeholders have already been solicited to reflect on key questions: How can we ensure that NIPN's core features (multi-sectorality, regular dialogues, nutrition research question prioritisation, evidence-based decision-making) will last beyond the NIPN donor funding cycle? How can we promote the added value of NIPN among the nutrition community and support the achievement of positive nutrition outcomes in the long term? In the coming years, efforts will be made on the institutionalisation of the NIPN platforms which entails the internalisation of NIPN processes and human resources' capacities into national institutions' planning and budgeting. Some platforms (Niger) have already elaborated sustainability studies and plans (NIPN, 2021) that can serve as a blueprint to the achievement of this long-term goal.

For more information, please contact Barbara Baille at barbara.baille@giz.de

¹ <https://www.nipn-nutrition-platforms.org/Aligning-with-food-and-nutrition-security-priorities>

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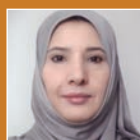
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19 month old Mohammed Mahyoub
recovering from severe acute
malnutrition in Taiz, Yemen

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Developing the Yemen Action Plan on child wasting: A success story



Karima Al-Hada'a is a Planning and Liaison Specialist at the Scaling-Up Nutrition Secretariat at the Ministry of Planning and International Cooperation, Yemen.



Najwa Al-Dheeb is a Nutrition Specialist at UNICEF, Yemen.



Koki Kyalo is a Nutrition Specialist at UNICEF, Yemen.



Najwa Rizkallah is Nutrition Chief at UNICEF, Yemen.

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KEY MESSAGES

- This article outlines Yemen's experience as a 'front runner country' for the national-level adaptation of the Global Action Plan framework. Through this, Yemen has developed the Yemen Action Plan (YAP) on child wasting as a multi-sector strategy to prevent and treat malnutrition.
- Priority actions within the YAP country roadmap were derived from existing national strategies and policies, ensuring a context-specific action plan built on established roles and responsibilities.
- Transparent and collaborative efforts by Yemen's governments and partnering agencies were critical to achieving consensus on a four-year, country-wide roadmap for child wasting.

Background

Since 2014, Yemen has been embroiled in a civil war, which is considered to be one of the largest humanitarian crises in recent history. The conflict has led to widespread food insecurity, rampant disease, economic collapse, and the breakdown of public services. Severe food shortages, soaring food prices and disrupted livelihoods have made basic necessities unaffordable to many. This has exacerbated the high levels of acute malnutrition (wasting) already seen over the past three decades in Yemen.

Results from the latest SMART survey showed a national wasting prevalence of 9.9% among children 6-59 months of age, with some zones, i.e., Hajjah and Hodeidah, exceeding 15% (OCHA, 2022a; 2022b). The latest Integrated Phase Classification exercise showed that the acute food insecurity and malnutrition situation has further deteriorated in 2022, with 538,000 children under five years of age suffering from severe wasting. Furthermore, 1.3 million pregnant and lactating women are projected to suffer in 2022 from acute malnutrition (IPC, 2022). Childhood stunting rates are also very high (44.8%). The country has the fourth largest number of internally displaced persons (IDPs) in the world with four million IDPs in urgent need of humanitarian assistance (OCHA, 2021).

Given this persistent fragile situation, nutrition stakeholders identified the need for a more purposeful, systematic, integrated, transparent and accountable collaboration that leverages the strengths of each stakeholder to collectively act on an overarching goal – to reduce malnutrition across the country. Thus, Yemen seized the opportunity to be a 'front runner country' for the adaptation of the UN Global Action Plan (GAP) framework (2022) at the national level, developing the Yemen Action Plan (YAP) on child wasting as a coherent and coordinated multi-sector response to prevent and treat malnutrition.

This article describes the experience of developing the YAP on child wasting and setting up a four-year roadmap of action.

Developing the wasting action plan

Setting up a YAP taskforce

Yemen joined the Scaling Up Nutrition (SUN) movement in 2012 and committed to adopting a multi-sector approach to delivering nutrition services and addressing the direct and underlying causes of malnutrition. Based within Yemen's Ministry of Planning and International Cooperation, the SUN Secretariat was established as the focal point for the SUN movement.

With technical and financial support from UNICEF, the YAP process was initiated by the SUN Secretariat in Yemen to ensure the convergence of humanitarian actions and inspire development efforts upheld by sectors in the country. The YAP was developed through a consultative process including various technical teams from the ministries responsible for health; agriculture; fisheries; food safety; education; water, sanitation, and hygiene (WASH); and social protection and the four United Nations (UN) agencies that have a mandate related to nutrition – the Food and Agriculture Organization (FAO), the World Food Programme (WFP), the World Health Organization (WHO) and the High Commission for Refugees (UNHCR). Despite the political unrest associated with the splitting of the government into two factions in 2014, the SUN Secretariat managed to technically work with and represent the line-ministries of both governments.

In October 2020, SUN Yemen and UNICEF formed a Taskforce Team of UN agencies to provide technical support in identifying priority areas/interventions for all systems in the fight against malnutrition and to provide oversight when developing the YAP. UNICEF headquarters also provided technical support. While a draft workplan was agreed upon during initial Taskforce meetings, this continued to evolve according to wider consultations with agencies and technical ministries from the two sets of governments.

"Yemen's Action Plan on wasting represents an important step towards mobilising more resources to support the implementation of the national priorities in all sectors that have the highest impact on the nutrition situation in Yemen."

Abdulkarim Nasser - Head of SUN-Yemen Secretariat

Logistics and technical contributions

At the start of the YAP's development, the Secretariat and UNICEF identified the financial and technical needs. Technical needs included approximately 15 experts from UN agencies, namely UNICEF, the Nutrition Cluster, WHO, FAO, WFP and UNHCR. At least 30 national experts from multiple sectors also participated, along with a national and an international consultant.

The technical team contributions from the government and other stakeholders involved participation in multilateral meetings and supplementing the plan with interventions, the reviewing of the included activities and providing inputs into the plan at all stages of its development.

Reaching a shared vision

A prerequisite to working towards a joint roadmap was reaching a consensus on Taskforce objectives. Because each system involved (health, food, WASH and social protection) had divergent strategies, the Taskforce reviewed priority actions from each one. Based on criteria such as relevance, ownership, consistency, inclusiveness and how up to date the actions were, the Taskforce agreed on the action plans used to map the YAP's policies and activities.

Trust, mutual understanding and respect between Taskforce members was instrumental to building consensus around this shared vision.

Mapping and prioritising YAP activities

The Taskforce conducted a mapping of the key nutrition-specific and nutrition-sensitive interventions implemented in the country. Following orientation from SUN Yemen, the government's technical teams then populated the templates that were provided to countries to adapt the GAP framework.

Following this, about 100 interventions were documented and mapped, mainly extracted from the Multi-Sectoral Nutrition Action Plan, the national nutrition strategy of the health sector and the national maternal and child health strategies. The YAP taskforce reviewed and prioritised interventions, focusing on those considered the most impactful, i.e., taking a 'less is more' approach to prioritise 'less' activities with 'more' focus to increase the likelihood of funding. The reduced list of interventions was discussed with the line-ministries of each government and UN agencies on various occasions, such as main plenary sessions and/or in multi-

lateral meetings. Several multilateral and multi-sector consultations and workshops were held to complete prioritisation, resulting in a YAP operational roadmap.

This was a lengthy process due to the need to reach consensus among all stakeholders in a country context where two sets of ministries sometimes had competing priorities.

Development of sub-activities and targets and costing of YAP activities

Once consensus on the YAP operational roadmap was reached, SUN Yemen held two workshops in Sana'a and Aden to support the technical teams from the ministries of each government to review the roadmap and to facilitate the drafting of sub-activities.

While drafting their sub-activities, the ministries had the opportunity to align their activities with available and related policies and map responsibilities against activities (accountability framework) in the YAP. At this stage, various ministries also began to estimate the number of people who would benefit from each intervention (targets) and the cost of each activity.

A local consultant supported the development process and consolidated the targets and budget for each activity. In September 2021, the final draft of the YAP operational roadmap, which contained the list of activities and a clear accountability framework, target populations and budget, was finalised. By the end of October 2021, after a last round of consultations with the technical team from the government, the YAP was validated by the government and shared with UNICEF headquarters. UNICEF headquarters then facilitated a review by an international team comprised of representatives from UN agencies that support countries in developing their country-level GAPs.

The Yemen country roadmap

In collaboration with the SUN Secretariat and UNICEF Yemen, UNICEF headquarters prepared the YAP summary sheet (Figure 1). This 'country roadmap' comprised the geographic areas to prioritise, the targets to achieve (in terms of wasting levels), the annual costs estimated and the number of beneficiaries to target per population group.

The country roadmap also quantified specific outcome targets for Yemen. By 2025, Yemen aims to:

- Reduce low birthweight from 23% to 16%;
- Increase the rate of exclusive breastfeeding from 20% to 30%;
- Increase the coverage of treatment services for wasted children to 54%; and
- Improve child health by reaching 54.6% National Universal Health Coverage Index, up from 42%.

"The process of preparing the YAP itself was a mechanism for building the capabilities of technicians in all sectors, which contributed to bridging the competency gap and enhanced on-the-job training; it also enriched the common ground for the nutrition multi-stakeholders' platform"

Dr. Ali Al-Walidi, Deputy Minister of Primary Health Care – MOPHC



Technical workshop in progress, Sana'a, 2021



Local authorities, with support from UNICEF and WHO vaccinate children for Measles and Rubella in Aden, Yemen

"YAP is just a first step, and the challenge is to push all partners to implement these interventions on the ground so that they become tangible for the actual beneficiaries."

Dr. Nazar Basuhaib – Vice-Minister of Planning and International Cooperation

Under each outcome, specific priority actions and/or services were identified among the four systems identified as contributors to wasting reduction, i.e., health, food, social protection, and WASH.

The YAP informed the development of the global commitments at the Tokyo Nutrition for Growth summit and was presented at the summit in December 2021. The YAP is considered a success story, given the timeline for its development and the ability of the process to reach consensus by the two governments on a single action plan.

It was agreed that country stakeholders would establish themselves as an 'Operationalisation Team' for the YAP to ensure effective coordination and funding mechanisms for implementation and to develop a monitoring framework to track the progress of this nationwide roadmap. The YAP Operationalisation Team comprises a group of around 15 members from the government, UN agencies, international and national non-government organisations and donors committed to supporting the effective implementation of the YAP. In the coming year, they will act as focal points to link the YAP operational group to the decision-makers and the technical teams in their organisations. They will bring the required expertise to support the development of the YAP's operational plan and implement the required activities within their own organisations to achieve the YAP's relevant tasks. They will also support national and international experts, provide technical support and ensure the development of appropriate reporting.

Successes, challenges, and lessons learned

Despite competing priorities and an overwhelming workload in a dynamic and humanitarian context such as Yemen, the national team tackled the intense process of developing a

country-wide roadmap for child wasting smoothly, with much attention and dedication. The resulting YAP is a four-year roadmap that was costed to mobilise USD four billion to combat child wasting.

The development of the YAP resulted from a transparent and collaborative effort. All the partners involved, from the line-ministries of both governments to the five UN agencies, demonstrated high levels of accountability and responsibility towards the people suffering due to the situation in Yemen. The process demonstrated the need to harmonise and integrate efforts to address the core causes of wasting and to mobilise more support for the overlooked crisis in the country.

Collaborative efforts resulted in a success story because different experiences from different fields of expertise were shared, enabling a consensus on the framework and the entire roadmap. Moreover, clear roles and tasks, objectives and expectations created harmony between different stakeholders; not only "mutual interests" but also "mutual understanding".

The SUN Secretariat in Yemen acted as the link between both governments in the country. The Secretariat was able to maintain coordination through bilateral meetings with both governments to reach a consensus on the sectoral actions. This was successfully obtained thanks to appropriate transparency and two-way communication involving all stakeholders. Consensus was instrumental to ensuring buy-in by both governments towards the implementation of YAP activities and allowing access by partners to the geographic areas under both governments' control.

Since the priority actions identified in the final country roadmap were derived from existing national strategies and policies, the action plan for wasting was contextualised for Yemen and built upon established and distinct roles

Field Article

and responsibilities in the country which could be used as a reference platform for multi-sector programming. YAP finalisation was leveraged by the decision makers' acknowledgement of the importance of the action plan.

Going forward, the objective is to support and advocate for the operationalisation of the YAP. The YAP is considered one of the most important mobilisation tools among Yemen's national plans as it has prioritised the most impactful intersectoral interventions and has the potential to impact on outcomes directly linked to child wasting.

Conclusion

Despite a very challenging context, the YAP on child wasting and the corresponding country roadmap were developed. They have the potential to ensure prioritisation of effective nutrition interventions that are a prerequisite for successful emergency responses, improved health outcomes and sustainable development.

The YAP development process was successful in bringing stakeholders together to reach consensus and leveraged the technical capacity within the country for greater ownership. Furthermore, the YAP was built on existing policies and guidelines to maximise the use of available resources and ensure higher accountability of each stakeholder.

Although the YAP has been uploaded online, there is more to be done to achieve its ultimate goal for wasting reduction. The YAP Operationalisation Team members will work together in a trusting, collaborative and transparent manner to achieve the YAP's objectives. The team will aim to provide a robust and creative pathway to finance and implement the YAP, deliver concrete proposals towards achieving outcomes for nutrition and facilitate key partnerships and advocacy efforts for ramping up nutrition finance, including the engagement of partners on internal and external resource mobilisation. Sustainability, transformative approaches and long-term capacity development will be considered in all deliberations.

For more information, please contact Karima Al-Hada'a at karima.mopic@gmail.com

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Figure 1 Yemen Action Plan summary sheet¹

Global Action Plan on Child Wasting Country Roadmap Yemen

Acute malnutrition is a major public health problem in Yemen. Yemen is also the largest humanitarian crisis in the world. The UN has estimated that 20.7 million people need humanitarian and protection assistance. Of these, 12.1 million people are in acute need. More than half of the population are facing acute levels of food insecurity. Moreover, the country has the fourth largest internally displaced persons (IDPs) population in the world; there are 4 million IDPs in urgent need. The country also hosts over 141,000 refugees and asylum seekers in almost all the governorates.

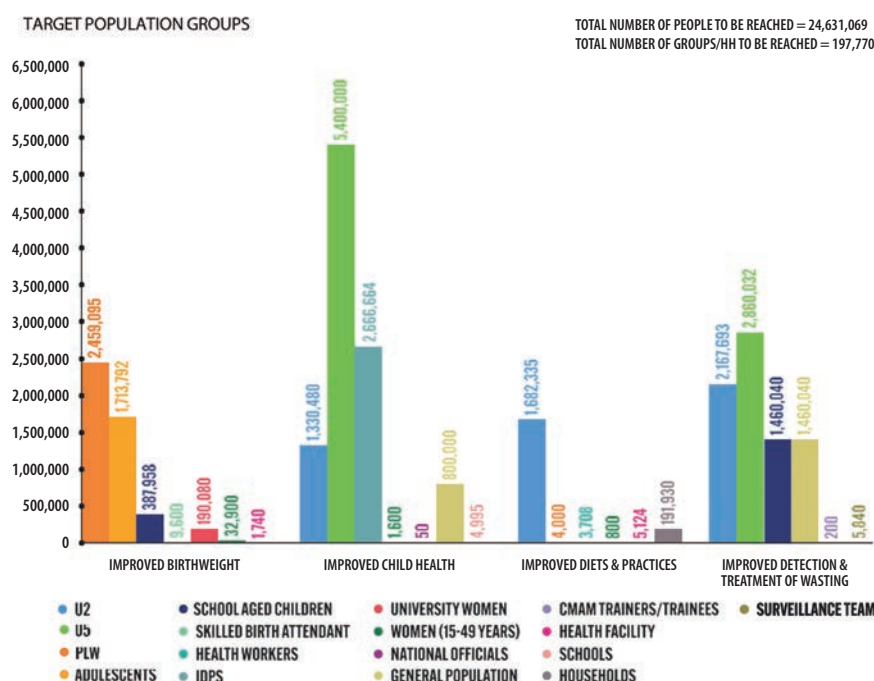
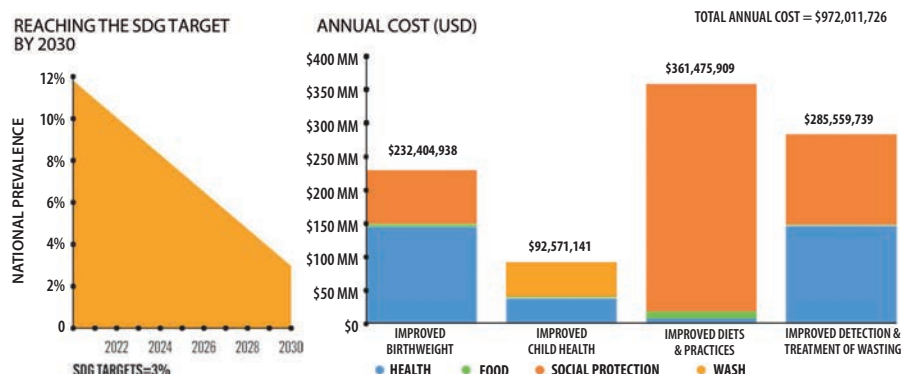
The rate of Global Acute Malnutrition (GAM) is 11.9% for children under 5 years and 1.8% of these children are severely wasted. Out of 22 governorates in Yemen, 6 reported high (10–<15%) and 4 reported very high (>15%) rates of GAM. In 2021, it is estimated that 2.3 million children under the age of 5 years are suffering from acute malnutrition where 400,000 and 1.9 million children under 5 years are suffering from severe acute malnutrition (SAM) and moderate acute malnutrition (MAM), respectively.

The key drivers of wasting are common in most of the zones of Yemen. They include poor quality of food intake, food insecurity, infant and young child feeding (IYCF) practices, access to health and nutrition services, water, sanitation, and hygiene (WASH) and high levels of communicable diseases.

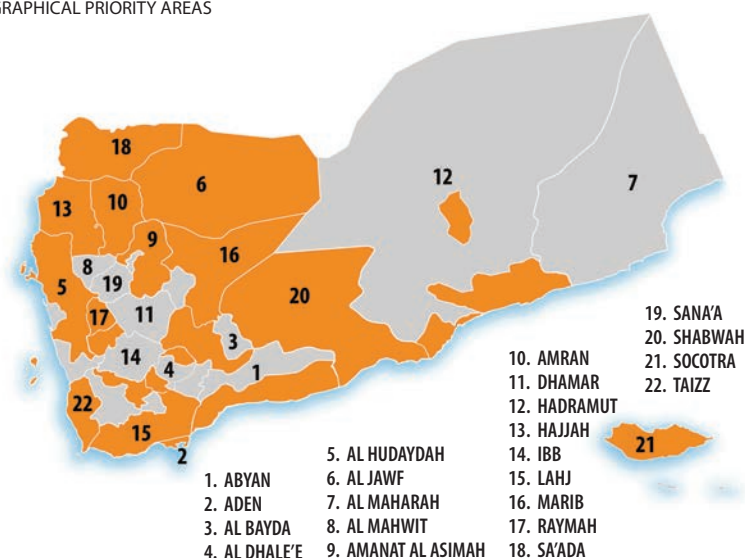
Minimum Dietary Diversity is less than 40% in the northern governorates and around 50% in the southern governorates, indicating low levels of nutrient adequacy in children's food consumption. The exclusive breastfeeding prevalence is <35% across all zones in the northern governorates and it is <25% in more than 60% of the zones in the southern governorates. Also, while all the 22 zones in the northern governorates are projected to be in IPC Acute Food Insecurity Phase 3 or above, 17 of the 19 zones in the southern governorates were expected to be in IPC Acute Food Insecurity Phase 3 or above between January and March 2021. The economic shocks have reduced household purchasing power, impacting food consumption. Poor WASH services are also a major concern in all zones and high rates of communicable disease (acute respiratory infections, malaria/fever, cholera) are widespread throughout the country.

The natural disasters have also contributed to the high rates of wasting. The COVID-19 pandemic has had compounding negative effects on wasting due to reduced remittances, reduced access to markets, difficulty maintaining employment and a global oil price drop, affecting foreign currency contribution to the local economy. The worldwide spread of COVID-19 resulted in halving the health and humanitarian food assistance programmes in parts of the country.

Finally, the escalating armed conflict remains one of the main root causes of acute malnutrition. Despite the challenging context the Yemeni government has developed the national multi-sectoral nutrition plan as the successful nutrition interventions are a prerequisite for successful emergency response, health, and sustainable development.



GEOGRAPHICAL PRIORITY AREAS



¹ https://www.childwasting.org/_files/ugd/2b7a06_fd944bbce61d448db688cbe53f54f55.pdf

Figure 1 (Continued)

By 2025

- REDUCE LOW BIRTHWEIGHT TO 27.9%
- INCREASE THE RATE OF EXCLUSIVE BREASTFEEDING TO 25%
- INCREASE THE COVERAGE OF TREATMENT SERVICES FOR WASTED CHILDREN
- IMPROVE CHILD HEALTH BY ACHIEVING UNIVERSAL HEALTH COVERAGE, INCLUDING ACCESS TO QUALITY ESSENTIAL HEALTH-CARE SERVICES FOR SELECT 54.6% OF THE POPULATION

OUTCOME 1

REDUCE LBW BY IMPROVING MATERNAL NUTRITION

SYSTEM	PRIORITY ACTION/SERVICE
HEALTH	• Micronutrient supplementation (Iron Folate) • Promote Skilled birth attendants/deliveries in Health Facilities • Promote antenatal care and post-natal care • Develop/update a national guide/action plan addressing the adolescent and youth reproductive health (RH) issues including early pregnancy • Set up youth friendly Reproductive Health services, BMI assessments, MUAC screening and Haemoglobin in universities and at community-level • MUAC screening of all Pregnant women and Lactating Women • Treatment of acute malnutrition in pregnant and lactating women • Promotion of adolescent/teen girls' nutrition in Yemen (school-base and out-of-school activities)
FOOD	• Establish and support small and medium sized enterprise projects for women and youth groups within the framework of the Agricultural and Fisheries Production Promotion Fund • Promotion of diversified agriculture production targeting women households
SOCIAL PROTECTION	• Establishing healthy school meals kitchens • Provision of conditional cash incentives for families of girl students • Provide water tanks, clean safe drinking water and enhance the healthy nutrition and hygiene practices in the targeted schools

OUTCOME 2

IMPROVED CHILD HEALTH BY IMPROVING ACCESS TO PRIMARY HEALTH CARE, WASH SERVICES AND ENHANCED FOOD SAFETY

SYSTEM	PRIORITY ACTION/SERVICE
HEALTH	• Provision of Integrated Management of Neonatal and Childhood Illness (IMNCI) - special focus on diarrhea, pneumonia, malaria in endemic areas) Establishing the electronic child health information registry • Provision and scale up of Minimum Service Package (MSP), (health and nutrition services) Increase immunization coverage
FOOD	• Reduce chemical risk in production by regulating use of agricultural chemicals (pesticides) Purification of irrigation water from pest and fungal infections • Promote household and small scale food preservation and storage practices (targeting women) Revitalize the national Codex committee (food hygiene and food regulation) • Strengthen national food safety interventions (build capacity for food safety in emergency + establish food safety strategy, vision, regulation and laws) Establish a surveillance of foodborne diseases • Enhancing community knowledge on food safety and hygiene practices
WASH	• Improve WASH sector capacity for multisectoral coordination and emergency response Provision of safe drinking water to the vulnerable communities (including IDPs) Promotion of good hygiene and sanitation • Rehabilitation and maintenance of all school toilet facilities

OUTCOME 3

IMPROVED IYCF BY IMPROVING BREASTFEEDING PRACTICES AND CHILDREN'S DIETS IN THE FIRST YEARS OF LIFE

SYSTEM	PRIORITY ACTION/SERVICE
HEALTH	• Implement and expand Baby Friendly Hospital Initiative (BFHI) • Implement and expand Baby Friendly Community • Initiative (BFHI) Maintain and scale up IYCF Corners services • Strengthening monitoring BMS code violations
FOOD	• Promote home gardening programmes to produce nutritious foods, including seeds and mini-irrigation kits • Cash support for small food industries for rural households • Development of Children's recipes for complementary foods
SOCIAL PROTECTION	• Cash vouchers, particularly targeted at improving dietary consumption of fruits and vegetables at household level General food assistance (GFA) • Cash vouchers to household targeting the 1000 days

OUTCOME 4

IMPROVED TREATMENT OF CHILDREN, PLW, PLWHIV WITH WASTING BY STRENGTHENING HEALTH SYSTEMS AND INTEGRATING TREATMENT INTO ROUTINE PRIMARY HEALTH SERVICES

SYSTEM	PRIORITY ACTION/SERVICE
HEALTH	• Development and improvement of nutrition curriculum for health institute and universities to include nutrition in the preservice training • Activate the role of health supervisors and volunteers in improving the nutritional and health status of mothers and children through Health Facilities, community and school based activities improving the nutritional and health status of mothers and children through HFs, community and school-based activities • Scale up coverage and quality of services for the management of acute malnutrition (severe and moderate acute malnutrition) • Strengthen the nutrition surveillance system at all settings (HFs, community, schools and others) • Strengthen Nutrition Information Systems
FOOD	• Establish food safety M&E system (for evidence-based planning and programming) • Development of pre-service and in-service nutrition training materials for agricultural extension workers
SOCIAL PROTECTION	• Provide conditional cash assistance transfer to HHs which has U5 children, to reduce acute malnutrition among the vulnerable beneficiaries and to enable targeted HHs to purchase food and necessities in targeted areas



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An innovative digital information platform tackling wasting in Indonesia



Vanessa Oddo is an Assistant Professor in the Department of Kinesiology and Nutrition, University of Illinois Chicago.



Airin Roshita is a Nutrition Specialist at UNICEF Indonesia.



Julia Suryantan is a National Consultant at UNICEF Indonesia.



Blandina Rosalina Bait is a Nutrition Specialist at UNICEF Indonesia.



Messerassi Ataupah is the Head of the Provincial Health Office of East Nusa Tenggara, Indonesia.



Jee Hyun Rah is the Chief of Nutrition at UNICEF Indonesia.

Field Articles

KEY MESSAGES

- This article presents the findings from a rapid assessment of the effectiveness of a digital platform to counsel parents and caregivers of children with wasting in East Nusa Tenggara, Indonesia.
- Information provided to parents and caregivers in written, visual and audio formats via an innovative digital platform improved their knowledge of wasting symptoms, measurement and treatment.
- The participants described the information as clear and found the videos particularly helpful in understanding how to measure mid-upper-arm circumference and interpret the results, when to seek treatment and when to administer ready-to-use therapeutic food. However, digital-literacy and connectivity challenges restricted the use of the platform for a few participants.

Background

Indonesia is home to approximately 2.2 million severely wasted (weight-for-height z-score < -3) children under five years of age (Ministry of Health, 2018). In response to low coverage and the quality of facility-based treatment (Bait et al, 2019), the Indonesian Ministry of Health, with support from UNICEF, began implementing community-based treatment of severe wasting in the East Nusa Tenggara (NTT) province in 2016. This includes child screening via mid-upper-arm circumference (MUAC) measurements, visible thinness and bilateral oedema, followed by home-based care for severely wasted children who are without medical complications but with appetite. Home-based care involves providing ready-to-use therapeutic food (RUTF) and antibiotics, as well as weekly visits to health centres for health check-ups, growth monitoring and counselling on optimal feeding practices. This approach has improved coverage and treatment for severely wasted children. However, the ongoing COVID-19 pandemic, and the accompanying social and mobility restrictions, have caused major disruptions to treatment services and increased food insecurity which may exacerbate the burden of child wasting in Indonesia (Akseer et al, 2020).

In a previous article published in Field Exchange, we demonstrated how caregivers were able to effectively take MUAC measurements as part of a pilot family-centred screening programme in the NTT province in Indonesia (Oddo et al, 2022). Mobile health (m-health) interventions have also been shown to increase health-related knowledge in low- and middle-income countries (LMIC) (Lee et al, 2016). Thus, to further mitigate the disruption of wasting treatment services during the pandemic, UNICEF, in partnership with the Government, designed, implemented and evaluated an innovative digital information platform (i.e., chatbot) to counsel parents and caregivers of children with wasting in NTT. This article presents the findings from a rapid assessment of the effectiveness of the

digital platform in increasing wasting-related knowledge and explores the participants' perceptions of the tool.

Programme description Digital information platform

Beginning in August 2020, UNICEF developed an online information platform through the WhatsApp Messenger application using chatbot software. The platform provides basic information on child wasting (e.g., symptoms, causes and consequences), MUAC measurement and RUTF. These three information topics (referred to as "menus" in Figure 1) were presented in written, visual (i.e., pictures and videos) and audio formats. Between August 2020 and February 2021, approximately 450 participants in the NTT province accessed the tool. Of these, 41 participants (~9%) were asked and agreed to participate in a rapid assessment, described below.

Rapid assessments

A series of rapid assessments was undertaken to determine the effectiveness of the digital platform including (1) individual pre- and post- knowledge tests and (2) semi-quantitative interviews administered to a convenience sample of parents and caregivers in three districts in the NTT province, including Kupang municipality, Kupang district and Timor Tengah Selatan (TTS) district. In partnership with local primary healthcare centres, the convenience sample of participants was identified according to the following criteria: being a parent or caregiver of a child under five years of age, having no prior exposure to the chatbot, having an android-based phone and mobile data and residing in the local area. Priority was given to any caregiver with a child who was undergoing, or had recently completed, treatment for moderate or severe wasting.

The programme participants were administered a 15-minute pre-test consisting of 10 questions related to the topics covered in the chatbot such as risk factors, symptoms, treatment and the consequences of wasting. Each

Figure 1 Example pictures from chatbot

MUAC = mid-upper-arm circumference; RUTF = ready-to-use therapeutic food

correct answer was awarded 1 point with seven of the 10 questions having more than one correct answer (equating to a maximum score of 23). Participants were then instructed on how to use the chatbot service and asked to access it regularly for one to two weeks.

After accessing the chatbot for one to two weeks, the participants were administered with the same test. They were also invited to participate in semi-quantitative interviews. The interviews consisted of quantitative questions related to the participants' overall experience (5-point Likert scale of very poor to excellent), perceived usefulness (4-point Poor to scale of very useful to not very useful), the menu formats used (video, picture, audio) and which menu they perceived as most relevant. Open-ended questions aimed to gather more in-depth information on the participants' perceptions about the chatbot and any difficulties experienced in accessing and using the service. Selected quotations were extracted to illustrate the caregivers' responses.

Results

The pre- and post-tests and semi-quantitative interviews were completed by 41 participants (19 males and 22 females) (Table 1). Participants were 18–51 years of age, most had a wasted child and 63% had a senior high school education or higher.

The median knowledge score increased by 9 points between the pre- (9 points; range: 2–

14) and post-tests (18 points; range 10–22). Approximately 75% of the participants rated the overall programme as “excellent” and 71% perceived the chatbot tool as “very useful”. Most participants (80%) rated the menu on basic information as the most relevant. Nearly all the participants (>95%) used the picture and audio services and 88% of the participants used the video service.

In open-ended questions, we identified three key themes that characterised parents and caregivers' perceptions of the chatbot tool: understanding, usefulness and guidance. The participants described the language as simple and the information provided on symptoms, treatment and consequences of wasting as clear and easily understandable, especially when this was accompanied by videos, pictures and audio. For example, a video on MUAC helped the participants to understand the purpose of taking MUAC measurements, how to take measurements at home and how to interpret the results, as well as providing guidance on when to report their child to a health worker. One caregiver recalled: “...we can watch the MUAC measurement video, and it makes MUAC measurement easy” (Female, 30 years old). The chatbot also helped the participants to better understand how to administer RUTF (e.g., using smaller, more frequent portions). The results also suggested that increasing caregivers' understanding helped to overcome sensitivity

around the topic with one caregiver recalling: “Often when we talk about severe wasting (gizi buruk), it can offend other people, but by sharing this service (with family and friends), they can access the information themselves and understand about severe wasting” (Male, 29 years old).

Consistent with the ratings, in open-ended responses, most participants described the different menus as useful, irrespective of children's nutritional status. Several participants referred to learning about the existence of a specific food to treat severe wasting: “It is particularly useful. Now I know the benefits” (Male, 29 years old). Additionally, some participants appreciated that they would now be able to offer guidance to others on how to measure MUAC and about RUTF: “I can measure my child's MUAC, and when in Posyandu (local health posts) I can also guide other mothers” (Female, 29 years old).

Some participants needed additional guidance on accessing the chatbot which required help from family members and greater digital literacy. For example, a few participants lacked familiarity with operating the android device or were unable to access the audio or video services due to the limited availability of mobile data or connectivity issues. One participant noted that, due to literacy challenges, he needed his child to read him the information, despite the availability of audio, and that he relied on the pictures and videos.

Successes and challenges

This study aimed to rapidly assess a digital information platform designed to support parents and caregivers of children with wasting during the COVID-19 pandemic. After using the chatbot for one to two weeks, caregivers demonstrated greater knowledge of wasting symptoms, measurement and treatment. Caregivers perceived the information provided by the platform as understandable and useful. Some participants also appreciated that they



were now able to offer guidance to others on the topics covered. However, a few participants (< 10%) were challenged by digital literacy and connectivity issues.

These findings are consistent with prior research showing that m-health interventions can increase health-relevant knowledge in LMICs and that caregivers are able to measure MUAC once trained (Alé et al, 2016; Lee et al, 2016). Little evidence is available on the perceived usefulness or effectiveness of m-health interventions related to caregiver screening for child wasting. However, findings from this assessment are consistent with those from a prior study in which caregivers found SMS-based screening for malnutrition to be acceptable and engaging (Achieng et al, 2020; Tickell et al, 2020). These authors also reported challenges related to digital literacy.

The participants suggested that offline access may reduce connectivity challenges and allow

them to regularly access the information without mobile data. However, the participants were able to view the pictures, videos and audio in WhatsApp without a mobile connection once these had been downloaded. Future instructions will better explain how to download and access the information offline. Health workers will also provide initial digital support to users. In addition to being popular and informative, the inclusion of audio, pictures and videos helped to expand reach to populations with lower literacy.

Although the service had a fairly wide reach, being accessed by at least 450 participants between August 2020 and February 2021, the small total number of participants and the use of convenience sampling in the rapid assessment limited the generalisability of the findings to other users, districts and socio-demographic groups. Since most participants were caregivers of children receiving wasting treatment at the time of the study, they may have been previously

exposed to information provided in the chatbot. It is also possible that the participants' responses were subject to social desirability bias. Finally, data collection methods were limited by social distancing and mobility restrictions as a result of the COVID-19 pandemic.

Conclusions and next steps

There is an urgent need to reduce the burden of malnutrition among children under five years of age in Indonesia. Although this digital chatbot platform was designed to mitigate disruptions to treatment services due to the COVID-19 pandemic, its continued use has the potential to reach a wider audience. Following the initial pilot, this platform has been introduced in seven provinces across Indonesia and has been accessed by over 5,000 individuals. When introduced in new provinces, participants were given additional information on how to continue accessing the downloaded videos, audio and text to mitigate digital literacy challenges. Next steps include incorporating additional menus or information related to feeding practices, preventing relapse from severe wasting, checking for bilateral pitting oedema and, potentially, including informative game-based approaches. Further evaluation will be conducted to understand the usability of the tool across the various settings.

For more information, please contact Vanessa Oddo at voddo@uic.edu

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Table 1 Parent and caregiver characteristics and perceived usefulness of chatbot by district

	N (%) or median (range)			
	TTS district (N=14)	Kupang district (N=12)	Kupang municipality (N=15)	Total (N=41)
Characteristics				
Participant gender				
Male	6 (43%)	6 (50%)	7 (47%)	19 (46%)
Female	8 (57%)	6 (50%)	8 (53%)	22 (54%)
Median respondent age (years)	31 (21-51)	30 (23-47)	33 (18-42)	30 (18-51)
Level of education				
Less than senior high school	6 (43%)	2 (17%)	7 (47%)	15 (37%)
Senior high school graduate	7 (50%)	7 (58%)	3 (20%)	17 (41%)
University	1 (7%)	3 (25%)	5 (33%)	9 (22%)
Nutritional status of child				
Severe wasting ¹	0 (0%)	1 (8%)	9 (60%)	10 (24%)
Moderate wasting ²	12 (86%)	9 (75%)	6 (40%)	27 (66%)
Normal	2 (14%)	2 (17%)	0 (0%)	4 (10%)
Child wasting treatment				
On treatment	-	1 (100%)	6 (67%)	7 (70%)
Finished treatment	-	0 (0%)	3 (33%)	3 (30%)
Knowledge score and usefulness				
Median pre-test score ³	8 (4-13)	8 (2-10)	9 (3-14)	9 (2-14)
Median post-test score ³	16 (11-21)	14 (10-21)	21 (17-22)	18 (10-22)
Overall perception of chatbot				
Good	7 (50%)	3 (25%)	0 (0%)	10 (24%)
Excellent	7 (50%)	9 (75%)	15 (100%)	31 (76%)
Overall chatbot usefulness				
Very useful	6 (43%)	9 (75%)	14 (93%)	29 (71%)
Useful	8 (57%)	3 (25%)	0 (0%)	11 (27%)
Not useful	0 (0%)	0 (0%)	1 (7%)	1 (2%)
Most relevant menu:				
Basic information	12 (85%)	11 (92%)	10 (67%)	33 (80%)
Information on MUAC	1 (7%)	0 (0%)	1 (7%)	2 (5%)
Information on RUTF	1 (7%)	1 (8%)	4 (27%)	6 (15%)
Used video service	12 (86%)	9 (75%)	15 (100%)	36 (88%)
Used picture service	14 (100%)	12 (100%)	15 (100%)	41 (100%)
Used audio service	12 (86%)	12 (100%)	15 (100%)	39 (95%)

MUAC = mid-upper-arm circumference; RUTF = ready-to-use therapeutic food; TTS = Timor Tengah Selatan

¹ weight-for-height z-score < -3

² weight-for-height z-score < -2

³ quantitative pre- and post-test on wasting, MUAC and RUTF was administered to a larger sample of chatbot users (N=10 questions, four on basic information, three on MUAC and three on RUTF).

Dr Hawa Diarra showing imams a behaviourally-informed training video on MUAC tape use. Mali, 2021

Improving the uptake of family mid-upper arm circumference screening in Mali



Carla Pramila Lopez is the Associate Director of Health Innovation/Design Practice Lead at the Airbel Impact Lab.



Britt Titus is the Behavioural Insights Lead at the International Rescue Committee's Airbel Impact Lab.



Niélé Hawa Diarra is a Public Health Doctor and PhD candidate in Maternal and Child Pathologies in Mali.

KEY MESSAGES

- This article explores how behavioural science and user-centred design (UCD) processes were used to identify barriers to the family mid-upper arm circumference (MUAC) approach and to generate and prototype solutions in Mali.
- Primary barriers to MUAC screening by caregivers included their beliefs about outcomes, lack of perceived tangible benefits and low social accountability.
- To address low levels of social accountability to screening, a reminder system was developed and implemented through weekly/monthly women's savings group meetings (known as "tontines"), and imams and husbands, alongside behaviourally informed video-based training, and a testimonial from a caregiver in the community. This will be tested in a small pilot study across five communities in the Nara region.

Background

The United Nations estimates that, of the 14.3 million children aged under five who were affected by severe wasting in 2019, only 40% (5.7 million) received "life-saving treatment" (2020). Case identification and referral to treatment remain the biggest gaps to improving coverage, especially where access to provider-led screening is limited. However, research indicates that caregivers and other family members can be trained to accurately identify risk of wasting using colour-coded mid-upper arm circumference (MUAC) tapes, an approach commonly referred to as Family MUAC.

Family MUAC is a promising approach to expanding the scale and frequency of screening, resulting in higher referrals to treatment in some settings (Gnamien et al, 2021). In 2017, delivery of Family MUAC training began in Mali through community health volunteers

(CHVs) in health facilities and community "relays"¹ in the community. Since the implementation of COVID-19-related restrictions in 2020, training has been delivered at the household level by CHVs. However, the success of the Family MUAC approach has been inconsistent. For example, 2020 programme data from the International Rescue Committee (IRC) showed that, in the Nara district of Mali where 90% of women had been trained to conduct MUAC assessments, only 20% of treatment admissions resulted from family referrals.

This article describes an exploration of barriers to the uptake of Family MUAC in the Nara region of Mali, where the IRC supports wasting treatment, the Family MUAC training of community health workers and the supervision of community-based Family MUAC programming. Findings from this process were used to identify opportunities and programmatic ideas to address

these barriers. These ideas were visually represented and presented to clients for feedback and refinement in three Nara communities.

Methods to identify barriers to Family MUAC and solutions

A combined behavioural science² and user-centred design (UCD)³ approach was used to understand why caregivers in the Nara region were not regularly (monthly/weekly) using MUAC tapes to screen children under the age of five. Prototyping, a process of making ideas concrete to enable interactions and feedback from caregivers and other stakeholders, was used to refine early ideas for overcoming prioritised barriers. Specific steps in the process are outlined below.

Behavioural journey mapping and barrier validation

Workshops were conducted with Mali-based nutrition colleagues and CHVs to break down caregiver-led monthly screening into "target behaviours" – i.e., actions that caregivers need to

¹ Community relays (from the French word "relais") are community members who liaison with community health workers and are sometimes recruited to conduct health campaigns, such as screening for wasting.

² Behavioural science combines theories and evidence from economics, psychology, anthropology and cognitive science to build an understanding of human behaviours and decision-making processes. These insights can be tested and applied to the design of interventions, like Family MUAC, for effective delivery and adoption by users.

³ UCD defines problems from the client's perspective through qualitative interactions to understand their experiences and preferences. It is designed to lead to surface insights, not the creation of generalisable data. Through prototyping, solution ideas can be made visual to facilitate early client feedback.

Table 1 Behavioural journey mapping: step-by-step target behaviours and barriers

	Step 1	Step 2	Step 3	Step 4	Step 5	Step 6
Target behaviour to support Family MUAC	Families receive the tape and actively participate in the training	Families understand the training content	Families store the tape in a safe and easily accessible place that they will remember	Families use the tape at least once a month/when the child's health is deteriorating	Families use the tape correctly and understand the measurements	Families take quick/immediate action to confirm with health staff if the measurement is red or yellow
Example of hypothesised barriers	Women are not always permitted to go to training sessions by their husbands + Insecurity, distances and lack of access restrict participation +	Training uses language that women have difficulty understanding – Tension occurs between CHVs and caregivers due to expectations around compensation for screening –	Women store the tape in a place that's "too safe" to keep it protected and therefore forget about it +	Women do not care about malnutrition and/or do not understand what it is –	Women forget how to use the MUAC tape correctly over time +	Women receive mixed messages on what action to take in response to the MUAC reading +
Examples of barriers identified through qualitative research	Some women are poorly trained by other women instead of by trained CHVs or relays	Training sessions are often rushed and/or incomplete, either due to participants' or trainers' lack of time Women do not practise using the tape or ask questions about its use because they lack time or are embarrassed	Some women misplace the tape after training or do not receive one to begin with	Women do not have the time or mental bandwidth to do the screening, as it is not one of the many tasks and chores expected by the family * Women are habituated to using physical symptoms to monitor their child's health status *	Women do not feel self-efficacy or confidence in their own ability to use the tape, especially if they don't get a chance to practise	Families experience stigma around having a malnourished child in some locations * Women are discouraged due to their own, or others', past negative experiences of being denied, or being ineligible for, treatment *

Notes: MUAC = mid-upper arm circumference; CHV = community health volunteer. * indicates a barrier that was prioritised, – indicates a hypothesised barrier that was invalidated by the research and + indicates a hypothesised barrier that was validated by the research.

take for the programme to be successful in the Nara region. A step-by-step ideal caregiver behavioural journey (Table 1) was conceptualised and the perceived barriers to each step identified. To validate the hypothesised barriers experienced by caregivers and to elucidate their actual behavioural journey, consultations were conducted with caregivers, mothers-in-law, husbands, community leaders, community health workers and facility-based providers. This involved semi-structured interviews and focus group discussions led by a female Malian qualitative researcher to explore participants' attitudes, beliefs and existing practices around wasting prevention and treatment, as well as their experiences of MUAC training and of seeking treatment at facilities.

Six CHVs responsible for MUAC training were also shadowed and interviewed to provide an understanding of their working conditions and the nature of their interactions with the community. Finally, observations were made of trained caregivers using the MUAC tapes to understand their levels of confidence and skill.

Barrier prioritisation

The generation of a validated behavioural map informed the prioritisation of key barriers at each step. Each barrier was scored according to the anticipated level of impact on the nutrition outcome (impact) and IRC's perceived ability to influence it (feasibility).

Five barriers were prioritised for subsequent work.

1. *Mothers experience competing demands for their limited time, attention and mental bandwidth:* Mothers may deprioritise screening their children due to their many time-consuming responsibilities and household tasks
2. *Stigma:* Caregivers may not conduct screenings or seek care due to the stigma associated with having a malnourished child and the assumption that they may

not be a good caregiver

3. *Lack of social accountability:* Other members of the family may not be aware of the need to screen or may not encourage or value it, since it is neither a social norm nor a familial expectation
4. *Physical symptoms take precedence:* Caregivers are habituated to using physical symptoms (rather than a screening tape) to determine their child's health status
5. *Beliefs about outcomes:* Caregivers may neither see the immediate outcomes of screening nor the tangible benefits of conducting regular screening beyond receiving ready-to-use therapeutic food (RUTF) for treatment.

Identification of potential solutions using behavioural science

Evidence from the behavioural science literature was used to identify potential solutions to overcome the prioritised barriers to Family MUAC. For example, behavioural interventions that have been used to effectively improve the adoption of, and adherence to, new habits from other contexts – such as behavioural reminders and goal setting, and revealing hidden social norms – were considered for adaptation to the Malian context.

Client feedback on preferred solutions

Based on this literature and using the UCD approach, activity-based methods like sorting picture cards were used to engage with women, men, imams, mothers-in-law and CHVs on their preferences and priorities regarding over 35 potential solutions. For example, when exploring how to address barriers related to remembering to screen, women were asked to rank pictures of different reminder options (e.g. a calendar, a neighbour or an alarm) and explain their preferences. Appealing solutions included those that improved ease of use, were of low maintenance or cost or were social. Solutions were then refined based on client input.

Idea generation

One of the key areas for which feedback on solution preferences informed exploration was how existing women's savings group meetings (known as "tontines") could be utilised to remind caregivers to use the MUAC tape. In most communities in Nara, tontines are run weekly or monthly by a respected female leader in the community. These meetings provide an opportunity for women to hold each other accountable for screening their children, while modelling the use of MUAC tapes and creating new social norms around their regular use. Women in the community, and the leaders themselves, believed tontine leaders were well-placed to remind women to screen their children during meetings or when they returned home. Men and imams were asked to supplement social accountability through gentle reminders, especially in communities where women are not part of these tontine groups.

Video-based training for Family MUAC was also identified as useful to standardise key behavioural science-informed messages and prompt behaviours, such as hands-on practice during trainings. The video included an emotional testimony by a woman who had started using the tape regularly after facing many of the common barriers identified by other women in the community (Table 1). Showing the training video to husbands and imams was also deemed helpful to encourage them to respectively remind their wives and community members to use MUAC tapes. Finally, a colourful image depicting a MUAC screening inside or outside the home was suggested as a salient reminder of the need for regular screening.

Refining and prototyping final solutions

The identified programmatic elements were further refined through interactions with 350 people across six visits to the region. We turned these elements into prototypes, or "mock-ups",

of our solution ideas, to test them with users and get critical feedback to inform further iterations of these ideas. The four prototypes that received the most positive feedback were then tested for desirability as a package of prototype ideas in two villages in Nara for six weeks from December 2021.

Results

Social accountability and group reminders

Tontine leaders were asked to remind women to screen for MUAC at the start of each meeting and to facilitate group screenings during meetings. Mothers already bring their young children to tontines, which meet at least monthly, in keeping with the recommended cadence of MUAC screening. Tontine leaders liked this role and women appreciated the peer support and increased self-efficacy of screening their children as a group. However, women initially asked tontine leaders to screen their children directly, which took time and resulted in some leaders expecting financial compensation. Refining the role of the tontine leader to that of a screening “facilitator”, rather than trainer or implementer, will be tested in the next phase. The team will also test alternative entry points in communities where tontines are not common.

Reminders by husbands and imams

Since not all women in tontine groups go to every meeting and not all women are part of tontines, husbands were also tasked with reminding women to screen. Imams, in turn, were asked to remind men of this role during religious gatherings. Husbands were supportive of reminding their wives to screen, liked learning more about wasting and felt the task of reminding their wives was feasible. Imams understood the link between their role as religious leaders and the aim of the intervention, but were unclear on what to do and how often. While most husbands said they completed their reminders with ease, only one imam reminded men about MUAC screenings more than once during religious gatherings. To clarify their roles, specific training videos for men and imams will be developed and tested.

At-home visual reminders

Women received visual reminders and displayed them in communal spaces in their family compounds. Over time, however, they stopped noticing them, and this element was discontinued in favour of the better-performing group screenings and reminders by husbands.

Training video

Drawing upon behavioural science, the video incorporated messaging to destigmatise and normalise messaging around wasting, provided simple rules of thumb for when and how to conduct MUAC screenings and recommending that viewers make concrete plans for how and when they will conduct regular screenings. The video also included a testimonial by a caregiver from the region who talked about her experience of realising the importance of screening and adapting her behaviour to screen more



Women in Nara district ranking ideas in order of preference. Mali, 2021

regularly. This aimed to normalise screening, increase the self-efficacy of caregivers and make the consequences of screening more salient and locally relevant to viewers. The woman's story was repeatedly identified as a highlight for women, their husbands, and imams, as it appealed to their emotions and was relatable.

Challenges and lessons learned

Training of imams, tontine leaders and husbands

While community-nominated CHVs are obvious candidates for training tontine leaders, imams and husbands, lack of motivation, poor physical mobility and poor eyesight limit this cadre's ability to achieve high coverage. Piloting will be used to test whether the video training and testimonial addresses some of these challenges by providing standardised content in an appealing format and through job aids, which had previously been requested by the CHVs.

Refresher training sessions for caregivers

Refresher training sessions were proposed by facility-based providers and caregivers to increase uptake. However, findings indicated that social accountability, rather than a lack of awareness or care around screening, was the main concern of caregivers. Various local, trusted and scalable mechanisms have been explored to address this issue.

Potential reluctance to conduct Family MUAC in food insecure areas

Among food insecure households in Nara, RUTF was valued as a high-quality food, and

some perceived MUAC screening as a qualifier to access it. In such cases, when children were not entered into treatment or provided with RUTF following MUAC screening, caregivers became less motivated to use the tape. Where families experience food insecurity, it is natural for RUTF to be valued as an important source of calories for all family members. Without addressing challenges of food insecurity, the Family MUAC approach may falter should it not provide families with access to RUTF. For families with children who do receive treatment, RUTF doses may be shared across family members. By coupling interventions to improve food security with Family MUAC in food insecure areas, MUAC tapes and RUTF can more clearly be differentiated as treatment-related products, rather than associating them with access to food.

Compromised buy-in and use of Family MUAC due to RUTF stockouts

Creating demand for wasting treatment in situations where RUTF is unavailable due to stockouts may compromise buy-in to the Family MUAC approach and make caregivers reluctant to screen.

Use of evidence-based solutions

There was strong consensus during the early formative consultations that the main causes of the low uptake of Family MUAC were caregivers' lack of effort and limited understanding of wasting, as well as a lack of refresher training sessions. However, this was not validated by the research. Similarly, it was initially hypothesised that caregivers would find testimonials from authority figures (like doctors and IRC staff) the most compelling, whereas testimonials by local women were preferred instead. While the testimonial

featured in the training video engaged caregivers, poor sound quality and visibility on a tablet device made it difficult to show to a group. In future, the video will be rearranged so that the testimonial plays first and captures the attention of the viewer, and it will be played to smaller groups so everyone can see and hear it. Efforts are also being made to produce a better-quality video.

Findings showed that caregivers found sorting picture cards to be a welcome diversion from their daily routines rather than seeing them as silly or childish, and they particularly enjoyed ranking their priorities via such methods.

Next steps and conclusion

Based on the findings from this prototyping phase, a small pilot study will test the behavioural reminder systems and video-based training and testimonial in five Nara communities, reaching up to 300 people. Qualitative and quantitative data will be collected to assess the desirability, viability, sustainability and feasibility of the approach over the two-month period. Following the pilot, an A/B test (or rapid randomised, controlled trial) will evaluate small changes to programme design, such as different methods of motivating tontine leaders and imams, and identify the most effective strategies to encourage behaviour change. These results could then be used to develop an intervention package to be tested via an implementation study with a more rigorous evaluation.

Given the increased global interest in Family MUAC and its widespread usage, an understanding of the challenges and trade-offs of the approach is critical. While caregivers can use the MUAC tape, evidence of them doing so at scale with the fidelity and frequency needed for early detection of wasting is lacking. Taking a behavioural science and UCD approach, this work identified evidence-based reasons for low uptake and informed the co-design of targeted solutions with the communities expected to use the approach. Our hypothesis is that this participatory and evidence-based process will further help optimise Family MUAC and promote early detection of wasting.

For more information, please contact Carla Lopez at carla.lopez@rescue.org and Britt Titus at britt.titus@rescue.org

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Locally produced nutritious food being promoted at a market, Ivory Coast

Field Articles

Establishing an effective multi-sectoral nutrition information system in Ivory Coast

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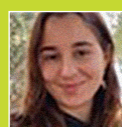
Faustin N'Dri is the NIPN Project Coordinator at Secrétariat Exécutif du Conseil National de la Nutrition et le Développement de la Petite Enfance (SE-CONNAPE), Government of Côte d'Ivoire.



Arthur Assemian is the NIPN Project Information System Manager at SE-CONNAPE.



Roland Mady is the NIPN Project Statistician at SE-CONNAPE.



Luisa Bocconcelli is an Intern at the C4N-NIPN Global Coordination Team.



Julien Chalimbaud is a Consultant for C4N-NIPN at Epinut Consulting.



Barbara Baille is a Nutrition Advisor at the C4N-NIPN Global Coordination Team.

KEY MESSAGES

- National nutrition multi-sectoral plans are complex policies that require solid monitoring systems to accurately and timely assess implementation progress. In 2018, the Republic of Ivory Coast implemented the National Information Platform for Nutrition (NIPN) to support the monitoring of its National Multi-Sectoral Nutrition Plan (PNMN) 2016-2020.
- Between 2018 and 2020, the platform team conducted a series of investigations to assess the robustness of indicators included in the PNMN monitoring plan and revealed that 44% of the indicators were not informed by any data.
- Based on these findings, the platform helped develop a web-based tool to centralise multi-sectoral indicators, which highly improved access to data related to nutrition and developed a plan for increasing accountability for PNMN monitoring.

Background

Undernutrition in Ivory Coast represents a major national public health challenge, with 22% of children under the age of five estimated to be stunted and 6.1% wasted (UNICEF/WHO/World Bank Group, 2021). Despite decreasing trends over the last decade, which has seen the percentage of stunting reduce from 34% in 2006, the current pace of stunting reduction is insufficient to achieve 2025 nutrition targets (World Health Organization, 2022).

In recognition of the importance of reducing undernutrition, the Government of Ivory Coast joined the Scaling Up Nutrition (SUN) Movement in 2013 and developed its first five-year National Multi-Sectoral Nutrition Plan (PNMN)

in 2016. A Technical Secretariat (known as SE-CONNAPE) was established and given the official mandate to identify the national priorities in nutrition and to monitor the PNMN. The Technical Secretariat was positioned in the Prime Minister's Office and therefore has a high level of authority to coordinate the key sectors involved in nutrition policy. A multi-sectoral technical committee was also set up to oversee the activities of the Technical Secretariat and coordinate with the 13 ministries involved in the PNMN through Nutrition Focal Points.

To monitor the progress of the PNMN and to guide decision makers towards their political nutrition commitments, a robust nutrition information system was needed to enable the con-

tinuous collection, analysis, and interpretation of nutrition-related data across all sectors involved. When the PNMN was designed in 2016, a Common Result Framework was validated with a list of 150 multi-sectoral indicators to monitor the overall progress of the PNMN. However, no annual reporting of the Common Result Framework was produced between 2016 and 2018. To strengthen the monitoring and evaluation (M&E) mechanisms of the PNMN, the government implemented the National Information Platform for Nutrition (NIPN) in 2018. The overall goal of this collaboration was for the NIPN to provide policy makers with adequate information to effectively implement the plan and achieve its desired outcomes.

This article describes how the NIPN contributed to improving the M&E of the PNMN in Ivory Coast (Box 1) through a sustainable approach, by identifying and effectively engaging with the nutritional data available and supporting dialogue between data providers and data users.

The NIPN

The NIPN is an initiative of the European (page 12) Commission to provide support to countries to strengthen their information systems for nutrition and to improve the analysis of data so it can better inform strategic decisions to prevent malnutrition and its consequences. Within the initiative, a global support mechanism managed by a plethora of joint agencies and actors was set up to help countries develop their own NIPN structures and frameworks and to coordinate technical assistance and capacity building, as well as linking with the SUN Movement and other multi-sectoral nutrition initiatives to ensure coherence.

The NIPN uses a three-step approach comprising of: 1) the formulation of nutrition policy questions linked with national priorities; 2) the gathering and analysis of existing data; and 3) the dissemination of results among identified key policy makers. At country level, the NIPN is rooted within existing institutions and national multi-sectoral coordination systems for nutrition. From the analysis of available data, the NIPN generates M&E evidence that is used by sub-national and national stakeholders for policy development, programme design, and budget allocations. The NIPN country team, comprising of full-time and part-time staff from the national host organisations and technical advisors, is responsible for implementing the NIPN framework. The NIPN Multi-sectoral Advisory Committee (NIPN Global Support) guides the country team, validates its work, and ensures information flows between the NIPN and the national multi-sectoral mechanisms for nutrition.

NIPN implementation in Ivory Coast

In Ivory Coast, the NIPN was initiated in 2018. The platform was designed by SE-CONNAPE, primarily to support the M&E of the PNMN, and was fully embedded within the secretariat. A Project Management Unit was created and specifically dedicated to developing the platform, with five full-time positions created and

Box 1 The PNMN 2016-2020

Overall, the PNMN aimed at reducing stunting by 30% and to triple the rate of exclusive breastfeeding. The plan called for the prioritisation of regions where the rates of malnutrition were highest, with the objective being a convergence of interventions in the same priority zones.

The PNMN was divided into seven strategic axes.

Axis 1: Promoting adapted nutrition practices and preventive measures (12% of total budget planned).

Axis 2: Increasing the treatment of malnutrition (27% of total budget planned).

Axis 3: Increasing the availability and access to nutritious and diverse food (21% of total budget planned).

Axis 4: Increasing safe food security (8% of total budget planned).

Axis 5: Reinforcing the resilience of households facing food and nutritional crisis (12% of total budget planned).

Axis 6: Improving hygiene, access to safe drinking water, and sanitation (17% of total budget planned).

Axis 7: Creating an enabling environment for nutrition and improving governance (3% of total budget planned).

budgeted for by the government within SE-CONNAPE from the outset. SE-CONNAPE established the NIPN, in collaboration with the nutrition sectoral focal points of the 13 ministries involved in the PNMN.

As an initial step, a **nutrition data mapping exercise** was conducted in 2019 (Michel & Apata, 2017) to identify all nutrition data available within each of the 13 government ministries involved in the PNMN. Specific descriptive analysis was used to compare the 150 indicators required for the Common Result Framework and the nutrition indicators effectively available in the ministries (SE-CONNAPE and PNMIN, 2019). These 150 officially selected indicators included 115 indicators to be informed by 10 different ministries and 35 to be informed by SE-CONNAPE. Up to 2020, no indicators from the sectors were either formally centralised or reported on. These official indicators selected to monitor the PNMN implementation were subsequently examined to assess indicator availability, accessibility, timeliness, and completeness. The NIPN team conducted this work in collaboration with nutrition sectoral focal points in the M&E department of each sector.

The NIPN then built a **web-based tool to centralise multi-sectoral indicator collection and collation**, to monitor the 150 multi-sectoral indicators of the PNMN, and to build the capacity of sectoral M&E departments to inform those indicators.

Strengthening the M&E of the national multi-sectoral nutrition plan

The NIPN worked to effectively centralise data from all sectors through a user-friendly web application. This website allows users easily to access specific data regarding various nutritional indicators, while also allowing them to visualise differences in nutritional data points throughout different regions in the country. Designed and funded by the NIPN, this website (PNMIN, 2022) is a critical

tool for monitoring and visualising the indicators of the PNMN.

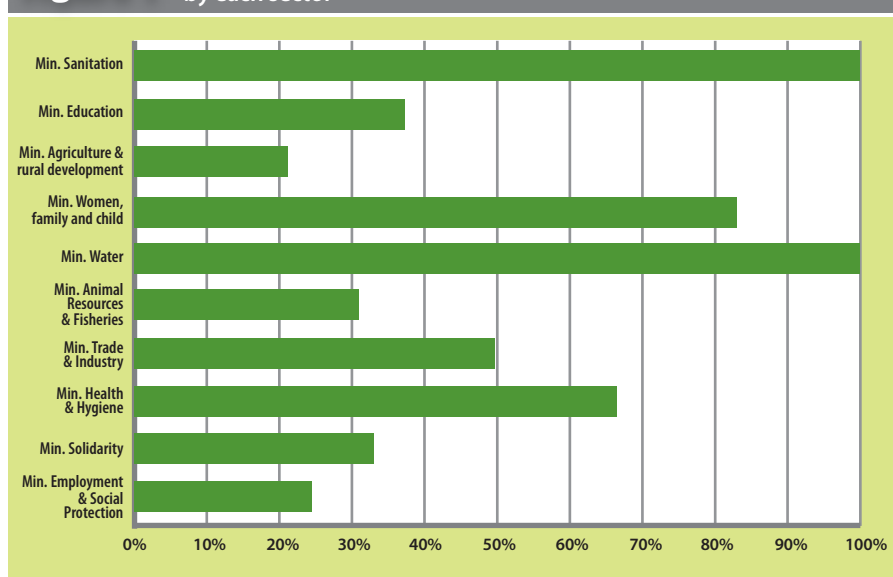
Thanks to the NIPN's work in coordinating the multi-sectoral effort for nutrition data mapping, in July 2020, for the first time, SE-CONNAPE was able to generate data on 56% of the 115 sectoral indicators available and accessible to policy makers and the public via the web application (Figure 1). The website provides information on the progress made, which will feed into ongoing discussions of the design of the next multi-sectoral plan (the PNMN 2021-2025)

NIPN nutrition data mapping

Nutrition data mapping revealed that 44% of the 115 sectoral indicators were not directly available in sectoral M&E systems (SE-CONNAPE and PNMIN, 2019). Of the seven axes of the PNMN, four were considered poorly informed, with data being available for less than 50% of the desired indicators. Only Strategic Axis seven was completely informed as planned in the design of the reporting system. This axis (35 indicators) was informed directly by SE-CONNAPE and was thus easier to collect than the strategic axes involving multiple sectors.

Challenges to informing the Common Result Framework

As depicted in figure 1, there is a significant range in data availability throughout the different ministries in the country. This partly reflects the fact that some ministries have stronger sector monitoring systems than others. One reason for this could be the structural differences that exist within the ministries. For example, the routine information systems of the Ministry of Education and the Ministry of Health are naturally structured around physical facilities, with each facility reporting on their activities (schools and health centres respectively). On the other hand, within the Ministry of Agriculture, farmers are not organised around a single facility and, as such, do not report on their activities in the same way.

Figure 1 Percentage of monitoring indicators effectively informed by each sector

A second reason for these inconsistencies may be that some ministries are better equipped than others in relation to M&E. For example, while the Ministries of Health, Education, and Water have invested in information system development, other sectors still have limited reporting systems and lack basic resources for M&E. For instance, some ministries face challenges with a lack of digital platforms, poor data collection instruments, and limited teams for data analysis.

Furthermore, while one Nutrition Focal Point per ministry was appointed during the participatory process, different divisions produce data within each ministry. There was, and still is, a lack of coordination within certain ministries regarding what data is made available and what is missing.

Successes and lessons learned

The NIPN in Ivory Coast provided capacity to SE-CONNAPE to support to the Nutrition Focal Points by describing exactly what is required and how to analyse the information gathered. This was critical in informing reliable multi-sectoral monitoring. Identifying the gaps in the M&E framework determined what information was already available and what information still needed to be generated. This differentiation was not immediately clear from the outset of the M&E framework development and took considerable time to determine.

Between 2016 and 2019, no data was effectively shared to SE-CONNAPE to produce quarterly and yearly updates as planned. With no monitoring information, it was difficult to adjust nutritional interventions during the implementation of the PNMN.

Given the complexity of multi-sectoral programming, it is understandable that the desired ideal M&E framework of the PNMN could not be totally and immediately informed by the existing sectoral information systems. The development of a comprehensive, multi-sectoral

M&E plan is in itself a challenge, and establishing such a framework already represents an accomplishment.

The lack of almost half of the official sectoral indicators in the information system highlights the initial ambition of the M&E framework and the work that still remains. Dr Patricia N'Goran, the SUN Focal Point, confirmed that the M&E plan had to overcome this challenge in order to increase sectors ownership. To this end, *"One of the commitments made by Ivory Coast in 2017 at the time of NIPN implementation was to support sectors with regular collection of data that will feed the nutrition information platform."*

To mitigate such challenges, capacity building on the importance of collecting nutrition indicators and reporting to the centralised platform is vital. As noted previously, the official M&E framework of the PNMN assigns the sectoral Nutrition Focal Point the role of communicating their indicators to SE-CONNAPE. The sectoral Nutrition Focal Points typically sit within the M&E department of their respective ministry and generally have a limited understanding of key nutrition concepts. The NIPN, with the support of UNICEF, has conducted a series of workshops on key nutrition concepts so that each focal point could better assist in the implementation of the PNMN within their respective ministry, as well as understand the importance of having multi-sectoral monitoring of the plan.

It is difficult to evaluate the relative contribution of the capacity building activities in achieving the effective centralisation of multi-sectoral indicators to monitor the PNMN. However, since 2019, SE-CONNAPE has managed to centralise all the indicators available in the ministries, and the platform team members emphasise the importance of the capacity development activities to maintain the active participation of each Nutrition Focal Point.

The NIPN has also provided technical support to the Nutrition Focal Points in each sector by articulating exactly what the M&E plan required of them, and how to process the information in a timely manner. The development of the web-based platform has been a key element in facilitating this work. In addition, a three-day multi-sectoral workshop was conducted, with support from the NIPN team, to identify and discuss potential solutions for better harmonisation of data across sectors. For example, it was noted that different sectors had different definitions of 'community' and varying degrees of ability to report on indicators at this level. There was a need to standardise this to limit discrepancies in data collection and collation.

Conclusion

The task of developing an effective M&E system for multi-sectoral nutrition responses is formidable. Even if some indicators are available within the sectors, centralising them requires buy-in and adherence from all government ministries. For this, ministries should understand the added value of such work, they need the tools to centralise the information, and they must communicate and use the information to best serve their sector needs, as well as to inform the nutrition response as a whole.

Effective multi-sectoral coordination and collaboration takes time: ensuring its progress is a lengthy process, and the work to do so requires resources. The Government of Ivory Coast, with the support of the EU, has increased the capacity of SE-CONNAPE to monitor the PNMN through the NIPN. In doing so, the work undertaken to create a central and open platform has been critical. Despite this progress, there is still an important gap: about half the official indicators to monitor the PNMN are still unavailable, and work to support further data availability remains to be done. The new national strategy for nutrition is currently being developed, and it is hoped that lessons learned from the previous monitoring approach will inform the design of this new strategy.

For more information, please contact Barbara Baille at barbara.baille@giz.de

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A cash distribution point in Dar Saad, Aden

In Yemen, cash assistance contributes to positive nutritional outcomes



Tamam Ahmed is a Nutrition Specialist at Save the Children International.



Main Chowdhury is Director of Programme, Development, and Quality at Save the Children International.



Amer Bashir is Head of Health and Nutrition at Save the Children International.

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KEY MESSAGES

- This article examines how unconditional cash transfers provided through an integrated multi-sectoral programme have impacted child feeding practices.
- Cash assistance increased household expenditure on food, which was associated with improved food security at the household level and improved dietary diversity among children, as well as potentially promoting adherence to treatment programmes by children and their caregivers.
- Technical support on the appropriate collection of relapse information during admission, as well as on improved data recording and reporting from health facilities, is needed to support the scale-up of cash assistance to food insecure families with children under the age of five in Yemen.

The Yemen crisis

The humanitarian crisis in Yemen remains the worst in the world. Six years of conflict have brought economic collapse, and the continuous breakdown of public institutions is driving the country to the brink of famine, exacerbating needs in all areas. In north-western Yemen, along the Red Sea, the Hajjah governorate is particularly in need of humanitarian support. While hostilities are subsiding, the area is home to comparatively high numbers of children affected by severe wasting.

In 2019, in response to the deteriorating nutrition, health and food security situations, Save the Children implemented an integrated multi-sectoral programme to enhance access to quality primary health, nutrition and child protection services in three districts of the Hajjah governorate: Ash Shagadira and Bani Qais districts in the Lowlands, and Kuhlman Affar district in the Highlands. Unconditional cash assistance was provided to families with children who had successfully recovered from severe wasting.

This article is based on an analysis of performance indicators comparing the time when no cash transfer was in place and the same indicators during the time the cash component was introduced.

Programme context and justification

Nutrition situation

Data from nutrition surveys using the standardised monitoring and assessment of relief and transitions (SMART) methodology show that all malnutrition levels have been incredibly elevated among children aged 6–59 months since 2015 in the Hajjah governorate. In 2018, before the programme started, wasting affected up to one out of every seven children (14.9%) in the districts of Bani Qais and Ash Shagadira, while this proportion was less severe in Kuhlman Affar district (just below 10%). Stunting levels were extremely high in the three districts: 53.3% in Bani Qais and Ash Shagadira districts, and 55.2% in Kuhlman Affar district (ACF, 2018).

Child feeding practices were of particular concern in 2018, according to survey data (ACF, 2018). Only 17.6% of the children below the

age of five months were exclusively breastfed in the Lowlands, and only 30.3% in the Highlands. In terms of minimum dietary diversity, only 11.9% of children aged 6–23 months had received foods from four or more food groups during the previous day in the Lowlands; the same proportion was 9.1% in the Highlands. The minimum acceptable diet among children six to 23 months was 7.1% in Lowlands and 4% in the Highlands. Poor water, hygiene and sanitation (WASH) facilities and practices, as well as a stretched health system, contributed to the high levels of malnutrition. Very few humanitarian partners operated in the Hajjah governorate to provide support to the population.

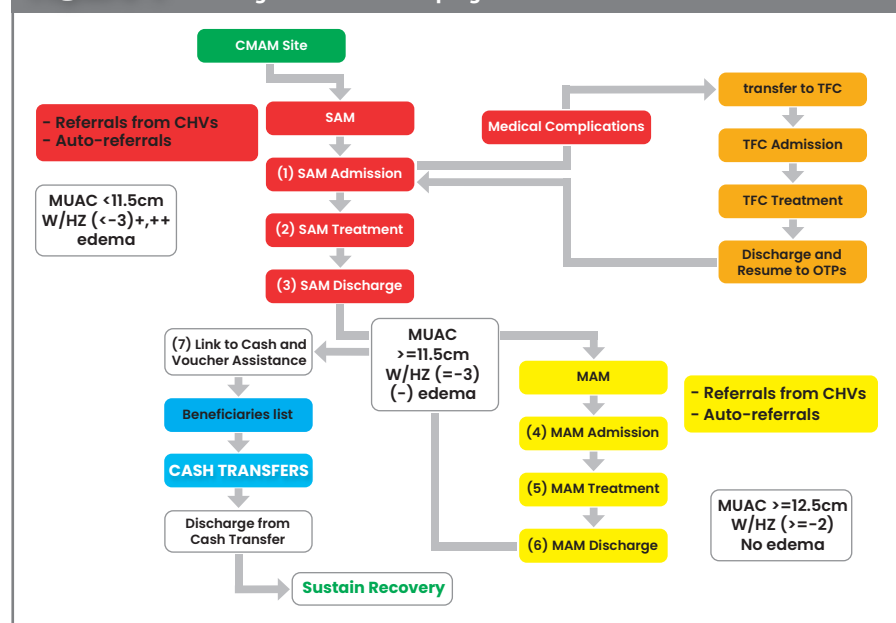
Food security and livelihoods

Armed conflict remains the main driver of food insecurity in Yemen, curtailing food access for both the displaced and host communities. The food security crisis was further exacerbated by extremely high food prices, the liquidity crisis, disrupted livelihoods and high levels of unemployment. The large food gaps were only marginally mitigated by the household food distributions, which were inadequate to reverse the continuous deterioration of the situation. Food insecurity was more severe in areas with active fighting and particularly affected internally displaced people and host families, marginalised groups and landless wage labourers, who faced difficulties in accessing basic services and conducting livelihood activities.

According to the Integrated Food Security Phase Classification (IPC) analysis, approximately 1.6 million people (66% of the Hajjah governorate population) were in Phase 3 or higher for the period covering December 2018 to January 2019 (IPC, 2018). This was projected to increase to almost 1.9 million people (78%) if no household food assistance (HFA) was provided to the population.

The analysis of a food consumption proxy indicator¹ showed that 52% of households in

¹ The food consumption score (FCS) is a composite score based on the dietary diversity, food frequency and relative nutritional importance of different food groups. This is a proxy indicator to measure caloric intake and diet quality at household level, giving an indication of the food security status of the household if combined with other household access indicators (ACF, 2018).

Figure 1 Linking households to the cash transfer programme upon a child's discharge from the CMAM programme

HV: Community Health Volunteer; CMAM: Community-Based Management of Acute Malnutrition; MAM: Moderate Acute Malnutrition; MUAC: Mid-Upper Arm Circumference; OTP: Outpatient Treatment Programme; SAM: Severe Acute Malnutrition; TFC: Therapeutic Feeding Centre; W/HZ: Weight-for-Height Z-Score

the Lowlands livelihood zone and 43% of those in the Highlands livelihood zone were categorised as having either a “poor” or a “borderline” food consumption. Half of the households from both the Lowlands (50.3%) and the Highlands (49.7%) used at least one form of coping mechanism to manage the fact that they had not had enough food or money to buy food over the previous seven days (ACE, 2018).

Programme outline

A Save the Children multi-sectoral programme was initiated in April 2019 in 16 health facilities. It adopted the “Minimum Service Package” – endorsed at national level by the Ministry of Public Health and Population and both the Health and Nutrition Clusters – to support the delivery of integrated primary health, treatment of malnutrition and preventive services and child protection services. The programme also supported community outreach activities, including case finding, referrals and health promotion and awareness sessions, to reach the most vulnerable populations in the targeted areas.

Since the programme's inception, the nutrition component had focused on ensuring access

to wasting treatment services among children under the age of five and pregnant and lactating women according to the national protocol for community-based management of acute malnutrition (CMAM).

The monthly unconditional cash grant (USD 84, or 80% of the minimum expenditure basket) was added to the programme in January 2020 to address household food insecurity. The grant was provided to families of children who originally suffered from severe acute malnutrition (SAM) and who had completed their treatment for both SAM and moderate acute malnutrition (MAM).

Figure 1 outlines the practical steps followed during programme implementation. Once successfully discharged from the CMAM programme, the child's family was eligible to receive four rounds of cash grants over four consecutive months. These eligible households were enrolled onto the list of beneficiaries once the programme staff had confirmed that they were not entitled to any other cash assistance through other programmes.² The list of beneficiaries was then communicated monthly to a “financial service provider” contracted by Save the Children, who notified beneficiaries of the five days of the

month when households would be able to pick up their cash at a specific distribution point.

Enrolment of beneficiaries therefore followed a “rolling” system, in which beneficiaries were enrolled on an ongoing basis as children were discharged from the CMAM programme. For practical purposes, households were assigned to a cohort of beneficiaries. A total of 14 cohorts were formed during programme implementation. All the beneficiaries of a particular cohort collected their cash disbursement during the same period for each of the four rounds of cash disbursement. A “post-distribution monitoring” (PDM) exercise (data collection, including household surveys; detailed below) was conducted after each cash round (PDM1–PDM4) for all beneficiaries.

By the end of August 2021, a total of 1,669 families of children with severe wasting had been enrolled. Of these families, 1,011 had received four rounds of cash and 210, 320 and 128 families had received three, two or one round(s), respectively.

Methods used to conduct the performance review

The outcomes that resulted from adding a cash component to the nutrition programme were estimated by comparing data from before (baseline) and after the cash component was added within the CMAM programme (at PDM1–PDM4).

Baseline data were collected through a cross-sectional assessment conducted through a sample of 301 families of children suffering from SAM in the three districts where the programme would be implemented. A PDM was conducted after each round of cash distribution. For analysis, data from all cohorts were summed up for each PDM round, e.g. data collected after the first distribution were analysed together for all households, although households would have been enrolled in different cohorts. Data collection at baseline and all PDMs collected the same indicators detailed below, using a household-level structured questionnaire for all beneficiaries.

Household-level outcomes

Outcomes at the household level consisted of looking at how the cash disbursement was utilised and whether there were changes in coping strategies and food consumption scores (FCSs). The following three indicators were considered as part of the household questionnaires at each PDM.

Cash utilisation details were obtained based on a one-month recall period, to be consistent with monthly cash distributions.

The FCS is an index that aggregates household-level data on the diversity and frequency of food groups consumed over the previous seven days, which are then weighted according to the relative nutritional value of the consumed food groups (WFP, 2008). Based on this score, a household's food consumption can be further classified into one of three categories: “poor” (0–21), “borderline” (21.5–35) and “acceptable” (>35).

² Only 55 children's families fell into that category during programme implementation.

Box 1 The four types of coping strategy

Food insecure households typically employ any of four types of consumption coping strategy:

1. Households may change their diet, e.g. they may switch from preferred foods to cheaper, less preferred substitutes
2. Households can attempt to increase their food supplies using short-term strategies that are not sustainable over a long period, such as borrowing or purchasing on credit. More extreme examples are begging or consuming wild foods, or stocks of seeds
3. Households can try to reduce the number of people they have to feed by sending some of them elsewhere. This could involve sending children to a neighbour's house when they are eating, or more complex medium-term migration strategies
4. Households can attempt to manage the shortfall by rationing the food available to the household, for example by cutting portion sizes or reducing the number of meals; favouring certain household members over other members; skipping whole days without eating; etc.

The Reduced Coping Strategies Index (rCSI) is an indicator used to compare the hardship faced by households due to shortage of food. The index measures the frequency and severity of food consumption behaviours households have to engage in due to food shortages over the seven days prior to the survey (WFP, 2019). The maximum raw score for the rCSI is 56. Data were categorised into “low”, “moderate” or “high” levels of coping strategy. Four pre-selected coping strategies that households used over the seven days prior to conducting the PDM surveys are detailed in Box 1.

Individual-level outcomes

Individual dietary diversity information was obtained from the PDM surveys, which included a survey of caregivers to collect the eight food groups their child aged 6–23 months had consumed over the previous 24 hours. The minimum dietary diversity score was calculated as the proportion of children who had consumed foods from four food groups or more during the recall period. Although they received ready-to-use foods during their treatment, all children included in the analysis were no longer under treatment during data collection, neither at baseline nor at endline. Ready-to-use foods did not therefore compose a food category.

Achievements

Utilisation of cash assistance

Analysis of the data showed that over 70% of the cash received by beneficiary households was used to buy food and almost another 10% was spent on cooking gas, followed by covering medical expenses (9%) and repaying debts (10%). The findings were consistent across all PDMs (Figure 2).

Household Food Consumption Scores

The baseline assessment showed that 63% of households with a child who had recovered from the CMAM treatment programme had either “poor” (31%) or “borderline” (32%) FCSs and were therefore unable to meet their nutritional requirements.

Between baseline and all subsequent PDM assessments, 60% of the families improved their FCSs from a “borderline/poor” to an “acceptable” level of food consumption, with 96% of families having acceptable FCS at PDM4 (Figure 3).

At baseline, 30% of families had a high rCSI score, indicating high reliance on negative coping strategies for food access. At subsequent PDMs, that level ranged between 10% and 14%. Similarly, the prevalence of families who had a low reliance on coping strategies increased with the implementation of the programme. The programme resulted in a reduction in the number of households relying highly on negative coping strategies (Figure 4).

Child feeding practices

At baseline, analysis of data showed that only 16% of children aged 5–23 months were meeting the minimum dietary diversity score (≥ 4 food groups). After each round of cash assistance (PDM1–PDM4), dietary diversity scores showed meaningful improvement, with almost nine out



Figure 2 Utilisation of cash assistance by reporting period

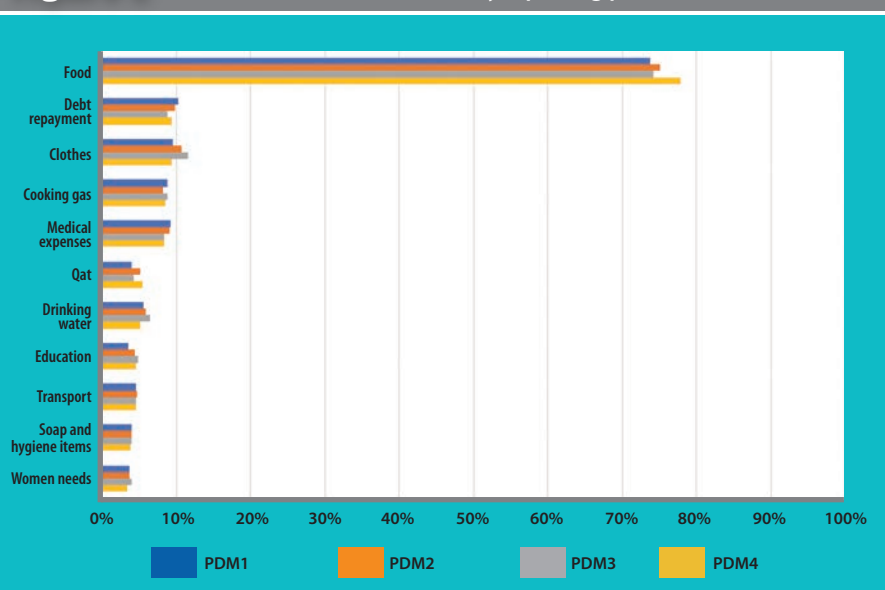


Figure 3 Food consumption scores by reporting period

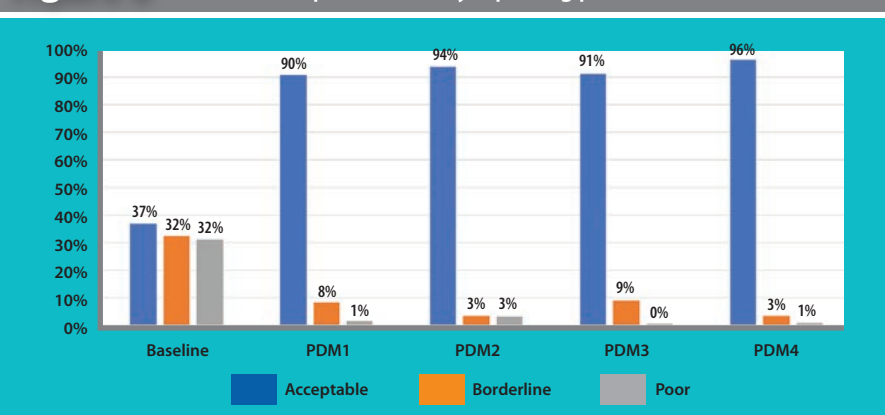
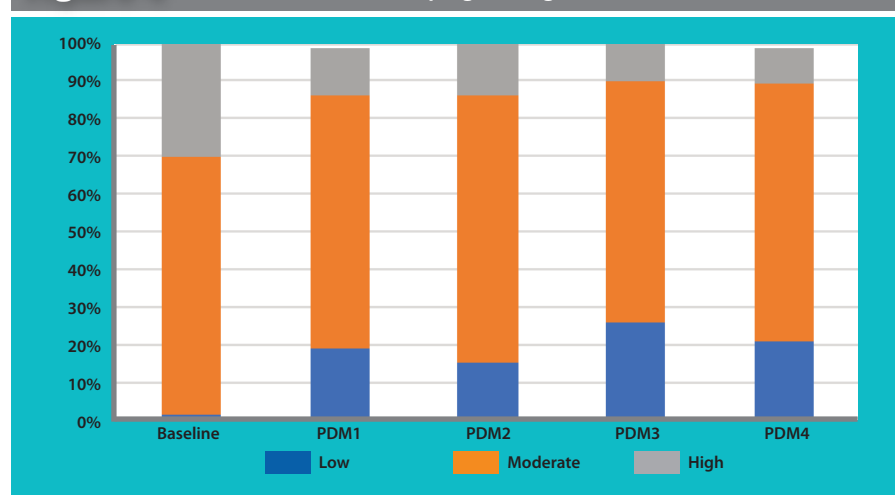
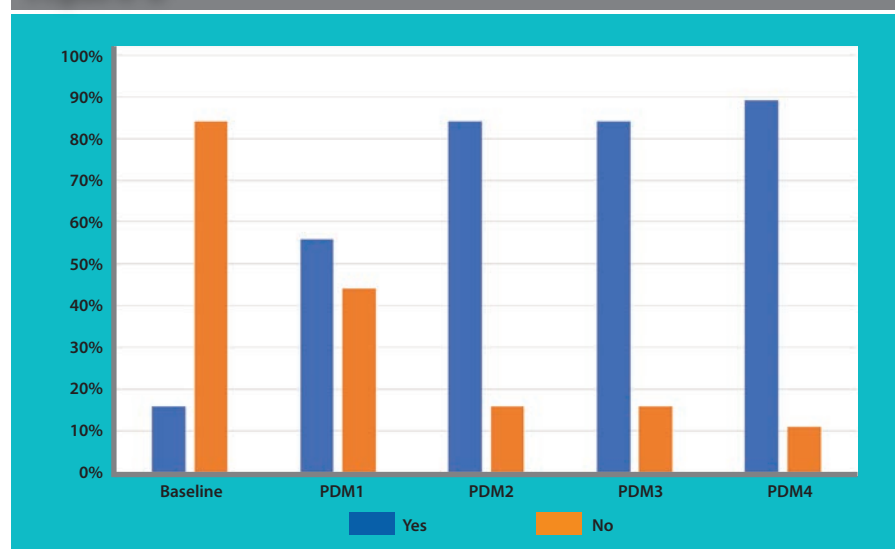


Figure 4 Household Reduced Coping Strategies Index scores**Figure 5** Dietary diversity scores in children aged 6–23 months

of 10 children consuming food from at least four food groups after the fourth round of distribution (Figure 5). This suggests that cash assistance, coupled with caregiver sensitisation, contributed to improved household food consumption, as well as to children's dietary diversity.

Key learnings

Programmatic arrangements

The four rounds of cash distribution aimed to strengthen financial security for families whose children were discharged “recovered” from the CMAM programme. A certain number of programmatic arrangements were made to ensure families would receive that financial support and use it for the most vulnerable members of the household. For instance, to ensure female caregivers would be able to collect the monthly grants (in a culture where women might not have the rights or the paperwork to do so), the financial service providers in charge of distributing the grants were instructed to accept a “recognition of ID” delivered to them by the community health volunteers (CHVs). Another arrangement was to give several alternative days

(five) for household members to collect their grant from the financial service provider.

Programme treatment outcomes

The CMAM programmes showed improved performance indicators (the recovery rate increased, non-responder rate decreased and the defaulter rate decreased steeply) during the time the cash assistance component was added. All caregivers of children with severe wasting who were not receiving cash/food assistance from other organisations were informed of their potential eligibility for cash assistance if their children recovered during treatment. This may have acted as an incentive and motivated households to follow the advice given around child-care practices and supported regular treatment attendance. However, it is important to note that the impact of cash assistance on regular treatment attendance could not be statistically established due to other potential confounding factors, such as the maturity of the programme, improved mobilisation over the longer project duration and improved availability of commodities and services at the facility level.

Improvement in food consumption

Programme data showed that families spent most of the cash they received on food and cooking gas. This resulted in the observation that the cash assistance led to meaningful improvements in household food consumption, as well as a greater diversity of children's diets and reduced use of negative coping strategies.

Conclusion

This work makes an important contribution to the limited evidence base on cash assistance programmes. It demonstrates positive associations with food consumption, which in turn could potentially lead to improved nutrition outcomes. Specifically, findings showed that providing families with cash may have helped increase their expenditure on food and improved dietary diversity among children under the age of five. Cash distribution upon graduation from wasting treatment may also have promoted greater adherence to treatment programmes by children and their caregivers, with positive impacts on treatment performance indicators. We therefore believe that cash assistance should be scaled up to expand coverage to all food insecure families with children under the age of five, in all locations that are classified as IPC3 or worse in all the districts of the Hajjah governorate.

As next steps, the project team will provide more dedicated technical support to ensure appropriate collection of relapse information during admission, as well as to improve data recording and reporting from health facilities. Save the Children, in collaboration with the Nutrition Cluster, will continue to advocate for the approval of relapse research from the authorities to explore whether cash assistance can contribute to reductions in relapse rates. Save the Children will also consider sharing these learnings with the Food Security and Agriculture Cluster (FSAC) and Nutrition Cluster partners to sensitise and advocate scaling up cash for nutrition programming in Yemen and to engage more partners in support of the government's efforts to tackle food and nutrition insecurity.

For more information, please contact Tammam Ahmed at tammam.ahmed@savethechildren.org

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A child eats a '4 star' porridge during a cooking demonstration in Bolenge village in the Democratic Republic of Congo

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Special section

Complementary feeding in emergencies

A collaboration between
ENN and UNICEF

A global perspective on improving the diets of infants and young children



Grainne Moloney is Senior Nutrition Advisor at UNICEF headquarters, New York.



Linda Shaker Berbari is Nutrition Specialist at UNICEF headquarters, New York.



Harmonie Bucher is Nutrition Officer at UNICEF headquarters, New York.

Dear readers,

Together with colleagues from ENN, we are delighted to present this special section of Field Exchange (FEX) focusing on complementary feeding programming in fragile and emergency contexts. Our aim is to provide you with an array of experiences from multiple contexts documenting actions for improving the diets of young children. The section provides a snapshot of recent developments related to complementary feeding, involving research, experiences and guidance development. It also includes an overview of the latest UNICEF actions at the global, regional and country level to support complementary feeding in fragile settings. As well as the publications here in print, additional articles from the series are available at <https://www.enonline.net/fex/68/en>

We have made the decision to support this special section as there is a need to understand and share learning about complementary feeding programming, especially in challenging contexts. This is also timely given the multiple crises we are facing around the world and the compounding effects of climate-induced emergencies (including droughts and environmental degradation), widespread conflict including the war in Ukraine, and the continuing socioeconomic impacts of the COVID-19 pandemic.

In this special section, we present experiences that show how the UNICEF Action Framework for improving young children's diets (UNICEF, 2020a) has been applied and used in contexts such as in Sudan, Nigeria, Myanmar and Yemen. We feature examples of the first step in the Action Framework, which consists of conducting a landscape analysis of drivers and determinants at both the regional and country level. We also feature country experiences of the multi systems approach to improving diets in early childhood, including through the health system in Egypt and the Social Protection system in Kenya. We

also present specific emergency response actions, such as in Cox's Bazar in Bangladesh, the State of Palestine and Brazil, and innovative approaches such as the complementary feeding bowl and spoon.

We hope that this special series will help you in your efforts to design ambitious and effective programmes to protect and improve the diets of children in early childhood, especially within emergency contexts and protect our most vulnerable populations from malnutrition

So why is this issue of such importance:

Many children under the age of two are not getting the food or nutrients they need to thrive and grow well, which leads to irreversible developmental harm

At least one in every three children suffers from some form of malnutrition at the global level. Globally, only 53 countries are on track to meet childhood stunting targets, and only 57 countries are set to meet childhood wasting targets (2021 Global Nutrition Report). Regional disparities reveal inequities in progress (UNICEF, 2021). At the same time, an estimated 5.9% of the world's children under the age of five – around 40 million – are overweight (UNICEF, WHO and World Bank, 2021), highlighting a persistent burden of malnutrition.

Change is possible: It is already happening at scale, but acceleration is needed

According to the UNICEF "Fed to Fail" report (UNICEF, 2021), over the last two decades the world has made significant progress in addressing malnutrition in children under five: for example, the prevalence of child stunting has been reduced by one-third and the number

of children with stunted growth has been reduced by 55 million. These formidable achievements indicate that positive change for child nutrition is possible and is happening at scale in many countries and regions. Despite such progress, we have collectively failed to protect the right of all children to good nutrition. This has contributed to a situation where an estimated 149.2 million children have stunted growth (with around 45% of these children living in fragile or conflict-affected countries) and 340 million children under the age of five are suffering from deficiencies in vitamins and other essential micronutrients (UNICEF, 2019).

Children carry the scars of poor diets and feeding practices for life

The period between 6–23 months of age is critical in a child's life, as the six-month mark represents the moment when a child's energy and nutrient needs begin to exceed what is provided by breast milk alone. Exceptional changes happen, including rapid physical growth, which lead to high nutrient needs. Poor diet (inadequate quality and/or quantity of first foods; poor feeding practices) in this age group therefore contributes to poor nutritional status. The risk of stunting increases rapidly between 6–23 months and, globally, more than half of all children with wasting are under the age of two. Improving children's diets is critical for child growth and development, as well as to address and prevent different forms of malnutrition (micronutrient deficiencies, wasting, stunting, overweight and obesity), which all contributes to achieving the Sustainable Development Goals by 2030. Critical to this is continued breastfeeding between 6–23 months, which safeguards children's survival, growth and development and provides essential fats, proteins and other nutrients that are important to lifelong health in all settings.

Progress in improving dietary practices has been slow and there is a need to accelerate action

Currently, diets are failing in terms of **timeliness, frequency and diversity**. Globally, about half of all children aged 6–23 months (48%) are not fed the minimum recommended number of meals; over two-thirds (71%) are not fed the minimally diverse diets they need to grow and develop; and over one-quarter (27%) lack the benefits of the most nutrient-rich foods such as fruits, vegetables, eggs, fish or meat. In addition, around one-third (35%) of children aged 12–23 months are no longer continuing to be breastfed (UNICEF, 2021). According to the most recent Child Food Poverty Report, one in three children lives in severe food poverty (defined as eating fewer than two food groups a day) and, in the Sahel and Horn of Africa, 50% of children living in severe food poverty are fed only one – or none – of the eight recommended food groups (UNICEF, 2022). The state of children's diets therefore remains a persistent bottleneck to greater progress on nutrition.

In many contexts – including fragile, food insecure and humanitarian contexts – families struggle to find and afford nutritious complementary foods for their children. The feeding of infants and young children may also be jeopardised by limited access to clean and potable drinking water, a lack of access to quality health services, and altered practices due to social disruptions (such as family and community breakdown, stress, time, space, lack of preparation/ cooking facilities/equipment, etc.). Shortages in national food supplies, seasonal scarcities, displacement and poor road infrastructure constrain access to nutritious foods especially for the poorest and most marginalised populations. Physical access is also problematic in poor urban communities where there are fewer shops selling affordable nutritious foods. When income is limited, families tend to prioritise the frequency of feeding and fuller stomachs over the quality of foods for young children. This shift was clearly documented during the COVID-19 pandemic, where, for example, in Indonesia a survey conducted among urban households in Jakarta, reported the percentage of young children consuming the minimum recommended number of food groups fell by one third in 2020 compared to 2018 (UNICEF, 2021).

Improving diets of young children is possible and important even in fragile settings

Experiences in countries that have recorded a significant improvement in diet quality over the past decade, provide evidence that change is possible at scale with the right focus, identification of barriers and investment. In line with its Global Nutrition Strategy 2020–2030 (UNICEF,

2020b), UNICEF is committed to improving the diets of infants and young children as a contribution to preventing all forms of malnutrition.

Multiple actions are needed for improving diets of infants and young children

For far too long, efforts to improve the diets of young children have been inadequate in scale, fragmented and fail to reach most vulnerable children. These efforts have also not addressed the challenges that caregivers face in feeding children what they need to grow well in a comprehensive manner. In recognition of this, we at UNICEF have developed programming guidance for improving the diets of infants and young children during the complementary feeding period (UNICEF, 2020a) (Box 1) to support more effective action through a multi-systems approach. This guidance, together with the 2021 Child Nutrition Report (UNICEF, 2021), calls for governments to take the lead in upholding every child's right to food and nutrition, as well as for the mobilisation of policies, resources and actors across multiple systems (specifically food, health and social protection, and water, sanitation and hygiene [WASH]).

So why a multi systems approach? – at UNICEF we believe that different systems have key roles to play to improve diets in early childhood?

The **health system** provides multiple contact points at the facility and community levels to inform, counsel and support caregivers on infant and young child feeding and care practices, as well as to distribute dietary supplements and home fortificants (as appropriate) where poor diets and micronutrient deficiencies are common.

The **food system** comprises the policies, services and actors involved in the production, processing, distribution and marketing of food. It influences whether foods are available, accessible, affordable, nutritious, safe and sustainable, and can make it easier – or more difficult – for caregivers to make nutritious food choices for their young children

The **social protection system** forms a crucial safety net to protect vulnerable children against poverty and social exclusion, including in emergencies. It can increase families' physical or financial access to nutritious diets by providing social transfers (food, cash and/or vouchers) and offers a platform for the delivery of essential nutrition services and the promotion of positive nutrition practices.

The **water and sanitation system** aims to ensure a population's access to, and use of, safe drinking water and sanitation. These are critical to protecting young children's diets, as poor WASH can expose children to pathogens that cause diarrhoea and other infections and can result in environmental enteropathy, leading to impaired structure and function of the small intestine. Improved access to basic WASH services can reduce the risk of diarrhoea and other infectious diseases.

Achieving the outcome of good diets for children in the first two years of life, means that countries need to leverage all four systems, prioritising strategic actions that are evidence-based, equitable and sustainable based on a country-specific analysis of barriers and bottlenecks on the determinants and drivers. This will serve to inform the programming context and the systems' capacity to deliver.



Mary Mai Sundi, a disabled Anganwadi Sewika, initiates Annaprashna - a ceremony to initiate eating food - to Nandi Sundi's daughter, Laxmi Sundi (7 months), at the Anganwadi in Jharkhand, India, 2022

Box 1 UNICEF programming guidance: An Action Framework for improving the diets of infants and young children

In February 2020, UNICEF published programming guidance on improving young children's diets during the complementary feeding period (UNICEF, 2020a). The guidance describes recent evidence on improving complementary feeding, explores the determinants and drivers of young children's diets, and presents Action Frameworks for delivering nutrition results for children through the food, health, WASH, and social protection systems. It also provides guidance on monitoring and evaluating complementary feeding programmes and outcomes.

The guidance highlights the determinants and drivers of poor diets in young children, emphasising the role of adequate food, services and practices (Figure 1). Poor diets are determined by the adequacy of foods, which is in turn driven by the availability, access, affordability, and desirability of such foods. Equally, the availability, affordability, quality and use of health, nutrition, WASH, and social protection services influence the quality of children's diets. The feeding, care and hygiene practices of caregivers are key determinants of the quality of young children's diets. These practices are driven by caregivers' knowledge and time, household dynamics and social norms.

Figure 1 The determinants of young children's diets



The guidance describes the most recent evidence for improving complementary foods and feeding, highlighting implementation across different systems, including health, food, social protection and WASH, at multiple levels (policy, institutional and community/household). The interventions include:

1. Nutrition counselling and social and behaviour change communication
2. Counselling and education on responsive feeding and stimulation
3. Use of vitamin and mineral supplements in settings where nutrient-poor diets prevail
4. Access to diverse and nutritious complementary foods at household level
5. Access to fortified foods as needed, aligned with global and national standards
6. Promoting improved accessibility and use of safe complementary food, water and a clean household environment
7. Access to affordable and nutritious foods through social protection programmes and counselling services

The guidance provides a framework of action as a tool to apply the systems approach (Figure 2).

The Action Framework has four elements that interplay to facilitate the design and implementation of evidence-based programmes: a situation analysis to understand the status, drivers, and determinants of young children's diets; strategic actions to be implemented through systems; the adaptation to the programming context; and the need for monitoring, evaluation and learning.

What is next for the programming guidance?

UNICEF has implemented a plan for the uptake of its programming guidance at regional and country level. Regional workshops on improving the diets of infants and young children were conducted over the last two years to sensitise regional and country offices on the guidance and will continue. Regional landscape analyses, which provide a starting point for the planning of actions at both regional and country level, were also conducted.

For this issue of Field Exchange we will share examples of applying and adapting the Action Framework, and the programming guidance to improve the diets of infants and young children particularly in fragile, food insecure and humanitarian settings

Figure 2 The UNICEF Action Framework to improve the diets of young children during the complementary feeding period



Box 2 Using the programming guidance in humanitarian and fragile settings?

In 2019, the Infant Feeding in Emergencies (IFE) Core Group conducted a review on complementary feeding in emergencies, which identified gaps including in coordination, assessment, preparedness and programming capacity, among others. The review found that, despite existing guidance on infant and young child feeding in emergencies (OG-IFE), there is still a gap in clear guidance on actions related to complementary feeding in emergencies. Although the UNICEF programming guidance was not specifically designed for humanitarian contexts, a review conducted by ENN and the IFE Core Group with an “emergency lens” found that its content remains relevant to emergency settings, as it considers the requirements for emergencies in most actions and identifies what elements apply to both emergency and non-emergency contexts.

Programming context

The guidance emphasises the importance of understanding the programming context and therefore of:

- Adapting and expanding actions to **respond to the specific setting**, e.g. challenges affecting access and affordability of food and health services, or security issues
- Ensuring **appropriate coordination** to ensure within- and across-sector coordination is taking place, including strengthening multi-sector planning and clearly defining the roles of different actors
- Understanding the **policy environment and legal frameworks** driving complementary feeding outcomes in a particularly dynamic environment

Situation analysis

Any assessment of an emergency situation should consider the challenges and drivers related to the feeding of infants and young children, even if no specific complementary feeding in emergencies assessment is planned. Building on existing data and evidence can also provide insights into the drivers and determinants of feeding practices prior to an emergency. The situation analysis should review existing barriers, bottlenecks, gaps and risks that may negatively affect programming to plan actions to strengthen response and preparedness.

Multiple intervention channels

The guidance identifies actions for different humanitarian settings, including sudden onset displacement, and slow-onset emergencies. It highlights that humanitarian emergencies can aggravate existing drivers of poor nutrition, such as reducing access to nutritious foods and services, and emphasises the importance of prioritising vulnerable families with services that mitigate these risks.

The needs of specific population groups, such as young children and caregivers with disabilities, are also emphasised, highlighting the unique challenges faced in humanitarian settings and the importance of addressing these needs through tailored interventions.

Systems strengthening

The guidance emphasises the importance of building the emergency response on existing systems – food, health, social protection and WASH – to deliver nutrition results for young children. Examples of strategic actions to undertake at the policy, institutional and community/household levels are illustrated to address the drivers of children’s diets through these systems.

The guidance recommends an approach that involves building institutional capacity and supporting the government to mitigate the effect of a humanitarian crisis and facilitate sustainable recovery. It highlights that, when systems strengthening efforts continue during emergencies, they can promote community resilience and help institutionalise actions to improve children’s diets over the long term.

Monitoring and evaluation

In humanitarian and fragile settings, the generation, documentation, sharing and application of knowledge may become challenging due to the volatile nature of the context. The guidance nevertheless emphasises the importance of maintaining a framework to ensure the monitoring of infant and young child feeding indicators. A context-specific results matrix serves as a useful tool to facilitate monitoring, evaluation and learning as part of the complementary feeding response.

Food insecure and fragile contexts heighten the vulnerability of children and narrow the window of opportunity to intervene

In fragile contexts, it is important to ensure timely and appropriate response to protect, promote and fulfil children’s right to nutrition. In contexts characterised by limited availability of, or access to, nutritious food, the inclusion of child-centred food assistance may be warranted. This may include providing rations of specialised nutritious food to prevent wasting, or cash-based transfers where markets function. The appropriate use of these interventions should be closely monitored, and the use of specialised products should be discontinued as soon as the situation allows the shift to more appropriate and sustainable home food diets. Box 2 provides an elaboration on how the UNICEF programming guidance applies in emergency contexts.

What’s next?

As promoted and advocated for in the Fed to Fail report, governments must take the lead in upholding every child’s right to food and nutrition. Together with national civil society, development and humanitarian partners, and the private sector, governments must mobilise the food, health and social protection systems to deliver nutritious, safe and affordable diets, essential nutrition services and positive nutrition practices for every child.

The need to transform how we tackle poor-quality diets in early childhood is urgent. If activated in the right way and held accountable, the food, health and social protection systems – and their public and private sector actors – can ensure that children benefit from the nutritious, safe and affordable diets and the essential nutrition services and practices they need to grow and develop to their full potential, especially in fragile and emergency settings.

For more information, please contact Grainne Moloney at gmmoloney@unicef.org

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Special section
**Complementary feeding
in emergencies**

Views

An innovative feeding tool to improve young children's diets

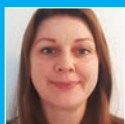
Using the bowl to serve a portion of food. State of Palestine, 2022



Harmonie Bucher is a Nutrition Officer at UNICEF headquarters, New York.



Linda Shaker Berbari is a Nutrition Specialist at UNICEF headquarters, New York.



Margit Bach is an Innovation Specialist at UNICEF Supply Division.

For young children, the 6-23 months period represents a critical window for setting growth and developmental trajectories for the rest of their lives. Children require a variety of nutrients from a wide range of food sources, at the right time, and in the right way.

The caregiver: A central figure to improving young children's diets

The role of the caregiver is integral to determining the timing of feeding, the modality, and the choice of foods offered to the child (Schmied et al, 2020). A caregiver's knowledge and behaviour can therefore be seen as the gatekeeper to adequate infant and child nutrition. Knowing what and how to prepare foods – including appropriate food hygiene and storage requirements – and how to stimulate and interact with the child before, during, and after mealtime will all influence a child's nutritional outcomes.

This plethora of responsibilities highlights the importance of a supportive environment to the primary caregiver – typically the mother. Adequate services are required at the community and primary healthcare levels to foster such a supportive environment. As health workers continue to be the trusted recipient of mothers' and families' questions on first foods for their children (Schmied et al, 2020), quality counselling services provided by health workers on what, when, and how to feed infants and young children should be more readily available. Through counselling, they can receive support and take away key nutrition messages to apply optimal practices at home. Caregivers are also then in a better position to discuss good practices with their neighbours, increasing knowledge transfer throughout the community.

Depending on where they reside, caregivers may face additional constraints to obtaining adequate and appropriate foods. This is a concern for marginalised rural communities where absolute food accessibility remains a key factor; or for those residing in food poverty areas or increasingly obesogenic environments where access to a diverse diet that is nutrient-dense and stems from a wide range of food sources may be difficult to come by and not financially accessible. This is particularly true in humanitarian emergencies where access to nutritious food becomes challenging and assistance may not always provide access to adequate or appropriate foods for young children.

One can easily understand how a caregiver may feel overwhelmed, isolated, and potentially lonely when making the best decisions for their

child. The Feeding My Child report (Schmied, 2020) highlights what mothers clearly voiced: A need for better and more accessible support from all levels, at home, at the community, and at the health centres.

Enabling caregivers – whose prominence in shaping infant and young child feeding (IYCF) is clear – is not only warranted, but essential. This is especially true in more challenging circumstances such as in emergency settings where healthcare systems are often overburdened, human resource capacity is reduced, and normal services and support mechanisms may be disrupted.

A 'bowl and spoon' to support caregivers

The complementary feeding 'bowl and spoon', developed by UNICEF (Figure 1), contributes to addressing the two main pillars of infant and young children's diets: what children eat (complementary foods) and when and how they are fed (complementary feeding practices).

This innovative project was born out of a need to strengthen IYCF counselling programmes with a tool that could serve as an easy reminder for caregivers on nutrition messages. The bowl and spoon draws on initial prototype research from Emory University, which explored and documented the impact of using a feeding bowl to support key messaging around young children's diets and a slotted spoon to emphasise the right food consistency. Prototypes of bowls and spoons were tested for acceptability in India (Collison et al, 2015) and Kenya (Kram et al, 2015). Increases in meal frequency, the quan-

tity of food consumed, and the improved thickness (and therefore nutrient density) of food were observed in India. In Kenya, mother to mother knowledge sharing was also observed. In addition, a cluster randomised trial conducted in Malawi (Kedera et al, 2016) found that meal volumes increased significantly, and food consistency improved within food insecure households when using a comparable child feeding toolkit.

Building on these initial findings, UNICEF conducted a series of comprehensive consultations and engaged in an innovation process to further develop the product. As a result, the design was modified to incorporate new features that address dietary diversity and hygiene while implementing a more child-friendly and inclusive design, in line with UNICEF's [Programming Guidance for improving young children's diets](#) (page 34).

On the bowl, the caregiver is reminded of the four key nutrition messages: quantity, frequency, dietary diversity, and hand-hygiene. Detailed features of the bowl and spoon are described in Box 1.

Bowl and spoon programming

Although innovative, the complementary feeding bowl and spoon set remains a simple tool that is not intended to be a stand-alone product. Instead, this tool should be anchored within existing programmes that focus on improving young children's diets. As well as a direct aid to counselling, the bowl and spoon can also provide a practical tool to support advocacy campaigns that target behaviour change, reinforcing their long-term effect.

Following the programming guidance (UNICEF 2020) recommendations, embedding the bowl and spoon within a systems approach can maximise both reach and positive outcomes:

Health system

Included during nutrition counselling sessions, the bowl and spoon provide support to the counsellor to convey key messages by illustrating the main recommendations. The set can also be used as a complement to existing community IYCF counselling packages. The provision of quality counselling using the bowl and spoon will support the caregiver towards adapting to changes in feeding care and practices.

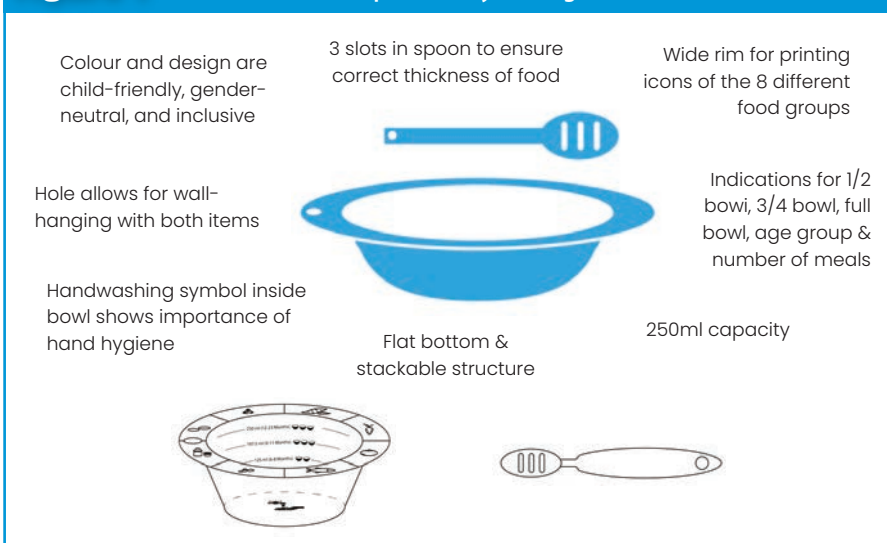
Social protection system

Since availability and affordability are important factors for both the coverage and ultimate success of any intervention, social protection schemes such as cash, vouchers, or foods to families can also serve as platforms where the bowl and spoon can be used as part of an integrated package of interventions, maximising the positive outcomes for young children.

Food system

Agriculture initiatives that facilitate access and

Figure 1 Features of the complementary feeding bowl



availability to a diverse range of foods serve as useful platforms to reinforce nutrition messages alongside the tool – as is planned in Liberia, where farmer-based organisations provide one of the delivery platforms. In food insecure contexts, the bowl and spoon can form part of a point-of-use fortification programme with the addition of micronutrient powders or small quan-

tity lipid-based nutrient supplements forming part of an integrated package of interventions to improve young children's nutritional status.

Water, sanitation, and hygiene (WASH) system

The bowl includes hygiene features such as the handwashing icon and holes to facilitate the

Box 1 Form follows function

Demarcation lines are included inside the 250 ml bowl. These are age specific and adapted to the needs of 6-8, 9-11, and 12-23 months respectively, written in French, English, and Arabic.

During the complementary feeding period, the number of meals fed to children throughout the day will increase as they get older. Above each of the quantity lines, the caregiver will be able to see small bowl icons, each referring to the number of meals necessary per day for the age group.

Young children need to be fed a variety of foods that will meet their nutrient needs. The rim of the bowl features context-specific food icons representing food groups that need to be consumed on a daily basis including breastfeeding. Based on government policies on complementary feeding and existing food habits, the bowls were customised with culturally appropriate food groups represented on the rim of the bowl. Some countries opted for a regional design reflecting several food groups while some countries chose a national design.

In addition to specific nutrition messages, at the bottom of the bowl there is a handwashing symbol to remind caregivers about the importance of having clean hands for food preparation. As the child gets older, this is also a cue to wash their hands before

and after they eat. In addition, the small holes on the rim of the bowl and the tip of the spoon allow caregivers to hang the set out to dry after washing and to store it hygienically off the floor.

Along with the bowl, the chunky slotted spoon serves as a consistency test, making sure that the initial porridge is not watered down, ensuring appropriate energy and nutrient density.

In addition to displaying easy-to-read cues, the bowl and spoon have also been designed to cater for people with disabilities. The tool features contrasting colours on the bowl rim and interior, tactile demarcations on the inside of the bowl, and a chunky handle for an easy to grip spoon.

The UNICEF version of the bowl and spoon are made of food-grade virgin plastic and ink with a smooth finish to allow for easy cleaning and to prevent the build-up of bacteria. The bowl can withstand regular use and exposure to frequent washing with dishwashing detergent and can maintain all features for a minimum of 24 months. The bowl and spoon are intended to be used by several children in the same family and/or subsequently passed on to neighbours and family members. When the product no longer serves its purpose, it can be recycled thereby giving the material a second life.



Complementary Feeding Bowl and Spoon with adapted counselling card at a Workshop launch in Burundi

drying of the tool off the floor. In addition, it is also possible for the bowl and spoon to be integrated within existing community WASH interventions as is being tested in Liberia.

Current implementation

This project is currently being implemented in five countries with UNICEF nutrition programmes: Liberia, Niger, Nigeria, Burundi, and Malawi. It is jointly implemented with the World Food Programme in the State of Palestine, Sudan, and Syria.

Following a country-level situation analysis, in line with government priorities, countries have each selected their preferred implementation strategies. As a result, the bowl and spoon have been included within a range of IYCF programmes, food fortification actions, and wider dietary diversity initiatives. Each country is offering a unique learning opportunity where the tool is integrated into existing platforms and networks ranging from primary healthcare facilities, community health and nu-

trition workers, mother-to-mother support groups, farmers groups, or IYCF counsellors.

In total, 400,000 bowl and spoon sets have been procured and are now in various stages of implementation.

Emergency settings

The application of the bowl and spoon to emergency contexts is also being tested in several areas. In the State of Palestine¹, where no more than 35% of children aged 6 to 23 months have a minimum adequate diet (Palestinian Central Bureau of Statistics, 2021), the tool is currently being distributed throughout the Gaza strip as part of a programme to improve young children's diets. It is expected to reach 10,000 of the most vulnerable families who, alongside the bowl and spoon, will benefit from IYCF counselling. In addition, the project includes the distribution of food parcels in certain areas and cooking demonstrations to reinforce key messages on the importance of first foods.



Demonstration of the bowl and spoon set. State of Palestine, 2022

In Kano, Northern Nigeria, the bowl and spoon have been integrated within a wider programme of stunting reduction where the bowls and spoons will become part of a package of interventions to ensure access and affordability to the recommended diverse diet a young child needs.

The way ahead

The bowl and spoon have an untapped potential for broader coverage and expanded use to contribute to improving the diets of young children. Discussions with country teams integrating the bowl and spoon into their programming reveal strong interest in using the tool and new opportunities are arising to extend its use into other countries and contexts.

Results to date suggest this tool can support efforts to improve feeding practices and foods for young children and maximise the impact of nutrition programmes for IYCF for a relatively small additional cost. Further, discussions are underway on wider emergency application and the possibilities for the tool to strengthen an adapted IYCF in emergency response to ensure that the diets of children aged 6-23 months are considered as part of any response package.

The first few years of this project, with implementation initially on a small scale, allow for robust data collection and the development of a greater understanding of the different delivery platforms employed and the ways to maximise impact. This learning will inform and support the subsequent scale-up of the project such as product iterations, applicability in emergency settings, and optimised efficacy, equity, and sustainability.

For more information, please contact Linda Shaker Barbari at lsbaker@unicef.org

¹ <https://www.enonline.net/fex/68/en>

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Sudan, Nigeria, Myanmar, and Yemen: Lessons from complementary feeding programming in emergencies

KEY MESSAGES

- This article showcases the key actions and interventions made in four countries – Sudan, Nigeria, Myanmar, and Yemen – to improve young children's diets and how learnings were collected in a systematic fashion using UNICEF's Action Framework to improve the diets of young children during the complementary feeding period.
- These case studies highlight the importance of a strong contextual analysis to guide the appropriate design, implementation and monitoring of actions and interventions, cross sector collaboration and integration, and proof of concept of localised initiatives that have the potential to be scaled up at national level.
- Similar documentation of experiences from other contexts, including those where complementary feeding is not prioritised and therefore not yet established, is recommended.



Jodine Chase is the Infant Feeding in Emergency Core Group facilitator at ENN.



Gwénola Desplats is a Senior Nutritionist with ENN.

to prevent malnutrition. It is therefore vital to prioritise supporting families with children aged 6-23 months to ensure access to appropriate complementary foods, promote positive feeding practices including continued breastfeeding, and to facilitate optimal growth and development. This is particularly so in emergencies when optimum infant and young child feeding may be jeopardised.

The Infant Feeding in Emergencies Core Group (IFE-CG) provides recommendations for complementary feeding in emergencies (CFE) interventions. In a review of CFE conducted in 2019, the IFE-CG identified that there was a gap in the 'how-to' of supporting the diets of young

children in emergencies (IFE-CG, 2020). In early 2020, UNICEF launched 'Programming Guidance for Improving Young Children's Diets During the Complementary Feeding Period' (UNICEF, 2020) (page 34) which provides an Action Framework to improve the diets of children aged 6-23 months. This series of case studies examines the interventions and actions implemented in four fragile contexts¹ – Sudan, Nigeria, Myanmar, and Yemen – using the Action Framework as a tool.

Methods

The case studies were undertaken in contexts where some progress towards improving CFE programming had been reported and where a diverse set of key actions and interventions to improve young children's diets had been documented. We hoped that the learnings from these four countries would provide greater insights for both country-level practitioners and global-level decision-makers on the 'how to' of CFE programming and contribute to improving this.

We used a case study methodology to collect information from multiple sources including a country-level document review, an online survey questionnaire, and key informant interviews. We classified data by themes following the logic of the Action Framework. We then reported on the various components of CFE programming that emerged from this analysis.

The findings from each country were presented according to the structure and themes of the UNICEF Programming Guidance (Box 1).

Outcomes

The Action Framework was a useful tool for this exercise as it provided structure to the different components and stages of CFE programming and identified potential opportunities at different levels, through various channels. It may therefore be useful for other countries to use this framework to plan, design and implement CFE interventions. The examination of different settings including contexts where complementary feeding is not prioritised and therefore not yet established is recommended.

For more information, please contact Jodine Chase at ife@ennonline.net

¹ ENN and the IFE-CG conducted the case studies in Sudan and Nigeria. USAID/Advancing Nutrition conducted the case studies in Myanmar and Yemen

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Background

The complementary feeding period (6-23 months) is a critical window in a child's life when ensuring an appropriate diet is important

Box 1 Summary of the UNICEF Programming Guidance themes and components

Programming context

Programming context is defined as the setting in which the country programming is being implemented, considering contextual features such as emergencies and food security. The Action Framework (and actions to improve the diets of young children) should be adapted and expanded according to the country context.

Nutrition situation analysis: Drivers and determinants of young children's diets

Conducting a situation analysis is important to design effective complementary feeding programmes. The situation analysis should include an examination of existing barriers and bottlenecks that may negatively affect complementary feeding programming. Coordination should occur within and across sectors including strengthening multi-sector planning and clearly defining the roles of different actors. Understanding the policy environment and legal frameworks driving complementary feeding outcomes is a key action.

Interventions and actions for improving young children's diets

Key interventions for improving young children's diets are recommended based on available evidence. These are suggested to be implemented via different channels/systems including health, food, social protection and water, sanitation, and hygiene and at multiple levels (policy, institutional and community/household).

Monitoring, evaluation, learning, and reported outcomes

Monitoring, evaluation, and learning is critical to effective programme implementation and the achievement of programme objectives.

Case Study 1

Complementary feeding in emergencies programming

Sudan case study

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All smiles. A happy mother-child dyad

Introduction

This case study reviewed the complementary feeding programming implemented in Sudan, as the country was known for having made some progress despite a recurring fragile context (ENN and IFE CG, 2022).

Programming context

Sudan presents a complex emergency context where conflict, political and economic instability, infectious disease outbreaks, and drought all negatively impact poverty and food security and challenge optimum complementary feeding practices and programming.

Within Sudan, complementary feeding in emergency (CFE) interventions have been adapted to various contexts (localities with a relatively stable protracted situation, localities with possible access, and localities with limited access) and priority was given to lifesaving interventions during acute emergencies. The tailoring of complementary feeding interventions has been elaborated on in the newly developed Sudan infant and young child feeding in emergencies (IYCF-E) operational guidance.

Strong coordination mechanisms for nutrition were in place, with the government leading on CFE interventions via the national nutrition programme and the Nutrition Sector, as well as multiple infant and young child feeding (IYCF) specific platforms (IYCF technical working group, IYCF-E taskforce and a technical committee on complementary feeding) that supported the planning and development of guidance on complementary feeding. CFE programming did not happen as a standalone intervention but was included within the wider maternal and IYCF agendas. Across other sectors, the Nutrition Sector closely coordinated with water, sanitation, and hygiene (WASH), social protection and food security and health. Key informants also reported that joint planning for nutrition (including complementary feeding activities) was happening.

The policy environment to support CFE in Sudan appeared to be strong with various policies, strategies, plans, and guidance in place to govern IYCF and IYCF-E actions. The main policy documents included a national IYCF strategy and the recently developed national nutrition policy and IYCF-E operational guidance. A key gap, however, was lack of legislation on the International Code of Marketing of Breastmilk Substitutes (the Code).

Nutrition situation analysis: Drivers and determinants of young children's diets

A situation analysis for complementary feeding programmes was conducted in Sudan to guide programming using existing household surveys that reported on anthropometry and feeding practices, as well as qualitative data. The analysis showed that wasting and sub-optimal complementary feeding (predominantly low dietary diversity) practices among children aged 6-23 months were a major concern. Complementary feeding practices were driven by several factors, including parental education and wealth. Findings from the analysis had helped to guide IYCF actions, including the prioritisation of improved dietary diversity among young children. However, there was still a need for updated data and analyses reflecting the current situation to better guide and inform complementary feeding interventions.

The barriers and challenges to CFE programming included context-specific factors such as food insecurity, poverty and social norms and programme-related factors including funding, poor implementation of the Code, and access to remote communities.

Interventions and actions for improving young children's diets

Most of the recommended interventions from the UNICEF Programming Guidance were re-

ported to have been implemented either nationally or in some localities, except for 'responsive feeding' – where a mother responds to her baby's cues as well as her own desire to feed.

Interventions included nutrition counselling and social and behaviour change communication (SBCC) provided alone or in combination with other interventions depending on the area of intervention. For example, in areas where food insecurity was high, counselling and SBCC were coupled with interventions to improve access to diverse and nutritious foods at the household level, such as home gardening, the provision of fortified seeds, and/or cooking demonstrations. In food insecure areas, supplementary feeding was also provided to children aged 6-23 months with a mid-upper arm circumference above 13 cm as well as micro-nutrient powders. Cash assistance targeted families in vulnerable areas, specifically for pregnant mothers until their child reaches 23 months of age.

The main channels of delivery of services were the health system (primary health centres) and the food system. Social protection systems were also used to target families who were most in need. WASH was integrated with IYCF interventions including hygiene awareness, access to potable water, and sanitation. System strengthening actions were implemented to influence policy and strengthen capacity at the institutional and community/household levels:

Actions to strengthen the **health system** included influencing policy related to health and nutrition services, building the capacity of service providers on complementary feeding, and implementing behaviour change interventions through mother and father support groups which contributed to strengthening delivery at the community level.

The **food system** was strengthened through close planning and the implementation of nutrition and food security activities, supporting

policies related to food fortification, implementing supplementary feeding, and supporting the food supply chain and behaviour of caregivers through home gardening interventions and cooking demonstrations.

Actions to strengthen the **social protection system** included integrating nutrition vulnerability criteria into social protection interventions and supporting cash assistance for caregivers of young children.

WASH system strengthening actions included developing a joint standard operating procedure to integrate IYCF, WASH and community-based management of acute malnutrition and to ensure access to water, hygiene, and food safety awareness and sanitation to vulnerable groups.

Monitoring, evaluation, learning, and reported outcomes

IYCF (including complementary feeding) indicators were monitored by the Federal Ministry of Health with support from UNICEF and other partners. Indicators on counselling and support groups were integrated within the National Nutrition Programme and were regularly collected.

Although no evaluations had yet been conducted on the outcomes of existing interven-

tions (e.g., mother support groups and behaviour change techniques), these have since shown a positive outcome on caregiver feeding behaviour.

Key enablers and opportunities were identified by interviewees to address challenges, including addressing food insecurity through direct food assistance, ensuring emergency preparedness through existing plans and provisions, scaling up existing interventions (i.e., prioritise peer support by providing training on complementary feeding to community volunteers, sensitise communities on complementary feeding key messages, build capacity for delivery of programming on complementary feeding and implement SBCC campaigns), increasing investments in complementary feeding interventions and building on existing opportunities, strengthening reporting systems to provide evidence on the outcomes of interventions and to increase funding, and delivering complementary feeding interventions as part of an integrated programme using the multi-sector approach.

Conclusion

Several learnings emerged from this case study: having a package of interventions contextualised to the specific challenges of

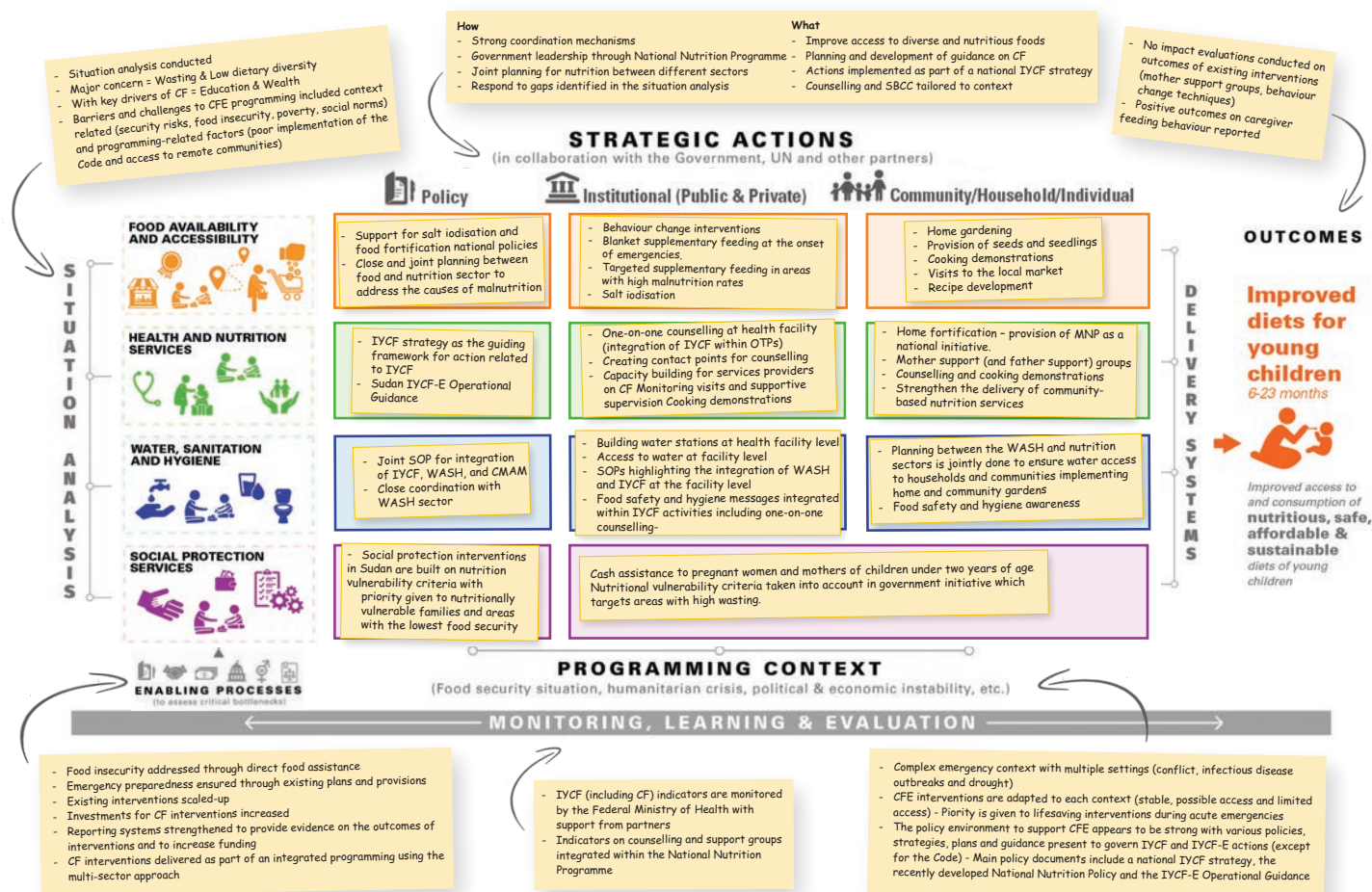
Sudan's complex emergency, including insecurity, lack of access to food and safe water and hygiene, enabled a more effective response to context-specific needs. In addition to the importance of a detailed situation analysis to guide the design and implementation of interventions, the continuous and active appraisal of the evolving situation was crucial as well as having emergency preparedness plans with clear guidance on rapid assessment in place. Close collaboration and coordination between sectors, including the representation of different sectors in IYCF, IYCF-E and complementary feeding working groups facilitated engagement and joint planning. Finally, localised initiatives, such as the Kassala dietary diversity project, provided concrete examples with documented outcomes and built the momentum for scale-up and buy-in at the national level, thereby maximising impact.

For more information, please contact Gwénola Desplats at gwenola@enonline.net

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<https://www.enonline.net/cfecasestudysudan>

Figure 1 CFE Programming using the Action Framework in Sudan



Case Study 2

Complementary feeding in emergencies programming

Nigeria case study

A mother interacting with her child during feeding, as recommended by the World Health Organization



© UNICEF / Nigeria

Introduction

This case study reviewed the experiences undertaken in Nigeria, where some progress was known to have happened in recent years in terms of complementary feeding in emergencies (CFE) programming (ENN and IFE CG, 2022).

Programming context

With a history of conflicts and emergencies since 2009, and a particularly complex security situation in the north-eastern states, Nigeria presented a challenging humanitarian context for CFE programming.

Strong coordination mechanisms for nutrition were in place in the northeast, where the Nutrition Sector and the infant and young child feeding in emergencies (IYCF-E) Technical Working Group worked to develop an IYCF-E guidance. This was later adapted into a unified package of interventions, as per maternal, infant, and young child nutrition in emergencies (MIYCN-E) guidance. The adoption of the guidance by all implementing partners and government bodies ensured that the nutrition response increasingly considered complementary feeding (through the infant and young child feeding (IYCF) interventions).

Although the government was not necessarily leading on CFE interventions at the start, it did provide support and endorsement to the process of developing the new guidance and tools, and their subsequent application, particularly in the northeast. The policy and legislative frameworks to support CFE were later strengthened to align federal policies with what was being done in the northeast, building on the IYCF-E and MIYCN-E documents.

Depending on the situation – areas with a relatively stable protracted situation, areas with possible access, and areas with limited access – CFE interventions in the northeast were adapted and priority was given to lifesaving interventions during acute emergencies.

Nutrition situation analysis: Drivers and determinants of young children's diets

A situation analysis to guide complementary feeding programming had been carried out in Nigeria and reported in the Nutrition Sector strategy and response plan. The analysis was mainly informed by the Demographic and Health Surveys (DHS, 2018) along with other localised nutrition, food security and knowledge, attitudes, and practices surveys.

The situation analysis showed that malnutrition and sub-optimal complementary feeding practices among children 6-23 months were major concerns in Nigeria, low dietary diversity was the main factor in sub-optimal complementary feeding, but inadequate meal frequency was also prevalent, and the main drivers of sub-optimal IYCF practices were food insecurity, lack of caregiver knowledge and time, household dynamics, certain social norms, and inadequate water, sanitation, and hygiene (WASH) services.

The findings from the analysis helped to guide IYCF actions and the development of the IYCF-E guidance including prioritising dietary diversity among young children. The barriers to implementing CFE programming at scale included both contextual factors (security risks, poorly functioning markets, high inflation) and those that related to the programming of the

response (insufficient funding, lack of buy-in from other sectors, capacity building constraints).

Interventions and actions for improving young children's diets

Actions to improve the diets of young children in northeast Nigeria went beyond the health sector and included access to food, social protection, and WASH. Interventions to improve the diets of young children in the complementary feeding period were part of a unified package of interventions (MIYCN-E guidance) and included nutrition counselling and social and behaviour change communication, provided alone or in combination with other interventions.

The main channels of service delivery were the health system (through primary health centres) and the food system. Social protection systems were also used to target the most vulnerable families. WASH was integrated with IYCF interventions, including hygiene awareness, access to potable water, and sanitation.

System strengthening actions were implemented to influence policy, strengthen capacity at the institutional and community/household levels, and were part of a coordinated effort to improve the diets of young children:

Health system strengthening actions included influencing policy related to health and nutrition services, and strategic programmatic shifts towards prioritising prevention and focusing on children 6-23 months which gained traction in influencing federal and state governments.

Food system strengthening included supporting policies regarding food fortification, im-

plementing supplementary feeding, supporting the food supply chain and caregiver behaviour via cooking demonstrations and home gardening interventions.

Social protection system strengthening included the integration of nutrition vulnerability criteria into social protection interventions, as well as cash assistance.

WASH system strengthening actions included the integration of IYCF, WASH, and community-based management of acute malnutrition and ensuring access to WASH services for vulnerable groups.

Monitoring, evaluation, learning, and reported outcomes

CFE activities were monitored using a proposed set of indicators as part of the newly developed MIYCN-E guidance to measure and track progress at different levels. These indicators were collected by the Nutrition Sector with potential for the federal government to adopt and integrate within the national information system to ensure sustainability.

Although no formal evaluations were conducted, a gradual change in feeding practices

was perceived (based on documented improvements in exclusive breastfeeding indicators) and attributed to behaviour change techniques.

Opportunities and recommendations that could enhance programming were identified by stakeholders including the need to scale up programme coverage (given existing traction and enhanced programme delivery to address complementary feeding drivers and security risk), the need to advocate for increased funding, and the need to better address food insecurity.

Conclusion

Using the UNICEF CF Programming Guidance and its Action Framework to document CFE interventions in Nigeria, we learned that having a package of interventions that is contextualised to specific needs, e.g., food insecurity and changing characteristics, e.g., access, allows for a better, more tailored response. A detailed situation analysis that examined the drivers of complementary feeding practices provided the necessary knowledge to guide the design and implementation of appropriate interventions. Joint planning and a shared vision across actors, e.g., in the development of national guidance, strengthened the focus of CFE programming on prevention as well as treatment. Also, undertaking specific and concrete activities, such



A mother and her child during the complementary feeding period

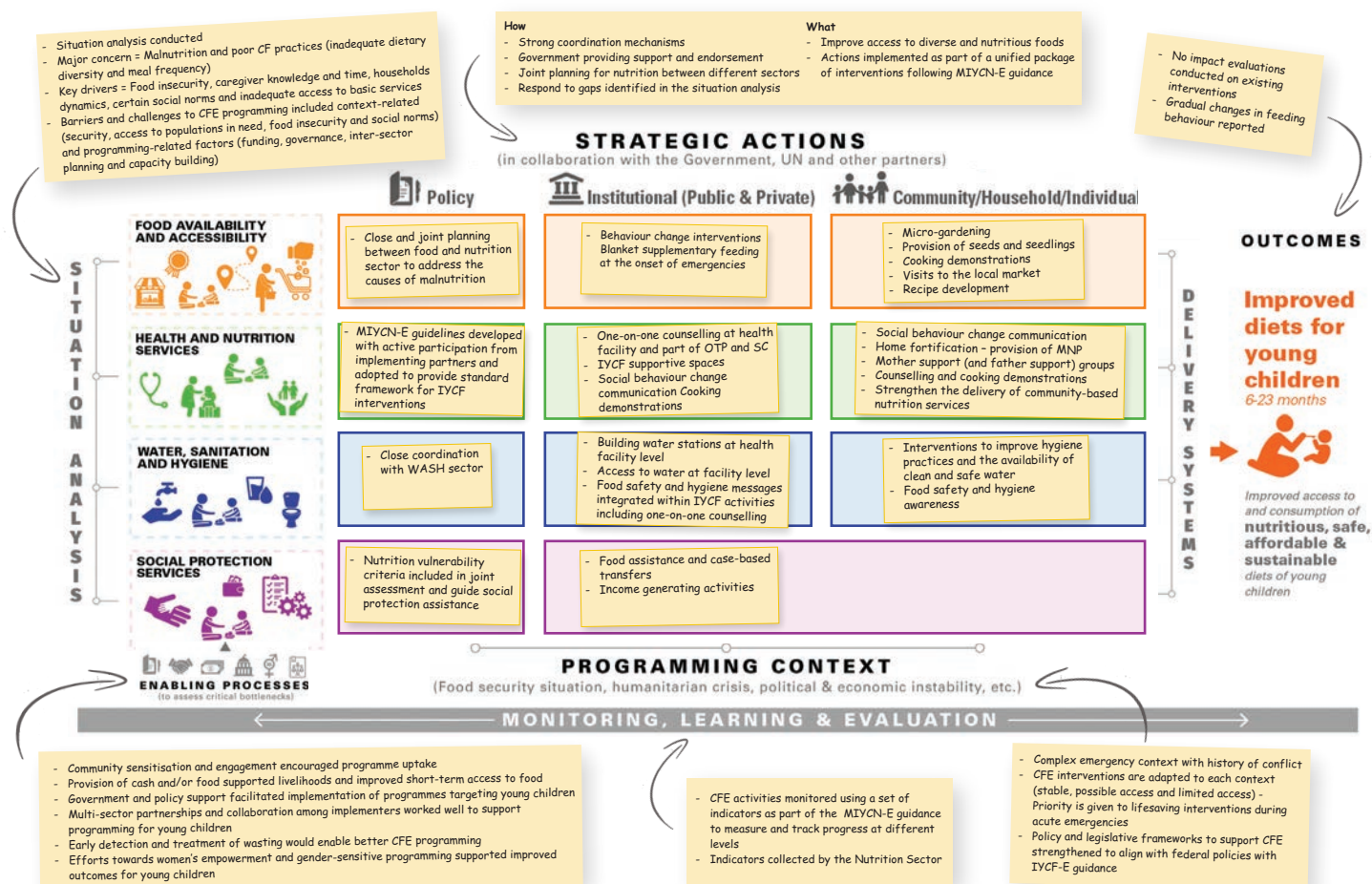
as the collective review and update of programming guidance and building evidence on impact, encouraged uptake and scale up.

For more information, please contact Gwénola Desplats at gwenola@enonline.net

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<https://www.enonline.net/cfecasestudynigeria>

Figure 1 CFE Programming using the Action Framework in Nigeria



Case Study 3

Complementary feeding in emergencies programming

Myanmar case study



Children eat lunch at home in Yangon, Myanmar

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Jen Burns is a Senior Technical Advisor at USAID Advancing Nutrition.



Alison Donnelly is an Independent Nutrition/IYCF Specialist.



Sarah O'Flynn is Head of Humanitarian Nutrition at Save the Children International.

Introduction

This report highlights complementary feeding approaches that were implemented in Myanmar between 2017 and 2022. Myanmar was chosen as a case study due to the challenges that families face in accessing adequate complementary foods, as well as a wide range of complementary feeding approaches that were available to explore within the country.

Programming context

Despite development gains over the last decade, Myanmar is now affected by a nationwide socioeconomic, political, human rights, and humanitarian crisis due in part to the 2021 coup d'état. This has resulted in widespread violence, mass migration, severe food insecurity, income loss, and food price inflation. Government services have collapsed including financial, health, social protection services, and agriculture. Underpinning the current crisis is a history of

persecution against many ethnic minorities, including the Rohingya people in Rakhine state. Currently, half the population lives below the poverty line.

Before 2021, several multi-sector coordination platforms and funding mechanisms integrated nutrition. These initiatives, many of which were in line with the UNICEF Action Framework (page 34), facilitated multi-sector planning and the implementation of complementary feeding support.

Due to the current crisis, international donors and non-governmental organisations (NGOs) have shifted away from strengthening government systems towards building the capacity of local partners and communities. The national multi-sector nutrition plan has been adapted for the current context as an 'Interim Multi Sectoral Nutrition Plan' resulting in multi-donor investments continuing to support multi-sector programming for complementary feeding. However, scaling up the treatment of wasting remains the Nutrition Sector priority. Multi-sector actions to support complementary feeding are not included in the plans of other sectors.

Nutrition situation analysis: Drivers and determinants of young children's diets

Earlier statistics indicate that significant progress had been made in reducing stunting and wasting over the past two decades. At the height of these improve-

ments, only 16% of children aged 6-23 months were receiving a minimum acceptable diet, 57% appropriate meal frequency, and 67% appropriate diet diversity (MoHS and ICF, 2017). More recent analyses indicate that many gains may have been reversed since 2019.

The key barriers to optimal complementary feeding practices include the perception that healthy diets are based on high intakes of rice and cultural taboos where children are only fed certain foods (Blankenship et al, 2020). There is a lack of available and affordable diverse food options, partially due to national policies that prioritise rice cultivation, restricting land licences to grow anything else (WFP, 2020a). Limited access to agricultural supplies, movement restrictions, and fuel price increases have further restricted access to diverse foods. In a single year, the cost of a minimum food basket increased by 32% (WFP, 2020b). Normally, 59% of the population lack access to safe drinking water (MoHS and ICF, 2017).

Interventions and actions for improving young children's diets

Myanmar has strong examples of multi-sector, development-focused interventions to improve complementary feeding practices, primarily led by NGOs and United Nations agencies, with very few through the government system.

The 'Banana Bag' – a bag shaped like the fruit, filled with a variety of tools de-

signed to act as 'nudges' for complementary feeding recommendations – is one such example. Tools such as egg and bean boxes encourage diversity, crushing tool sets promote the correct preparation of food, appropriate portion sizes are ensured through portion bowls, and appropriate water, sanitation, and hygiene behaviours are encouraged with soap and a baby towel. The soft, zippered bag also unfolds to become a baby mat so mothers can feed and play with their babies in a clean environment.

Fish production in ponds coupled with dried fish powder production are other examples, as well as the distribution of multiple micronutrient powders – targeting children aged 6-23 months (in some locations this extends up to 59 months). Encouraging home gardening with the provision of improved seeds, as well as blanket supplementary feeding programmes using fortified blended flours or lipid-based nutrient supplements are other interventions. The provision of cash and food vouchers coupled with training for motorbike and urban street food vendors to improve fresh food supply and safety also feature.

Many approaches to improving complementary feeding practices in Myanmar

are multi-sector in nature and implemented through community-based platforms informed by contextual analysis. Due to the current crisis, some of these previously development focused programmes are now adapting to the humanitarian context, demonstrating that this type of programming has the potential to be delivered as part of a humanitarian response. However, a lack of government collaboration and the presence of conflict and access to communities remain key challenges.

Monitoring, evaluation, learning, and reported outcomes

Complementary feeding indicators continue to be part of the post-coup Plan for Nutrition. However, in the Humanitarian Response Plan for 2022, nutrition indicators included only the number of children who are reached through wasting treatment programmes. No other nutrition-related indicators are tracked. Nutrition surveys are severely restricted and assessments of interventions are carried out primarily through phone surveys with project beneficiaries largely focused on change in knowledge and attitudes.

Conclusion

Due to the current crisis, the whole of Myanmar is categorised as a humanitarian crisis. There is concern that previous gains may now be eroded. Strengthening the government system is not currently possible and the systems approach highlighted by the UNICEF Action Framework is primarily delivered by local partners and community platforms.

Myanmar offers many examples of innovative multi-sector activities to support complementary feeding practices that continue to be delivered in the current context. However, few of these are reflected in current humanitarian response plans where the scale up of the treatment of wasting remains the priority. There is a risk that, as the funding and interventions shift to a more humanitarian focus, multi-sector actions to improve complementary feeding will be deprioritised.

This documentation of complementary feeding programming in Myanmar has yielded some useful examples of what is possible at the humanitarian-development nexus, influenced by the performance of multi-sector integrated policies, coordination, funding, and programme implementation. Efforts should continue to assess the potential for these interventions to be integrated into humanitarian planning and assess how these packages can be applied to other parts of the country.

For more information, please contact Jennifer Burns at jen_burns@jsi.com

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Ko Min plucks water spinach for his family lunch in Hlaing Thar Yar Township, Yangon

A child is checked for wasting at a health clinic in Jabal Habashi district, Taiz, Yemen

Case Study 4

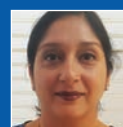
Complementary feeding in emergencies programming Yemen case study



Karin Christianson is a Nutrition in Humanitarian Contexts Specialist at USAID Advancing Nutrition.



Alison Donnelly is an Independent Nutrition/IYCF Specialist.



Kavita Sethuraman is the Director for Nutrition in Humanitarian Contexts at USAID Advancing Nutrition.

Introduction

This case study reviewed the complementary feeding programming implemented in Yemen between 2017 and 2022. A wide range of complementary feeding approaches were found despite the challenges many families faced when accessing adequate complementary foods.

Programming context

Yemen continues to suffer from the worst humanitarian crisis in the world. In 2014, insurgents took control of Sana'a, Yemen's capital. In March 2015, a coalition of Gulf states launched a campaign of economic isolation and air strikes against the insurgents' groups. The country is now divided into areas controlled by the internationally recognised Government of Yemen, based in Aden, and the self-proclaimed government based in Sana'a, which is home to an estimated 70% of the population. In 2020, Yemen ranked 179th out of 181 countries in the Human Development Index, a summary measure of achievement in the key dimensions of human development. If fighting continues throughout 2022, it is expected that Yemen will also rank as the poorest country in the world (OCHA, 2021).

Food insecurity and malnutrition are most severe in areas of active conflict and

the surrounding areas where humanitarian access is limited by the security situation. Yemen's Nutrition Sector is led by the Ministry of Health and Population which co-chairs humanitarian coordination through the Nutrition Cluster with UNICEF in the governments of both Sana'a and Aden. The Nutrition Cluster is responsible for the prioritisation of humanitarian nutrition activities (including complementary feeding), as well as strategy and funding, in the Humanitarian Response Plan which covers the response under both governments.

Due to the risk of famine in recent years, nutrition activities focus on services that are perceived to be lifesaving, such as the treatment of wasting and ensuring minimum household food security. The implementation of multi-sector actions to improve complementary feeding through the Multi-Sector Nutrition Action Plan (MSNAP) is limited under both governments.

Nutrition situation analysis: Drivers and determinants of young children's diets

While the Humanitarian Needs Overview does not include a detailed analysis of complementary feeding, it does include findings on dietary diversity, with the 2022 report recommending multi-sector actions to support improved nutrition.

According to SMART surveys conducted in 2021, 45% of children aged 6-59 months are stunted, while 10% suffer from wasting (MPHP, 2022). Wasting rates rise to 25% in the 6-12 months period, which likely indicates very poor practices in the initial phase of complementary feeding. Only one in 10 children aged 6-23 months in Yemen receives an adequate diet in the complementary feeding period, with only 12% receiving a minimum acceptable diet. High levels of poverty, spiralling food prices, poor access to services, and the constraints on the daily lives of women, such as movement restriction and challenges accessing financial services, all present challenges to following recommended complementary feeding practices. A lack of knowledge on age-appropriate behaviours and a lack of interaction with children during meals have also been highlighted as barriers to appropriate practice (Busquet, 2018).

Interventions and actions for improving young children's diets

Actions to improve the diets of young children predominantly focus on the health sector. They include one-on-one counselling by government health workers, mother support groups and nutrition pro-

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motion sessions, infant and young child feeding (IYCF) information sharing, cooking demonstrations/community kitchens, and supplementation with micronutrient powders. Examples of programmes conducted outside the health sector include home gardening and the provision of seeds, tools, and animals in addition to farmer field schools that bring together a group of farmers for hands on training to improve sustainable and nutrition-sensitive production practices, the promotion of compound flour, blanket supplementary feeding programmes, hygiene promotion integrated with IYCF education for pregnant and lactating women, conditional cash for nutrition (recommended that cash is used to purchase nutritious food with a soft requirement to attend nutrition education or training), and in-kind food assistance.

The main channels of service delivery were the health system – supported by non-government organisations (although the government recruits staff) – and the food system. Water, sanitation, and hygiene promotion activities were often integrated with IYCF and health interventions. Social protection systems were also used to target the families who were most in need, but this was not integrated with social behaviour change communication (SBCC) activities to promote appropriate complementary feeding. Cash and in-kind food support were provided to the head of the household who, in most cases, was male. Any SBCC activities for nutrition were usually directed at female caregivers.

Monitoring, evaluation, learning, and reported outcomes

The monitoring of indicators for complementary feeding is included in the MSNAP but national information systems do not currently collect information for most of these indicators (TASC, 2021). The Nutrition Cluster database includes some process indicators and tracks the number of children receiving blanket supplementary feeding, micronutrient interventions, and IYCF counselling.

Tracking the Nutrition Sector's outcomes is challenging as short-term humanitarian programmes typically do not have baseline and endline assessments. Instead, they use wasting treatment programme outcomes and IYCF output-level indicators such as the number of caregivers receiving counselling or attending support groups.

Periodic SMART surveys collect IYCF indicators. Monitoring is based on achieving a minimum recommendation (such as feeding at least four food groups) and does not usually track incremental progress (such as a child receiving three food groups instead of four). Information about programme outcomes on complementary feeding is limited due to the short-term nature of most programmes.

Opportunities and recommendations that could enhance programming were identified by stakeholders, including advocating to address complementary feeding as a priority issue, improving coordination across relevant sectors to address comple-

mentary feeding more directly, addressing complementary feeding knowledge barriers, and analysing incremental behaviour change.

Conclusion

As we were guided by the UNICEF Programming Guidance and its Action Framework to document complementary feeding in emergencies interventions in Yemen, we were able to learn that, given the complexity of the situation and the multiple challenges faced by families, multi-sector action is required to improve diets.

In theory, Yemen's policy environment is conducive to ensuring multi-sector actions to improve complementary feeding through improved breastfeeding and the provision of nutritious food. Although many policies were developed during the current crisis, in practice these policies are not prioritised by donors, are rarely reflected in humanitarian strategies, and are therefore not well funded.

To change the current trajectory, greater understanding among donors and decision makers is needed regarding the importance of nutritious diets for children aged 6-23 months. The prioritisation of the humanitarian response must be balanced to improve and scale up preventive measures in addition to curative nutrition services. Integration with other sectors, such as food security and livelihoods, may also enhance opportunities to engage men in SBCC activities.

For more information, please contact Karin Christianson at karin_christianson@jsi.com

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Mothers with their children at a health clinic in Jabal Habashi district, Taiz, Yemen

Field Article

Improving complementary feeding practices through a comprehensive health systems strengthening approach: experiences from Egypt

A complementary feeding awareness session at the primary health care facility, Egypt, 2017

KEY MESSAGES

- This article describes experiences of improving complementary feeding practices using a systems approach with particular focus on health systems strengthening.
- Achievements included: the development of national guidelines for optimum complementary feeding for children 6–23 months of age, inclusion of a specific indicator for complementary feeding in the new National Food and Nutrition Strategy, updated training packages to improve health worker counselling skills and strengthened social behaviour change communication activities.
- A systems approach requires strong coordination between all partners across sectors to ensure communities benefit from the synergistic effects of complementary interventions, while system strengthening was noted to improve the resilience of the Ministry of Health and Population to withstand the shocks of the COVID-19 pandemic and the subsequent Ukraine crisis.

stakeholder opinions from the central and peripheral levels, and UNICEF internal reports, we mapped the bottlenecks and barriers to optimum health and nutrition during the first 1,000 days period and then identified potential interventions to improve maternal, infant and young child health and nutrition that could be implemented while considering the community preferences and the capacity of the Egyptian MoHP. We used the UNICEF Action Framework (page 34) to pinpoint the interventions that could improve complementary feeding practices through the different systems including health. This was an iterative approach, revisited yearly to respond to the changing situation on the ground.

Key bottlenecks and barriers that we identified

Inadequate diets

We found that diets for children aged 6–23 months were inadequate: half of them consumed eggs and meat no more than twice a week and legumes and pulses three to four days a week and less than a third consumed the daily fruit and vegetable recommended (Ellaithy et al, 2022). The COVID-19 pandemic further reduced the ability of families to provide healthy diets for their children. Almost a fifth of households reported reducing their food consumption and one-tenth the quality of their diets (UNICEF, 2021). The drivers of poor diets for children included poverty, lower maternal educational levels (driven in part by early marriage for girls), precarious paternal employment, and poor household dietary diversity (Ellaithy et al, 2022).

Inadequate practices

We also identified that caregivers and communities had poor awareness of optimum complementary feeding and responsive feeding practices. Traditional practices were persistent, such as the early introduction of complementary

Background

In the context of a national drive to improve the nutrition status of its population, directed by the President of Egypt, UNICEF worked with the Ministry of Health and Populations (MoHP) throughout several sectors – health, food, social protection, water, sanitation and hygiene (WASH), and education – to strengthen the capacity of the health system to deliver quality maternal and child health and nutrition services. The programme focused on the first 1,000 days of life – from conception up to the age of two years – and one of its objectives was to raise public awareness of optimal complementary feeding practices.

This article relates the processes that we went through to give complementary feeding a higher profile within the health systems strengthening (HSS) approach. We also share the achievements and learnings we were able to achieve within the five years of programme implementation since 2017.

Programme framework and mapping

Using national published and unpublished data,

Naglaa Arafa is a Nutrition Officer for UNICEF in the Egypt Country Office.

Moataz Saleh is a Nutrition Specialist for UNICEF in the Egypt Country Office.

Wael Abdel-Razek is Head of the Primary Health Care Sector, Ministry of Health and Population, Egypt.

Nanies Abdel Mohsen is Senior Technical Officer, Central Directorate for Maternal and Child Health Care, Ministry of Health and Population, Egypt.

Amal Abdelhay Ebrahim is Head of the Central Directorate for Maternal and Child Health Care, Ministry of Health and Population, Egypt.

Amira Amer is a UNICEF Field consultant.

Selena Bajraktarevic is the Head of Child Survival and Development Section for the UNICEF Egypt Country Office.

foods, while the availability and desirability of 'junk' foods further reduced the quality of children's diets.

Inadequate services

While Egypt has a comprehensive network of primary health care (PHC) facilities that provide **health and nutrition services** to pregnant and lactating women and children under five years of age, we found that attendance was sub-optimal due to perceived low quality of care.

Overall, health care workers (HCWs) have limited capacities to provide appropriate complementary feeding counselling due to inadequate pre-service and in-service training, and the lack of information and educational materials. Many PHC facilities were understaffed, leaving HCWs overstretched.

Although there was near universal access (98%) to an improved water source in Egypt (MoHP, 2015), access to safe **water and sanitation** is constrained for the poorest households who often cannot afford to pay for access to piped water within their homes.

Outdated policies and strategies for nutrition

The National Nutrition Strategy had lapsed and there was no cross-sector coordinating body for nutrition. Although Egyptian law incorporates some aspects of the International Code of Marketing of Breast-milk Substitutes (the Code) and complementary foods, there was limited capacity to enforce, monitor, and prosecute violations. Up to the present, there is no legislation to limit the marketing of processed foods to children.

The national response to improve complementary feeding

Based on the identified barriers and bottlenecks, strategic actions focused on strengthening the health system as well as interventions for the food, WASH, and social protection systems.

Food system

National guidelines for optimum complementary feeding for children 6-23 months of age, and for women in the reproductive period, were developed and finalised in 2019.

Health System

At policy level, the MoHP coordinated with United Nations agencies to formulate a new National Food and Nutrition strategy (currently under finalisation) which includes a specific indicator of complementary feeding, i.e., to increase the proportion of children between seven months and two years who receive adequate complementary feeding alongside continued breastfeeding by 50% by 2030 (from a baseline of 23.3% in 2014).

UNICEF and the MoHP followed a HSS approach to introduce the 'first 1,000 days' package which includes complementary feeding counselling. This holistic approach focused on maternal and child health and nutrition, and early childhood development, as an integrated package of services, aiming to strengthen the capacity of PHC facilities, improve community

trust, and tackle the root causes of child malnutrition. Focusing on the geographical areas with the highest burdens of malnutrition, the package was piloted in two districts of Gharbia and Qaliubia governorates from 2017 onwards and rolled out at scale to cover the approximately 400 PHC units in these two governorates in 2019. Starting in 2021, at the MoHP's request, interventions have been focused in selected districts of Gharbia, Qaliubia, Minya, Assiut, Matrouh and Alexandria governorates where the most vulnerable populations reside.

The Health Information System (HIS) of the MoHP was reviewed and strengthened to include new nutrition indicators including the coverage of iron and folate supplementation for pregnant women and children under five and the coverage of Growth Monitoring and Promotion (GMP) visits, while decision support and a data visualisation dashboard were added to enable managers to use quality data to monitor and improve services.

Training packages were produced in 2019 to improve the quality of HCW counselling skills on maternal nutrition and complementary feeding, and training was delivered to 1,100 HCWs and supervisors. Regular tests are given to HCWs, whether face-to-face during supervision visits or monthly meetings or through online platforms, to sustain knowledge after the completion of training.

To improve the early detection of malnutrition, national anthropometry training manuals and materials were produced in 2020, and anaemia screening laboratory protocols, trainings, and quality tools were implemented. Micronutrient supplementation and treatment protocols were updated and disseminated. Micronutrient procurement and supply chains were reviewed to prioritise pregnant women and children under five and to reduce stockouts.

Social and behaviour change (SBC) activities included the production and dissemination (to 675 PHC facilities) of informational awareness materials on complementary feeding (posters, flipcharts, nutrition counselling cards, videos) to be used during counselling and health awareness sessions. Social media platforms¹ were launched in 2020 to spread awareness of optimum complementary feeding, breastfeeding, maternal nutrition and WASH messages. WhatsApp groups at the PHC level linked mothers to the health facility to communicate with trusted HCWs at the local level.

To improve decentralised capacity for planning, monitoring, and improving health and nutrition services, training packages on results-based management, supportive supervision, and the HIS were rolled out to raise the capacity of 140 middle managers. Regular meetings were held at the district and governorate levels to review indicators, troubleshoot problems, and share success stories. Local WhatsApp groups were also used to follow up service delivery in the PHC facilities. UNICEF field supervisors played an important role in mentoring

middle managers and frontline HCWs, troubleshoot problems and improving data quality, and innovating on-the-ground solutions (such as activating local social media channels and improved laboratory services).

Social protection system

In 2015, the Government of Egypt (GoE) introduced the 'Takaful'² conditional cash transfer (CCT) for the poorest families, specifically targeting the first 1,000 days, on the condition that the beneficiaries attended routine antenatal care (ANC) and GMP services at PHC facilities, as a way of improving the health and nutrition of mothers and their children. By 2022, four million families were benefiting from CCTs.

Women's empowerment trainings were provided through the MoHP in intervention areas, targeting beneficiaries from the first 1,000 days services to improve women's decision-making and negotiation skills and to help women to launch their own micro-businesses to help with household finances and ultimately improve complementary feeding.

The SBC materials developed by UNICEF in the form of a 'Positive Parenting toolkit' provided advice to parents, focusing on five main thematic areas including complementary feeding for children 6-23 months of age. It is mainstreamed in collaboration with the Ministry of Social Solidarity (MoSS). MoHP and MoSS are also currently developing health and nutrition tips for families of children under five years of age using short message service messages, delivered by RapidPro.³ RapidPro is also being used to establish an integrated database for families targeted through MoSS programmes, guiding community-based organisations (CBOs) to direct their cash and in-kind nutritional food assistance to support the most vulnerable families. This complements MoSS's social protection CCT programmes and widens the reach.

Achievements

The following section uses reports generated from the MoHP HIS and UNICEF field supervisor reports.

Training and supervision systems

Regular meetings at different levels strengthened team building and both managers and HCWs expressed satisfaction with the improved supervision system that emphasised support and problem-solving rather than fault-finding. Supervisors appreciated the new tools used to monitor and improve performance. Strengthening the supervision system, on-the-job training and quality control measures were credited for improve-

¹ Facebook <https://www.facebook.com/First1000DaysEgyptandWhatsApp>

² Takaful ("Solidarity") is a monthly conditional cash transfer for households with children, aiming at promoting capital accumulation by providing family income support while incentivising poor households to invest in their children's health, education and nutrition by imposing conditions such as enrollment of children in schools (with a minimum of 80 percent attendance) and getting the necessary health check-ups, including child immunisation and growth monitoring for children aged below five years old, and antenatal care for pregnant mothers.

ments in laboratory performance, demonstrated by reduced measurement error in haemoglobin readings from 1.3 to 0.3 gm/dL within three months of establishing these systems. Close mentoring resulted in improved HIS data quality, as evidenced by the data quality reports automatically generated by the system that enabled middle managers to make sound data-driven decisions.

Coverage of key services

Routine HIS reports revealed an improvement in the coverage of key services between January 2021 and April 2022 as summarised in Table 1. For coherence of reporting, only the results from the start of implementation in selected districts from 2021 onwards are presented below.

Improved attendance at ANC and GMP visits reflects that public trust in PHC maternal and child health and nutrition services increased. Regular ANC attendance (4+ visits) rose sharply (25 percentage points) since the beginning of the programme, while attendance at GMP services in the second year of life rose from 2.9 visits per child to 3.9 in 2022.

A total of 1.69 million caregivers were reached with complementary feeding messages, either face-to-face during GMP visits and health awareness sessions, or through engagement with the social media platforms.

Coverage of haemoglobin screening for children under two years of age improved from 83.2% to 95.1%, reflecting better supervision systems and improved procurement of testing supplies.

Coverage with iron folic acid (IFA) tablets for pregnant women and iron and folate syrup for children under five years of age was slightly improved by advocating for increased procurement at the governorate level.

Partnering with the private sector

Health teams reached out to community pharmacists and private laboratories to invite newly pregnant mothers to attend ANC services which helped to increase early ANC attendance. Health teams also communicated with private nurseries to improve nutrition awareness including optimal complementary feeding practices.

Community participation

Fundraising efforts at the local level resulted in communities donating essential supplies (including laboratory supplies, drugs, ultrasonography machines) to their local PHC facilities. They also contributed in-kind maintenance work such as plumbing and gardening services. This deepened connections between the PHC units and

the public. Local CBOs, mosques and churches provided venues for health information sessions with the public.

Lessons learned and the way forward

Health System

Higher ANC and GMP attendance enhances the continuity of care for the infant after birth since mothers receive nutrition counselling awareness on maternal nutrition and breastfeeding during pregnancy and after delivery, with complementary feeding counselling beginning when the infant reaches six months of age.

UNICEF's support to the GoE in strengthening the capacity of the health systems to deliver quality maternal, infant and young child health and nutrition services ensured the harmonisation and integration of essential nutrition actions into national systems and services. This improved the availability and accessibility of the essential services to address malnutrition in women and children through a more holistic, multi-sector approach. Considering the high burden of anaemia in Egypt, UNICEF will continue advocating for increasing the national budget to meet the needs for IFA supplements.

The MoHP appreciated the different nutrition training packages and materials and requested expansion to cover all 27 governorates through the training of 300 trainers. Training packages are now being digitalised to be used for pre-service training and to reduce the considerable time and costs of scaling up the trainings to the HCWs of the more than 5,000 PHC facilities in Egypt.

UNICEF will continue to support MoHP capacity to leverage social media to raise awareness. However, social media platforms, while well-appreciated, are not widely available to the poorest sections of the population (internet penetration currently stands at 71%) due to the lack of smartphones and/or internet connections and gender norms hindering women's use of social media.

Social protection system

To synergise the effect of the Takaful CCT programme to improve diets and practices, it is essential to improve the quality of health and nutrition services at the PHC level, to encourage the uptake of those services and as a pathway to improving health and nutrition outcomes for these vulnerable groups. Using the integrated package of services described in this article, HCW capacities nationwide should be further raised to provide tailored nutrition counselling, with a special focus

on complementary feeding, to ensure that the most vulnerable populations enjoy the maximum benefit from these services. Women's empowerment training programmes should be scaled up and innovative business models are needed to expand opportunities for these women.

Food system

In view of widespread poor diets and malnutrition among children, SBC programmes to improve dietary awareness should be developed and mass media channels considered to reach all segments of society. It is also essential to effectively implement the Code as well as the global recommendations on the marketing of foods and sugar-sweetened beverages to children. Providing productive assets, such as livestock, may encourage households to produce and consume their own food, leading to improved dietary diversity for households and children (Ellaithy et al, 2022).

WASH system

UNICEF will re-activate a 'revolving fund' in intervention areas so that families can afford the fees for a household water connection.

Education system

It is vital to combat early marriage to enable girls to complete their education, while ensuring comprehensive nutrition education in schools to enable young families to make optimal nutrition choices.

Conclusion

In conclusion, improving the complementary feeding of young children can be best achieved by providing a comprehensive package of health and nutrition services for mothers and children throughout the first 1,000 days, based on a systems approach to health, food, social protection and WASH, with support from widespread SBC activities. Coordinating interventions between partners is essential to ensure that families and communities all benefit from the synergistic effects of multiple approaches to support optimum nutrition. The health systems strengthening approach described here improved the resilience of the MoHP to withstand the shocks of the COVID-19 pandemic and the subsequent Ukraine crisis.

For more information, please contact Dr. Naglaa Arafa at narafa@unicef.org

³ RapidPro is a free, open source software used for building mobile-based applications.

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Table 1 Coverage of key health and nutrition services at primary health care facilities

	January 2021	April 2022
Average number of growth monitoring and promotion visits in the second year of life per child	2.9	3.9
Early antenatal care visits (within first trimester)	27.9%	38.1%
Regular antenatal care visits (4+)	29.1%	55.6%
Postnatal care visits within 48 hours	56.3%	77.1%

Improving the quality of complementary feeding in Rohingya refugee camps in Bangladesh



A woman prepares a nutritious meal for herself and her six children in Cox's Bazar, Bangladesh

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KEY MESSAGES

- Cooking demonstrations and traditional ceremonies marking the start of complementary feeding ('*Mukhe Bhaat*') were implemented in Rohingya refugee camps in Cox's Bazar, Bangladesh, with the aim of addressing poor complementary feeding practices.
- Using a "learning by doing" approach, mothers quickly learned how to prepare diversified foods at home for their children using culturally acceptable recipes, in a sustainable way.
- Despite relatively limited food options available under the general food assistance, caregivers started to prepare diverse and nutritious foods, putting what they had learned into practice.

The nutrition survey conducted in October and November 2021 reported that the prevalence of stunting was 30.2% among children aged 6–59 months (UNHCR, 2021), which is stagnant at a very high level. The same survey found that the prevalence of wasting, measured through weight-for-height, was 13.7%. Although the prevalence of severe wasting increased overall to 1.3% in 2021 after the COVID-19 pandemic, the levels showed an encouraging and declining trend in the camps from 3% in 2017 to 1% in 2020. This declining trend, despite dependence on humanitarian aid, may reflect the availability of integrated nutrition services for managing children with severe and moderate wasting.

The latest infant and young child feeding (IYCF) assessment, conducted in May 2019, found that less than optimal IYCF practices were prevalent and could be contributing to the high levels of malnutrition among Rohingya children. Timely introduction of semi-solid, solid or soft foods, which is recommended when children are six months of age, was practised by half of the caregivers (51%). Dietary diversity and meal frequency among children aged 6–23 months was generally poor, with only 46% of children meeting the minimum dietary diversity, 56% reaching minimum meal frequency and 27% having a minimum acceptable diet. The nutrition causal analysis conducted between August and December 2019 found there was limited knowledge on complementary foods and dietary diversity in the refugee settlements (ACF, 2019). The meals prepared for adults were often given to children, despite this food being bulky and with poor energy and nutrient density for children's growth needs.

Background

The Rohingya crisis has resulted in a large influx of refugees in Cox's Bazar District, Bangladesh. As of July 2022, Bangladesh was hosting almost one million Rohingya refugees from Myanmar in 33 camps in Cox's Bazar District and Bashan Char Island. About 52% of the refugee population are children under the age of 18, and 16.5% of them are children under the age of five (UNHCR, 2022).

The latest Refugee Influx Emergency Vulnerability Assessment, conducted in March 2022, showed that 95% of all Rohingya households were moderately to highly vulnerable (WFP, 2022). Commodities such as rice, wheat, flour, lentils, soybeans, fish, meat and eggs were available in the local markets, but the prices were too high for refugees to be able to purchase these goods. With limited access to regular income and livelihood opportunities, the Rohingyas were highly reliant on food assistance provided by the World Food Programme (WFP) every month.



Mohammad Zahidul Manir is Nutrition Officer at UNICEF Cox's Bazar office, Bangladesh.



Mohammad Shahnewaz Morshed is Nutrition Officer in charge of Information Management at UNICEF's Bangladesh country office.



Mahbubur Rahman is the Civil Surgeon, Cox's Bazar District, Government of the People's Republic of Bangladesh.



Piyali Mustaphi is the Chief of the Nutrition section at UNICEF's Bangladesh country office.



Karanveer Singh is Nutrition Manager at UNICEF Cox's Bazar office, Bangladesh.

Table 1 Key food items available with the WFP e-vouchers

	Food items	Remarks
1	Rice	Fixed item
2	Red lentils	Fixed item
3	Fortified soybean oil	Fixed item
4	Eggs	Fixed item
5	Sugar	Fixed item
6	Fortified salt	Fixed item
7	Wheat flour	Flexible item
8	Dried fish or anchovy	Flexible item
9	Chicken	Flexible item
10	Live fish	Flexible item
11	Fresh fruits and vegetables	Flexible item
12	Spices	Flexible item

In the Rohingya camps, nutrition services are currently delivered through 45 integrated nutrition facilities – this is explored in further detail in an article in Issue 67 of Field Exchange (Rahimov et al, 2022). Each such facility delivers a comprehensive package of nutrition services, which includes the management of children with severe and moderate wasting, promotion of and support for IYCF, and the distribution of blanket supplementary foods. To address the poor complementary feeding practices, UNICEF strengthens community mobilisation activities. These activities focus on practical demonstrations of the various ways to improve the quality of complementary foods and to make meals more energy-dense and diverse through the utilisation of locally available and culturally acceptable foods.

Cooking demonstration sessions and “Mukhe Bhaat” ceremonies

Since January 2022, UNICEF has been implementing cooking demonstration sessions and “Mukhe Bhaat” ceremonies in the Rohingya camps in Cox’s Bazar. *Mukhe Bhaat* is a cultural tradition observed in the country where rice is put to a child’s mouth for the first time when the child reaches six months of age; it marks the initiation of complementary feeding. These activities aim to help initiate complementary foods on time using a common cultural custom, and to build the capacity of mothers and caregivers to enhance the quality of complementary foods in terms of energy density, diversity and frequency. *Mukhe Bhaat* ceremonies target children aged six to eight months, while the cooking demonstrations target mothers of children aged nine to 23 months. Due to the limited space available in the Rohingya camps and the lack of adequate and safe environmental conditions, cooking demonstrations and *Mukhe Bhaat* ceremonies are organised in the nutrition facilities.

For the cooking demonstrations, mothers are expected to attend one session per month. Sessions stress that complementary foods

should be energy- and nutrient-dense, micro-nutrient-rich and diverse; soft, palatable and safe; and not monotonous. Attendees are informed that these foods can be made using family foods as a base, but they should then be adapted because first foods are very different from meals consumed by adults and older children. Several recipes were prepared guided by the traditional practices of the Rohingyas, using diversified food groups such as egg “*suji*” (semolina), “*kheer/firni*” (rice pudding), vegetable “*khichuri*” (traditional food made with rice and lentils), egg khichuri and chicken khichuri. These recipes also align with national IYCF guidelines. The recipes are simple to cook and are mainly based on rice, cereal, lentil, egg, and vegetables; they can be sweet or salty to taste and are made from various food items provided by WFP as a part of the general food assistance¹ (GFA) provided through an e-voucher system in the Rohingya camps, as detailed in Table 1. The acceptability of these recipes have been tested through field trials, and the final recipes were selected based on discussions with the mothers and caregivers of children aged 6–23 months. Active feeding is promoted in these sessions. In addition, a complementary feeding bowl and spoon are given to the mothers/caregivers to help them remember nutrition messages when preparing food for their children at home and to provide them with serving size guidance.

Methods to assess results

An assessment was undertaken in July 2022 to understand the initial results of the community mobilisation interventions for nutrition. A mixed-method approach was employed consisting of qualitative and quantitative data collection and analysis. Qualitative data were gathered through a series of focus group discussions (FGDs). A household survey was conducted to gather quantitative data. A semi-structured questionnaire was used as a quantitative tool.

Dietary intake was assessed by 24-hour dietary recall method (24HR) applying a structured interview to capture detailed information about all foods and beverages consumed by the respondent in the past 24 hours, from midnight to midnight the previous day.

A total of 260 mothers and caregivers of children aged 6–23 months were randomly selected from the cooking demonstration sessions and *Mukhe Bhaat* ceremonies (attended between January and June 2022). Data were collected by the IYCF counsellor of the UNICEF implementing partners.

Results achieved

Caregivers’ participation in *mukhe bhaat* and cooking demonstrations
A third of the mothers and caregivers interviewed (32%) attended at least half of the sessions (i.e. three sessions) between January and June 2022.

During the FGDs, caregivers highlighted the difference between cooking demonstration sessions and regular nutrition education sessions. All interviewed mothers and caregivers said they enjoyed participating in the cooking demonstration sessions, as they had become a common meeting place for women to discuss various issues relating to child health and nutrition; they also said the sessions helped them prepare nutritious food using the GFA food rations. The food prepared during these sessions was offered to the children and the mothers said the children ate better during these sessions. Altogether, mothers were motivated to regularly attend these sessions. These sensitisation sessions were culturally acceptable and almost all (94%) mothers reported not facing any challenges or barriers from family members, e.g. husbands and mothers-in-law, to attend. For the 6% who faced challenges, the primary challenge was having a smaller child in their household and no other caregiver to take care of them while they were away.

Caregivers’ knowledge

Mothers and caregivers who attended these sessions were found to have increased their knowledge on IYCF practices. Caregivers’ knowledge on making nutritious-dense foods (using UNICEF-recommended food recipes) increased from 41% at pre-intervention to 97% at post-intervention stages. Over 95% of mothers reported actively engaging in different activities to encourage their children to eat. Participants in the FGDs acknowledged that “learning by doing” was a better approach to learn and this encouraged them to start practising the recipes at home.

Preparation of more diversified foods

Among mothers and caregivers interviewed, 65% mentioned they had started preparing diversified foods at home for their children after receiving guidance from the cooking demonstrations. The practice of preparing diversified foods at home was significantly associated with the number of cooking demonstration sessions attended. Mothers who attended more than three sessions were twice as likely to prepare diversified foods at home than those who attended fewer than three sessions. During the FGDs, mothers and caregivers highlighted that, even though they had started preparing the diversified food recipes at home, they were not able to prepare separate meals for their children every day. From a 24-hour dietary recall, only 38% of children had consumed at least five out of eight food groups on the previous day which increased from 22% in the pre-intervention period.

Children’s perceptions of the foods prepared

Almost all caregivers interviewed (99%) said

¹ The WFP has been providing GFA through an e-voucher system that allows households to purchase up to 24 food items in shops (10 fixed and 14 flexible items).

their children liked the diversified foods prepared at home. Mothers also started to observe some changes in their child's health and nutritional status: among those who regularly prepared diversified foods, 52% reported that their child's appetite had increased and 83% observed that the child was growing healthily and was more active (being playful and responding to surroundings).

Learnings

A child's nutrition requirements are different from those of an adult's, and meeting those requirements is critical for developing the child's full physical and cognitive potential. Food prepared at home for the child should be energy and nutrient-dense, micronutrient-rich and diverse. In the Rohingya camps, mothers do not prepare separate meals for children every day. Adult meals are often given to the child, but are insufficient to meet the child's energy and nutrient requirements. Changing the mindset of the families regarding separating food preparation for children every day has been a major challenge.

The entitlement for GFA through e-vouchers was US\$ 13 per family member per month, in line with the minimum expenditure basket approved by the government. Fixed subsidy levels on income earning limits a family's ability to choose the variety and quantity of food items. With no other or very limited income earning opportunities in the camps, it has been a challenge for a Rohingya family to buy diversified food every day.

Because of overcrowding and limited space availability in the Rohingya camps, cooking demonstrations and *Mukhe Bhaat* ceremonies are organised in the nutrition facilities. Caregivers usually cross hilly terrain and walk long distances to reach the nutrition facilities, which make them reluctant to come to the facility only to attend the cooking demonstration sessions. Because of space constraints and limited capacity in the nutrition facilities, one session is organised per day, which can accommodate 10–12 participants. Reaching all targeted mothers and caregivers of children aged 9–23 months remains a challenge. The mothers and caregivers of malnourished children (stunting, underweight and wasting) and pregnant and lactating women with IYCF issues are therefore given priority for these sessions. The survey findings give an indication that increasing the number of sessions would allow mothers to attend more sessions, and this would lead to further improvement in outcomes. From the beginning of 2023, the plan is to organise more cooking sessions to enable mothers and caregivers from every catchment to attend one session per month.

As this article is being finalised, a detailed IYCF assessment is being undertaken in the camps and host communities, from which we hope to see improvements in the IYCF indicators.



A woman buys fresh vegetables, in Cox's Bazar, Bangladesh

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Conclusion

Doing more of the same (messaging and counselling on IYCF) will not make a significant difference to complementary feeding practices. If we want to change behaviours and improve feeding and caring practices, we must look beyond counselling or make it more enriching and participatory, as shown from the learnings of this programme. It is essential to make this change, as the quality of children's diets is more important before the age of two than at any other time of life.

The cooking demonstrations and -ceremonies in the Rohingya camps focus on how various diverse and nutritious foods can be prepared using the relatively limited options available under GFA. These sessions address key elements of complementary feeding: timely introduction, diversity, nutrient density, inclusion of animal source foods and vegetables, age-appropriate amounts, meal frequency and consistency, food safety and preserving nutrients during the process of food preparation, and responsive feeding and caring. The sessions used a participatory "learning by doing" approach; mothers easily accepted the diversified food recipes and quickly learned how to prepare diversified food at home, thus practising the learnings and ensuring that children have continued access to nutritious and safe diets in a sustainable manner.

In the Rohingya camps, the various ingredients required for a more diverse and nutritious diet are already available as a part of the GFA (though in limited quantities). Using food items from the GFA and employing culturally acceptable recipes, the dietary requirements of

children aged 6–23 months can be successfully met. This learning is already being replicated in the host communities in Cox's Bazar utilising the existing government health systems. The use of a "learning by doing" approach and developing culturally acceptable recipes can be easily replicated in any emergency settings with GFA, as well as in non-emergency settings. While it is important to focus on the various activities for protecting and promoting breastfeeding, there is also an urgent need to put extra effort into improving complementary feeding and caring practices if we are to significantly reduce levels of undernutrition among young children.

For more information, please contact Karanveer Singh at ksingh@unicef.org

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Improving complementary feeding through home fortification in Malawi



A mother and child in Lilongwe during feeding time, Malawi, 2022

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KEY MESSAGES

- This article provides insight on the successes and challenges involved in introducing micronutrient powders (MNPs) at household level to improve complementary feeding practices.
- The use of MNPs for home fortification was found to be acceptable in Malawian communities.
- Community-based distribution methods were preferred, but multiple delivery modes or access points for MNPs facilitated greater coverage and relieved the burden on community-level health workers.

Beverly Shaila Laher is a Doctoral Research Fellow at Kamuzu University of Health Sciences in Lilongwe, Malawi.

Benson Kazembe is Nutrition Specialist at UNICEF in Lilongwe, Malawi.

Blessings Hendrina Likoswe is a Doctoral Research Fellow at Kamuzu University of Health Sciences in Lilongwe, Malawi.

Thembikile Nyasulu is a Research Associate at Kamuzu University of Health Sciences in Lilongwe, Malawi.

Lusungu Chitete is Nutrition Specialist at UNICEF in Lilongwe, Malawi.

Blessings Muwalo is Deputy Director of Nutrition, Department of Nutrition, HIV and AIDS, Ministry of Health.

Mamadou Ndiaye is Chief of Nutrition at UNICEF in Lilongwe, Malawi.

John Phuka is an Associate Professor at Kamuzu University of Health Sciences in Lilongwe, Malawi.

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Background

In Malawi, the rates of stunting and anaemia among children under the age of five are high (36% and 63% respectively), which can lead to a significant loss in intellectual potential and future productivity (Government of Malawi, 2015). Complementary feeding practices are poor, with only 17.3% of Malawian children aged 6–23 months receiving an appropriate minimum dietary diversity (MDD), 36.8% a minimum meal frequency (MMF) and 8.7% a minimum acceptable diet (MAD) (Government of Malawi, 2021).

Knowledge gaps, food insecurity and food availability challenges are key contributing factors that limit the quality of diets in the country (Jones, 2015). Access to nutritious foods is also affected by seasonal fluctuations, and in Malawi rates of undernutrition differ between lean and post-harvest seasons (Chikhungu and Madise, 2014). These factors result in poor complementary diets and limited intake of micronutrients, which then lead to poor child growth and development. Humanitarian disasters also continue to occur with increasing frequency and intensity. The country has been heavily affected by cyclones and disease outbreaks, which increase nutrition vulnerability and affect complementary feeding practices.

Fortifying complementary foods at home is an effective intervention for improving the micronutrient intake of children in the complementary feeding period. Micronutrient powders (MNPs) have been shown to significantly improve haemoglobin levels and to reduce the prevalence of iron deficiency anaemia and retinol deficiency (Tam et al, 2020). When combined with nutrition education, MNPs can improve linear growth and other child feeding practices (Lanou et al, 2019).

The provision of MNPs has the potential to contribute to improving nutrition, especially in countries with multi-layered complementary feeding challenges and countries in fragile settings. Malawi's national Multi-Sector Nutrition Strategic Plan 2018–2022 aims to promote home fortification of complementary foods with MNPs.

This article presents results from a participatory process review of Malawi's programme for improving complementary feeding through the introduction of local MNPs ('Ndisakanizeni'), which was piloted in two districts of the country.

Programme description

In 2016, the Ministry of Health, in collaboration with UNICEF, initiated a programme for improving the quality of complementary feeding through home fortification with MNPs and enhancing caregivers' understanding of optimal nutrition and standard infant and young child feeding (IYCF) practices. It was initially implemented for 18 months as a feasibility study in two districts: Nkhata Bay was chosen to represent hard-to-reach environments in Malawi, while Ntcheu was chosen as it had better access to services.

MNP distribution and nutrition counselling

The MNPs were distributed from a centralised location to the health facilities. Three distribution channels were used for bi-monthly delivery of MNPs and related nutrition counselling from the health facilities to the caregivers. These channels included routine delivery at the health facilities; growth monitoring sessions facilitated by health surveillance assistants (HSAs); and care group platforms conducted by volunteers (cluster leaders/promoters) in the community.

During the distribution, the caregivers were counselled to provide one MNP sachet every other day, or 3–4 sachets a week to be consumed by the children. One MNP sachet consisted of 15 micronutrients and vitamins, including vitamin A (400 µg), iron (10 mg) and zinc (4.1 mg).

Programme training

Programme implementers were trained using a cascading model, from national to community level. Training topics included nutrition and IYCF, complementary feeding and the proper use of MNPs, screening and enrolment, distribution, supervision, and reporting. Supportive monitoring was done at all levels, with more frequent supervision during the initial deployment and less frequently after six months.

Community awareness and sensitisation

Community leaders were sensitised at the traditional authority level through meetings with area development committees. Subsequently, community sensitisation meetings were conducted at group village level. Information, education and communication (IEC) materials were also produced and distributed (without pre-testing) to support training and counselling activities.

Methods of programme review

In August 2019, using a mixed methods participatory process review, we collected data from 600 caregivers of children aged 6–23 months from the two implementing districts. The observations from the two districts were ecologically compared¹ to gain insights on the effects of product delivery and the acceptability of the products. The sample size used was calculated to predict an MNP coverage of 37.5%, with a precision of ±7% and with a 95% confidence level. Using ENA software, we randomly selected 10 clusters at the health facility level in each district. In each health facility cluster, we then selected, also randomly, 30 grouped villages using a probability proportional sampling technique. One village was then randomly selected from each of the 30 grouped villages, and 10 caregivers with children aged 6–23 months were chosen from the selected villages.

The quantitative caregiver questionnaire comprised seven modules designed to assess utilisation, acceptability and adherence of the MNP product and programme, as well as IYCF knowledge and practices. Quantitative data were analysed using descriptive statistics. Chi-square and t-tests were used to compare MNP coverage, IYCF practices, utilisation and adherence according to district for ecological differentiation and generation of lessons to guide further implementation.

Qualitative data were collected through key informant interviews (n = 64), focus group discussions (n = 10) and direct observation at community, health facility, district, implementing partners and national levels. The qualitative questionnaire comprised semi-structured guides with open-ended questions, focus group discussions and checklists for direct observation.

Table 1 Comparison of MNP coverage indicators by district

	Ntcheu (n = 253)	Nkhata Bay (n = 282)	p-value
Report ever receiving a packet of MNP, N (%)	162 (64.0)	200 (70.9)	0.09
Report child ever consuming MNP with complementary foods, N (%)	152 (60.1)	199 (70.6)	0.01
Report child is still consuming MNP with complementary foods (among those who ever consumed MNP with complementary foods), N (%)	74 (48.7)	139 (69.9)	<0.0001

Table 2 Comparison of complementary feeding indicators according to MNP consumption

	Ever consumed MNP with complementary foods (n = 351)	Never consumed MNP with complementary foods (n = 184)	
Minimum Dietary Diversity (MDD ^a), N (%)	258 (73.5)	131 (71.2)	0.57
Number of food groups consumed (out of 7), Mean ± SD	4.41 ± 1.46	4.04 ± 1.59	<0.01
Minimum Meal Frequency (MMF ^b), N (%)	188 (54.8)	108 (60.0)	0.26
Minimum Acceptable Diet (MAD ^c), N (%)	143 (40.7)	79 (42.9)	0.62

^a Proportion of children aged 6–23 months who received foods from at least four food groups during the previous day

^b Proportion of breastfed and non-breastfed children aged 6–23 months who receive solid, semi-solid or soft foods (but also including milk foods for non-breastfed children) the minimum number of times or more

^c Proportion of children aged 6–23 months who had at least the MDD and the MMF during the previous day

Qualitative data were analysed using NVivo software. Data were organised into themes, for which a coding framework was developed.

All data collection tools were translated into the local language before validation by the MNP taskforce and data collection team and pre-tested in two health facilities that were not part of the intervention.

Results and outcomes Demographic characteristics

Of the 600 caregivers surveyed, 70% had obtained a primary school education and over 50% spoke Chichewa. Over half the children (51%) whose caregivers were interviewed were female and aged between 12 and 23 months.

Programme coverage, equity and delivery of MNPs to beneficiaries

Overall, more than 60% of the study participants in both districts reported ever receiving an MNP packet or their child ever consuming MNPs with complementary foods. Table 1 summarises the differences in coverage between the two districts. Coverage was significantly higher in Nkhata Bay compared to Ntcheu for children ever consuming MNP and children still consuming MNP. On the other hand, there were no observed significant differences in coverage based on demographic factors: child's sex, caregiver education and caregiver walking distance to health facility.

Programme implementers nevertheless revealed, through qualitative assessments, inequitable distribution of MNPs and of support to hard-to-reach areas because of access challenges resulting from fuel, terrain and human resource constraints.

More than 80% of the caregivers received MNPs from HSAs at growth monitoring sessions,

while 20% received them through the health facilities or care group promoters. All three channels of delivery were well accepted by the caregivers and programme implementers.

Complementary feeding practices and use of MNPs

Three complementary feeding indicators were assessed, and results showed that over 70% of the children in both districts achieved MDD. There was no significant difference in MDD, MAD or MMF between children who had ever consumed MNPs compared to children who had never consumed MNPs (Table 2). However, MNP consumption was positively associated with the consumption of a higher number of food groups. More children who were consuming MNPs were still being breastfed (95%) compared to children who had stopped consuming MNPs (85%).

Utilisation of micronutrient powders and adherence by caregivers

Caregivers found that MNPs were acceptable and compliance with the administration guidelines of MNPs was good; they reported that their child consumed an average of one sachet per day. Based on caregiver self-reporting, the *Ndisakanizeni* powder was rarely shared with non-eligible children (3%) or thrown away. However, about 40% of caregivers did not adhere to the mixing instructions, adding MNPs to food that was too hot or not mixing it homogeneously.

Effectiveness of community sensitisation on the utilisation of MNPs

Although poor retention of information by caregivers was mentioned, IEC materials were mostly perceived as useful and contributed to the high

¹ The ecological approach is understood as a method by which comparisons are measured at population/group level in different geographic regions or countries.



A demonstration of how to add MNPs to a child's food in Lilongwe, Malawi, 2022

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acceptability of MNPs and the dispelling of rumours. Of caregivers, 40% were aware of negative rumours surrounding MNPs, although only 11% decided not to use the *Ndisakanizeni* powder based on these rumours. HSAs were identified as the preferred communication channel for MNP messages by 80% of caregivers.

Programme training and implementation supervision

Programme implementers reported the two days of training received were too short and not comprehensive enough. Attendance was low. Only 47% and 43% of programme implementers reported attending and/or leading a cooking demonstration in Nkhata Bay and Ntcheu respectively. Overall, only 69% of caregivers received training on *Ndisakanizeni* powder, which was higher in Nkhata Bay (73.3%) than in Ntcheu (63%). In Nkhata Bay, supportive supervision was facilitated by partners (World Relief and Save the Children) through the provision of vehicles and other materials. The same support was not available in Ntcheu.

"Of course, the main problem why the health surveillance assistants are not being supervised is because we do not have enough resources. Although it is included in the work plan, how can we implement it without resources? There is no money set apart for supervision."

- The Hunger Project, Implementing Partner, Ntcheu

Lessons learned

This programme review highlighted several lessons that could be adapted to similar programmes, or emergency contexts in the future.

Successes

The programme reached equitable coverage in terms of child sex, caregiver education levels and caregiver walking distance to the health facility. The latter reflects the widespread use (80%) of community outreach sessions to distribute MNPs.

The combination of different channels of distribution (growth monitoring sessions, care group promoters or health facilities) was positively perceived by the caregivers and implementers and found to be an effective approach given the strengths and weaknesses of each channel – these findings are in line with micronutrient distribution in Cambodia, as featured in Field Exchange issue 59², where a combination of channels increased coverage and cost effectiveness. The diversity of distribution channels was also considered a means to lower the risk of distribution channel collapse in case of an emergency.

The programme was effective in empowering the programme extension workers and the caregivers. The extension workers showed high knowledge retention on the use of MNPs and IYCF, and caregivers mostly administered the MNPs according to instructions. Overall, there were positive attitudes and perceptions about the programme among caregivers. Although rumours made their way to the communities, they had little effect on the decisions made by the caregivers to feed *Ndisakanizeni* powder to their children.

Challenges

Programme implementers reported more district-level supportive supervision, community-level cooking demonstrations and attendance at caregiver trainings in Nkhata Bay compared to Ntcheu, which could be contributing factors to the observed differences in coverage between the two districts. This is despite Ntcheu being chosen as a district with better access to services.

Across both districts, several challenges and gaps were identified in both programme conception/design and implementation/programme delivery. These gaps represented missed opportunities to promote community engagement, sustainability, and ownership. Challenges included poor supply chain management, gaps in capacity building and supervision and weakness in the integration of the MNP programme into other IYCF programmes. Addressing these challenges is important, not only to ensure the quality of

the programme but also to strengthen the resilience of the programme to possible shocks.

Conclusion

This programme for improving the quality of complementary feeding through home fortification with MNPs showed encouraging initial results. This participatory review has provided useful lessons on strengthening the programme to potentially contribute to improving complementary feeding practices while ensuring the system in place can remain functioning in case of an emergency.

Overall, the programme was well received by the target population. However, this study illustrated the implementation challenges that need to be overcome to ensure optimum uptake of MNPs and improve complementary feeding practices. A weak delivery system might easily reduce MNP distribution, coverage, uptake and level of complementary feeding and diversification. The uptake could have been better in both districts had there been adequate and regular capacity building and supervision of implementers to ensure high-quality messaging; a pre-tested, integrated social behavioural change communication approach; sufficient, uniform logistical support; and strengthened supply chain management.

For more information, please contact John Phuka at johnphuka@gmail.com

² <https://www.enonline.net/fex/59/micronutrientcambodia>

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The bond between the caregiver and children was enhanced during the food introduction and sensory workshops. Brazil, 2022

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Field Article

Supporting positive young child feeding practices among Venezuelan migrants and refugees living in Brazil

Eduardo Stramandinoli Moreno is a Consultant for Health and Nutrition in Emergencies for UNICEF-Brazil.

Daiana Albino Pena is a Health and Nutrition Officer for UNICEF-Brazil.

Fabrizio Pellicelli is the Regional Manager at Volunteer Association for International Service.

Larissa Mello is a Project Manager at Volunteer Association for International Service.

Maria Paula de Albuquerque is a General Clinical Manager at the Centre of Recovery and Nutritional Education

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Special section

Complementary feeding in emergencies

KEY MESSAGES

- This article describes the “participatory kitchens” that were established in three shelters in Brazil to support positive infant and young child feeding practices among Venezuelan migrants and refugees.
- The organisation of a network of potential local food producers and suppliers has allowed for the provision of higher-quality and lower-cost food to shelters for refugees and migrants and promotes the local economy within the context of a humanitarian crisis.
- In emergency contexts and humanitarian crises, the promotion of healthy eating behaviours in spaces such as shelters for refugees and migrants must consider the cultural specificities of each group and their need for appropriate spaces and structures for the preparation and consumption of healthy food.

Background

The state of Roraima in Brazil has experienced a high influx of refugees and migrants from Venezuela. Roraima has been the primary target of activities developed by UNICEF and its partners. These initiatives have mainly focused on the implementation of primary health care services, including nutrition, in official shelters; informal settlements; and Local Health Facilities in the most affected municipalities (Boa Vista and Pacaraima). Currently, Roraima has nine shelters for migrants and refugees from Venezuela, which are managed by the Ministry of Citizenship, the United Nations High Commission for Refugees and its partner organisations. Shelters are vital services for the health and well-being of refugees and migrants. When managed well, they can contribute to restoring self-reliance, dignity, and nutritional recovery. Most people stay for an average period of four months, although often much longer. After leaving the shelters, some families are relocated to other states in Brazil, following a national programme of integration; others decide to stay in Roraima, living outside shelters.

There is a high level of malnutrition among Venezuelan refugees and migrants, with a recent survey finding that 11% and 3% of children under the age of five were moderately and severely wasted respectively. The same survey found that 18% of children under the age of five were stunted (UNICEF, 2022). Roraima has no formal food security strategy for refugees and migrants. In the shelters, families are provided with three meals per day. However, the family food ration has low dietary diversity due to the lack of local food suppliers, and does not consider the specific needs of young children.

In response to this gap in the family food ration, and building on our commitment to children, we have developed an intervention to support the feeding of infants and young children aged 0-24 months by establishing “participatory kitchens”, engaging with the existing community.

Participatory kitchens

The participatory kitchens pilot project was implemented between January and May 2021 in three shelters in Boa Vista Municipality in Roraima. The project was implemented in partnership with UNICEF Brazil, the Volunteer Association for International Service (in Portuguese: Associação Voluntários para o serviço internacional – Brasil), and the Center for Nutritional Recovery and Education (in Portuguese: Centro para Recuperação e Educação Nutricional), and financed by the United States Department of State's Office for Population, Refugees and Migration. It aimed to empower caregivers to prepare adequate complementary food using existing and accessible food, thus contributing to improved access to adequate food within the context of a refugee crisis.

Formative research

We identified and interviewed a network of local suppliers that could potentially contribute to the participatory kitchens with the support of local humanitarian agencies (Table 1). We interviewed nutrition professionals working at the shelters, local humanitarian organisations, and caregivers to inform the design of the participatory kitchens model and provide insights into the nutritional needs and dietary habits of Venezuelan children. In total, 156 interviews and focus groups were held with 82 caregivers living in the shelters.

Of the caregivers interviewed, 89% indicated that they would use the

Table 1 Potential collaborations for the participatory kitchens

Type of organisation	Potential for contribution
Farmers' Associations, local markets and supermarkets	Donating food or providing food at a reduced cost
Federal University of Roraima	Free training on food production in a community garden and facilitating possible partnerships with local cooperatives
Private organisations from the food industry sector	Training in the areas of food production, food safety, and the establishment and maintenance of vegetable gardens; possibility of including community kitchens as beneficiaries entitled to receive donations
Boa Vista Municipality – managers	Funding the technical nutrition team that provides project supervision, helping ensure the sustainability of the project; an opportunity for the project to be a beneficiary of the Food Acquisition Program
Secretary of Agriculture and Social Management	Allocation of land for the development of a community garden, and allocation of inputs for planting and maintenance
Operation Welcome ("Operação Acolhida"), conducted by the Brazilian government/Army	The project could be integrated into formal national programmes of integration, such as Operação Acolhida. The training of caregivers of children could become a livelihood strategy and contribute to caregivers' integration into Brazilian society

kitchen to prepare food for their children and 90% stated they would accept additional responsibilities such as cleaning and distributing meals. The challenges identified were that 53% of caregivers had more than three children, 41% were single mothers, and 46% had no one to look after their children while they were outside the home. Through the interviews and focus group discussions, it was identified that one caregiver should be available daily for the role of meal preparation for every 20 children, and at least one caregiver should be available to clean the space. These would be rotating activities in which different caregivers would participate each day. We found that supervision of the kitchen by a single nutrition professional and the provision of a logistical technician was achievable at all shelters.

Implementation

Participatory kitchens were fully equipped and established inside three shelters to facilitate the participation of caregivers and ownership of the project. In this pilot phase, the three kitchens covered a catchment of five shelters. Caregivers from all five shelters participated in kitchen activities, with participation dependent on the kitchen's capacity and the shelter's COVID-19 protocols. A management model for the kitchens and food distribution was defined in partnership with the project staff (a nutrition coordinator, two nutritionists, and two qualified nutrition technicians), managers, and caregivers of each shelter. A local committee system composed of caregivers that focused on infant and young child feeding was established

in each of five shelters to periodically discuss parental care, food preparation and hygiene, and logistics for the distribution of meals. It was established that the average monthly logistical cost of the project was USD 1,000 for the three participatory kitchens. However, this amount did vary depending on the size of the target population, the geographical conditions, and local political and social issues. The final cost for including one balanced complementary meal for children aged 6–24 months in each shelter was USD 1.5 per child per day – 40% lower than the cost incurred by the shelter management services pre-intervention.

Workshops and training

Three main forms of training took place within the project.

Caregiver training

Groups of up to 10 caregivers of children aged 0–24 months were established, with each group attending a total of five workshops. Each workshop covered a different theme relating to infant and young child feeding, with several sessions promoting the tasting of new and local foods to stimulate the senses of smell and taste. To promote greater engagement in the workshops, following practical demonstrations, caregivers created a symbolic craft work ("concrete gesture") and facilitated periods of relaxation to the sound of soft music. Table 2 describes the main themes of the five workshops, as well as the "concrete gestures" created in each workshop. Supporting material for participants were prepared in Spanish and Portuguese; they contained simplified information on infant and young child feeding and a menu of culturally adapted recipes using accessible local healthy foods and ingredients.

Caregiver training with certification

A partnership was made with private organisations to provide an additional professional course on safe food handling practices (comprising a workload of 20 hours). On completion of the course, caregivers were provided with a certificate that is valid throughout Brazil.

Training for health professionals

Additionally, workshops on nutrition during the first 1,000 days were conducted, targeting nutritionists and community health workers from different agencies working on the humanitarian response. The approach focused on increasing basic technical knowledge and showcasing alternative methods for conducting infant and young child feeding counselling during routine services. The training composed of four modules of two hours, applied weekly. The course covered four main topics: counselling on feeding practices that are responsive to identified needs; pregnancy and breastfeeding; the introduction of food items during complementary feeding; and nutritional surveillance in emergencies.

Table 2 Topics covered in participatory workshops, targeted at caregivers of children aged 0–24 months

Main theme	Concrete gesture
The first 1,000 days	Planting a seed: Each participant was given a plastic cup with a piece of cotton and bean seed to plant. The group discussed the need to care for the seed so that it would germinate and grow, and how this could represent the care children must receive to thrive
Breastfeeding	Building a mandala (a geometric symbol): Each participant produced a mandala called "The God's Eye". This symbol originates in Latin American indigenous traditions and symbolises a child's care, protection, and good fortune
Introduction of complementary foods	"Secret Santa" activity: Healthy complementary foods were presented to the children so they could become accustomed to the texture, shape, and appearance of these foods. At the end of the sessions, each participant chose a fruit or vegetable to gift to someone else in the group, and was asked to reflect on why they had chosen their specific fruit or vegetable as a gift
Brazil's nutrition guidelines and tools for children under the age of two	Creating a meal: Each participant designed a plate of food using their recently acquired knowledge on complementary feeding. The plate had to include one food from each food group. This activity was adapted from the activity commonly used in nutrition education called "My Plate" ¹
Great Meal	The Great Meal: To put into practice content from the previous sessions, a big meal was prepared and served to all children in the shelter

¹ <https://www.myplate.gov/>

Successes, challenges, and lessons learned

Successes

The realisation of this pilot project represented an important achievement for the partnership between UNICEF Brazil, the Volunteer Association for International Service, and the Center for Nutritional Recovery and Education.

For the first type of training, 159 caregivers (98.7% female) participated in five workshop sessions (shown in Table 1). Ninety-nine (62.2%) caregivers participated in the professional training on safe food handling practices and were certified. For the third type of training, 52 health and humanitarian professionals were trained.

Pre- and post-evaluations were conducted with caregivers who attended the workshops to assess the extent to which they understood key themes and information and to measure the impact of the workshops. Pre-intervention, misconceptions about complementary feeding were common. Caregivers were uncertain about the right time to introduce complementary food, and about what foods should be given to a child given the restricted food available in the shelters. Post-intervention, it was observed that caregivers had a better understanding of positive infant and young child feeding practices.

Identification and engagement of different local food providers was a simple way to source healthy low-cost food rations in a context where no food security strategy was previously in place. The project identified a network of food suppliers that would allow for potential offers of free food from local food suppliers in future phases of the project. Engagement with small local producers might promote a more localised supply chain and a positive economic legacy of the migration crisis in the host community.

The co-management model for the participatory kitchens was more efficient when implemented through an integrated structure including representatives of the community, humanitarian agencies, and the formal managers of the shelters. It verified the importance of investing in the engagement of stakeholders throughout the entire system, a good illustration of which was through the rotation of caregivers for food preparation.

There was a high level of engagement in workshops. Participants were interested in the activities and followed each meeting with care and motivation. Sensory aspects of the workshops, in which children were able to have contact with *in natura* food (natural forms of food), proved to be an important initiative in the shelters where the environment did not allow for responsive feeding.

Professional training on safe food handling practices was important for broadening the knowledge of the caregivers and enhancing their possibilities of being formally employed

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Sensory workshops allow the presentation of foods in natural forms to children living in shelters. Brazil, 2022

in Brazil. This project has the potential to be integrated into formal integration programmes such as Operação Acolhida, encouraging the training of caregivers of children as a livelihood strategy and thus contributing to their adaptation to Brazilian society.

Adherence to the shelter's water, sanitation, and hygiene measures in the kitchens was essential to maintaining hygienic and safe food preparation.

Existing activities for children run by the education sector in the shelter made it possible for caregivers to participate in co-management activities, showcasing the potential for inter-agency and intersectoral collaboration within the shelters.

Challenges

The evaluation showed that the workshops contributed to a better understanding and promotion of positive complementary feeding practices, which can consequently improve the growth and development of children in the first two years of life (a fundamental phase in the formation of eating habits). However, a significant proportion of participants still had doubts about some themes, highlighting the need for culturally sensitive approaches and of more time for discussions.

The co-management of participatory kitchens involves a risk of conflict between beneficiaries if the model's design does not promote the engagement of the community and its leaders from the beginning. To mitigate this risk, the local committee system was established and worked as a mechanism to involve the community in all decision-making processes. This model has the potential to increase community ownership of the project and empower committee members to become agents of change.

The lack of financial resources to support humanitarian aid (and specifically nutrition) in emergencies in the context of the migration humanitarian crisis in Brazil has been a constant challenge that has impeded the continuation of this project. Integration of this project into public policies depends on the resolution of political issues and interest at the local, federal, and international level.

Conclusion

The pilot project's development and the kitchens' rehabilitation empowered caregivers to prepare healthier meals for their children. The workshops contributed to increasing the knowledge of the caregivers on positive infant and young child feeding practices and promoted healthy eating among refugee and migrant children. Despite the difficulties in funding, UNICEF Brazil continues to seek funds and promote healthy eating in the context of the Venezuelan migration crisis. We continue to promote initiatives such as this to raise awareness among local shelter managers about the importance of putting communities at the centre of their feeding habits and to promote the food security and social-economic benefits of integrating nutrition programmes into emergency responses. The co-managed participatory kitchens provide a model that could be adapted and replicated in other humanitarian contexts.

For more information, please contact Eduardo Moreno at estramandinoli@unicef.org

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Cash transfers and health education to address young child diets in Kenya

A community Health Worker counselling a NICHE beneficiary on nutrition in her home in Turkana county, Kenya, 2022



Chloe Angood is a Knowledge Management for Nutrition Consultant for the UNICEF

Eastern and Southern Africa Regional Office (ESARO).



Penjani Kamudoni is a Nutrition Specialist for the UNICEF Kenya country office.



George Kinyanjui is a Social Policy Specialist for UNICEF Kenya country office.

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KEY MESSAGES

- Providing cash alongside nutrition counselling can enable vulnerable populations to adopt positive nutrition practices, avoid negative coping mechanisms in case of shocks and improve the diets of young children.
- The joint targeting of social protection and nutrition services depends on strong system linkages at programme level. This is greatly facilitated by the complementarity between social protection and nutrition policies and strategies, comprehensive training of different staff cadres, operational guidance that details specific roles and responsibilities, and common registration and information management systems.
- The scale of the current nutrition crisis in Kenya suggests that further system strengthening is urgently needed to enable rapid response to future climate-related shocks and food insecurity.

Background

Improving the diet of young children through linked cash and nutrition programmes

Social protection is a key delivery system for improving nutrition because social protection interventions such as cash transfer programmes, by improving income and increasing assets, have the potential to empower female caregivers, increase access to and availability of diverse foods, increase uptake of positive nutrition practices and improve access to nutrition and other services (Table 1). These are critical factors along the impact pathway to improved child diets, childcare and, ultimately, improved nutrition. For this reason, increasing the "nutrition sensitivity" of social protection interventions is a key priority for improving the diet of young children, as laid out in UNICEF's complementary feeding guidance (UNICEF, 2020). Recent evidence suggests that cash transfer programmes can reduce child stunting, wasting and diarrhoea incidence, although the effects are heterogeneous

and small overall. The effects of increasing the consumption of animal source foods, improving diet diversity, and reducing diarrhoea incidence have been more pronounced (Manley et al, 2022). Cash transfers are more likely to improve the diet of young children if they are accompanied by complementary interventions, or "cash plus" elements, such as behaviour change communication (BCC), and if they link participants to other services such as health and livelihoods (Manley et al, 2022; Little et al, 2021).

Nutrition situation of young children in Kenya

As of February 2022, following five consecutive poor seasonal rainfall performances, 3.5 million people residing in Kenya's Arid and Semi-Arid Lands (ASAL) were severely food insecure. Although the levels of stunting and wasting have fallen in recent years, both remain high at 26% and 7% respectively. While 99% of children are breastfed in Kenya, only 22% of children aged 6–23 months are estimated to receive a mini-

mum acceptable diet (MAD) (KNBS, 2015). This proportion falls to 3% in the highly food insecure North-Eastern region (KNBS, 2015). Poor diet quality is driven by poverty and food insecurity, as well as poor young child feeding and caring practices. To provide a comprehensive solution to this multifaceted problem, integrated social protection and nutrition strategies are required to ensure the optimal growth, development and well-being of young children.

Social protection policy and programmes in Kenya

Much progress has been made in recent years to develop a comprehensive social protection system in Kenya to mitigate poverty among the most vulnerable sections of society. Guided by the 2011 National Social Protection Policy, the current system is arranged around the four pillars of income security (including social assistance), social health protection, shock responsiveness and complementary programmes. The main platform for government social assistance is the National Safety Net Programme (NSNP), managed by the Social Assistance Unit, which targets cash transfers at different stages of the lifecycle (Table 2). The Hunger Safety Net Programme (HSNP), under the National Drought Management Authority (NDMA), targets additional cash transfers at poor households vulnerable to drought in ASAL counties. The HSNP provides a regular bimonthly cash transfer of KES 5,400 (USD 48) to 100,000 households, which is scaled up to over 270,000 households in response to shocks (with planned expansion to more). Under the fourth “complementary programmes” pillar of the social protection system, the government aims to provide a range of complementary programmes in addition to cash transfers to support the development and productive capacity of vulnerable sections of society. The main nutrition intervention under this pillar is the Nutrition Improvements through Cash and Health Education (NICHE) programme.

NICHE pilot programme (2016–18) – Phase 1

In 2016, UNICEF partnered with county governments, with funding from the European Union Supporting Horn of Africa Resilience in Kenya programme, to implement the NICHE pilot. NICHE aimed to bring together relevant government departments and stakeholders to address multiple vulnerabilities in extremely poor households in Kitui County and parts of Machakos County (two counties with very high levels of stunting). The NICHE pilot targeted all households receiving CT-OVC (Table 2) with either a pregnant woman and/or a child under the age of two (3,800 households). In addition to the regular CT-OVC cash transfer, recipients received a bimonthly cash top-up of KES 500 (USD 5) per child and/or pregnant woman for up to two household members (a maximum of KES 1,000, or USD 10, per household) and nutrition counselling. The counselling emphasised iron/folic acid supplementation during pregnancy, exclusive breastfeeding for the first six months, appropriate complementary feeding, vitamin A sup-

Table 1 Pathways of enhancing nutrition through social protection

Pathway	Importance	How social protection helps tackle malnutrition
Household food security - Diet quality - Quantity of food available and accessible - Economic vulnerability	Assured access to and consumption of enough nutritious food to live an active healthy life	Improving income, food access and increasing assets
Caring practices for women and children - Women's education - Empowerment - Infant and young child feeding - Health-seeking behaviour	Pregnancy and lactation are critical junctures for good-quality care and support	Targeting nutritionally vulnerable populations through the 1,000-days approach ¹
Health services and environment - Access to shelter - Access to and use of good-quality health services - Access to and use of safe water - Access to and use of sanitation facilities for disposing of human waste	Conditions that expose children to pathogens and the use of preventive and curative healthcare	Promoting improvement, access and delivery of health and sanitation services

plementation, growth monitoring, the use of oral rehydration solution (ORS) when children were sick and kitchen gardening and small livestock production. Community Health Volunteers (CHVs) trained by the Ministry of Health (MoH) delivered the nutrition counselling through weekly household visits. In select areas, child protection group sessions were also delivered by Child Protection Volunteers. By simultaneously providing cash transfers and nutrition and parenting counselling, the project aimed to address the lack of access to nutritious food and poor young child feeding practices to improve the diet of young children.

An evaluation set up as a randomised control trial measured the impact of the programme compared to control households receiving standard CT-OVC cash transfers only. The results showed minimal positive changes in stunting reduction, likely due to the short duration of the project and the multiple drivers of stunting. However, the programme had a strong, significant impact on child diets, demonstrated by a 44% increase in children achieving a MAD. Other indicators along the nutrition impact pathway were also improved, including the treatment of drinking water (+40%), the use of household handwashing facilities (+29%), early initiation of breastfeeding (+8%) and exclusive breastfeeding (+7%) (Guyatt et al, 2018).

Qualitative data revealed that counselling sessions were relevant to participants and that

learning translated into changes in infant and young child feeding and livelihoods behaviours, especially planting kitchen gardens and purchasing small livestock. Reported problems included difficulties accessing cash through banks, cash transfer values being too low to make desired changes and communication difficulties with programme implementers and CHVs when problems arose (Guyatt et al, 2018).

Expanded NICHE (2019–2022) – Phase 2

Based on findings from the initial pilot, the Government of Kenya (GoK) has now scaled up NICHE in five stunting “hotspot” counties (Kitui, Marsabit, West Pokot, Turkana and Kilifi). This phase is being implemented and funded by GoK, with support from the World Bank and the UK Foreign, Commonwealth and Development Office (FCDO) for the first five years. UNICEF and partners are providing technical support for the first three years, with a view to full government ownership and implementation from the fourth year onwards.

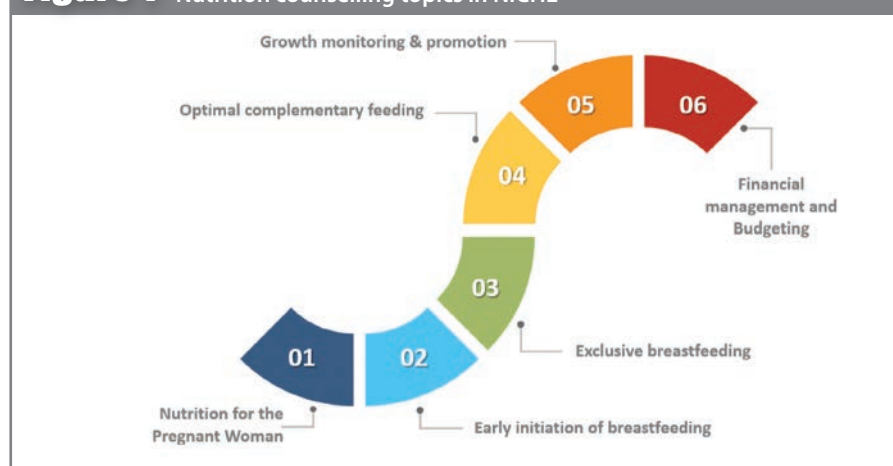
In this phase, households with a child under the age of two and/or a pregnant woman that are registered to receive any NSNP cash transfer (Table 2) and/or the HSNP are targeted with nutrition counselling and a bimonthly cash top-up of up to KES 500 per beneficiary for up to two household members (a maximum of KES 1,000, or USD 10, per household). Cash top-ups are provided alongside routine payments. Eligible households are identified using NSNP and HSNP recipient

Table 2 NSNP cash transfers

Name of cash transfer	Recipient criteria	Benefit level	Coverage
Older Persons Cash Transfer (OP-CT)	Any Kenyan citizen above 70 years of age	KES 2,000 (USD 18) per month	203,011 individuals
Cash Transfers for Orphans and Vulnerable Children (CT-OVC)	Poor households caring for orphans or other vulnerable children	KES 2,000 (USD 18) per month	246,000 households
Persons With Severe Disability Cash Transfer (PWD-CT)	Poor households caring for a child or adult living with a severe disability	KES 2,000 (USD 18) per month	45,505 individuals

¹ <http://www.socialprotection.or.ke/> (accessed 19 January 2022)

Figure 1 Nutrition counselling topics in NICHE



lists and validated through a process of community identification with continuous/on-demand registration. A digital management information system was developed within the existing information system for the NSNP and HSNP to support registration and results tracking and to report on performance indicators. The NICHE digital management information system is also interoperable with the Kenya Health Information System.

Nutrition counselling is delivered through the Baby Friendly Community Initiative approach, an MoH initiative that aims to strengthen routine community nutrition services. CHVs deliver counselling on a range of topics (Figure 2) during fortnightly home visits, whilst supported by Community Health Extension Workers (CHEWs), and mothers also participate in community mother support groups. A social BCC strategy and materials have been developed to support these activities. In Kilifi, NICHE households also receive counselling in positive parenting practices to support child protection outcomes to pilot this approach, with a view to expand this feature to all other participating counties.

Top-up cash payments began in July 2021 to cover the period between March and April of the same year. By the end of 2021, over 12,000 households in 15 sub-counties were enrolled in the NICHE programme? Training has since been rolled out to CHEWs and CHVs, who are now implementing the counselling component. In response to the current food insecurity crisis in programme areas, CHVs have also been trained to provide mid-upper arm circumference screening for the early detection and referral of wasted children.

Implementation, workforce and delivery mechanisms to support nutrition-sensitive social protection

Several implementation challenges were identified during the evaluation of the NICHE pilot (2016–18). These included difficulties managing programme entry and exit for recipients given the short nature of the target period (from pregnancy up to the child's second birthday); false reporting of behaviours; CHVs not initially visit-

ing all households (this was improved through closer management); falsification of household reports by CHVs; and out-of-date government information leading to difficulties in identifying eligible households.

Design changes were made to the second phase to overcome these challenges. An improved system for identifying and enrolling recipients is now being used, supported by the new digital information management system, to enable swift programme entry and exit. An operations manual has been developed for programme staff to support standardised as well as enhanced implementation. This also builds the capacity of government field personnel to sustain implementation in the absence of UNICEF technical assistance. The capacity of GoK's health workforce has also been built by training CHEWs as trainers, who then cascade training to all CHVs in the area.

A formative evaluation of Phase 2 showed high programme performance on the cash transfer side, with funds being transferred regularly and on time. However, there is evidence that the cash transfer value is too small to impact household behaviours. Evidence also suggests the need for further integration between social protection, health and nutrition staff at sub-national levels to fully link cash transfers with nutrition counselling and other sectoral services. This is now being actioned.

Key lessons learned

- Providing cash alongside sustained nutrition counselling has enabled vulnerable populations to adopt positive nutritional practices by raising awareness of, and improving access to, nutritious foods.
- Multi-sectoral coordination bodies at national and devolved levels can help facilitate coordination and integration between health and social protection systems.
- Aligning integrated social protection and nutrition programmes with the strategies of each sector and ensuring complementarity between sector policies and strategies are key enablers of joint programming.
- Joint targeting of social protection and

nutrition services depends on strong system linkages at the programme level. This is greatly facilitated by common digital registration and management information systems.

- Programme-level integration between health and social protection can be supported through the comprehensive training of different staff cadres and by providing operational guidance that details specific roles and responsibilities.
- Nutrition-sensitive social assistance programmes are more likely to achieve desired nutrition impact when cash transfers are of sufficient value and paid on time. The social protection system may need strengthening to achieve this, including the preparation of strategies to secure sustainable financing.
- While the social protection system in Kenya has provisions to scale up in response to shocks, the scale of the current food insecurity crisis in the ASAL regions suggests that further system strengthening is urgently needed to avert future nutrition emergencies.

Conclusion and next steps

The NICHE pilot proved to be an effective way to address multiple vulnerabilities in extremely poor and nutritionally vulnerable households in Kenya, with clear evidence that this resulted in improved diets for young children. The scale-up of NICHE is underway. A strong evaluation and learning component, including a cost-effectiveness study, will generate evidence to inform further scale-up and the full integration of the programme into routine systems following this phase. The scale of the current food insecurity crisis in the ASAL regions of the country threatens to reverse these gains and reveals the urgent need to strengthen the capacity of the social protection system to surge in response to shocks. As further climatic shocks become inevitable, further integration of social protection and nutrition, as well as strengthened capacity to scale up support to households both vertically and horizontally, will become central to protecting the diets and growth of young children in Kenya.

For more information, please contact Chloe Angood at cangood@unicef.org

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Community peer support groups: Improving infant and young child feeding in Pakistan

This is a summary of the following report: *UNICEF (2022) Research study on the role of community-based peer support groups in the promotion of infant and young child feeding practices*. Unpublished.

With almost 40% of children being stunted, 29% underweight, and 17.7% wasted, Pakistan faces one of the highest burdens of malnutrition in Asia. Among other things, a lack of awareness amongst caregivers surrounding adequate infant and young child feeding (IYCF) practices has been identified as a key contributing factor. To remedy this, a combined approach that engages mothers and fathers, as well as providing social support, appears to be a promising strategy to encourage optimal feeding. The theory behind this approach is to engage these key influencers of a child's diet and create a positive social environment which can be more successful in changing behaviours than programmes that focus on mothers' knowledge alone.

A desk review, combined with in-depth interviews and focus group discussions, was undertaken to explore three specific objectives in the rural communities of Peshawar, KP and the drought affected communities in Tharparkar, Sindh: 1) The role of lady health workers in IYCF promotion, 2) the extent to which mother- and father- support groups have sensitised communities to the importance of the stages of breastfeeding and complementary feeding, 3) to examine other practices that have been adopted to sensitise local communities on IYCF.

Findings from focus group discussions indicated the positive role that lady health workers play in promoting IYCF which has been appreciated by communities. In particular, lady health workers helped to clear the myths and misconceptions that were passed from generation to generation such as discarding colostrum. It was noted, however, that the overall numbers of lady health workers are limited, compromising effective coverage in all areas.

Support groups were also found to be beneficial although aspects of the selection and training of group members, the frequency of meetings and the learning materials provided were highlighted as needing improvement. Other sensitisation practices adopted were found to be limited, although some cooking sessions and telephone calls were used by some.

In terms of knowledge of optimal IYCF practices, the findings indicated some confusion around when to initiate breastfeeding, with the terms 'within' and 'after' half an hour of birth creating uncertainty. The World Health Organization (WHO) guideline of exclusive breastfeeding within the first six months of life was, however, well understood by communities. Father support groups felt that breastfeeding should continue for one year whereas mother support groups correctly recalled the WHO guideline of two years of continued breastfeeding. Some fathers thought that exclusive breastfeeding was not needed if nutritious food was available, contrary to global health advice. Although awareness of complementary feeding after six months was strong, most respondents had limited knowledge around minimum dietary diversity, minimum meal frequency, and minimum acceptable diet. Biscuits with tea and roti with chilli powder and oil were mentioned as acceptable complementary foods, highlighting a critical knowledge gap.

The report identified six recommendations to improve IYCF in the region: greater provision of printed learning materials, financial incentives to support group members, using different sources of community sensitisation other than face-to-face sessions (cooking demonstrations, recipes, apps/ phones etc.), improving the performance of community workers (e.g., greater pay, reduced workloads, logistical support), the formation of father support groups in areas that do not have them, and more regular support group meetings.

Ukraine crisis: Organisational guidance for the feeding of children aged six months to two years

A mother with her child at a voucher distribution in Chernihiv city, Ukraine



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This is a summary of the following report: *IFE Core Group, Global Nutrition Cluster, UNICEF & World Food Programme (2022) Guidance for organizations supporting the feeding of children aged 6-months to 2-years in the context of the Ukraine crisis*.

<https://reliefweb.int/report/ukraine/guidance-organizations-supporting-feeding-children-aged-6-months-2-years-context-ukraine-crisis-may-2022>

In May 2022, the Infant Feeding in Emergencies Core Group, the Global Nutrition Cluster, UNICEF, and the World Food Programme issued joint guidance for organisations supporting the feeding of children aged 6-24 months. The guidance was issued to reinforce the notion that the complementary feeding period remains critical for child development as the 6-month mark represents a time when child energy and nutrient needs begin to exceed that which can be provided by breast milk alone. For adequate complementary feeding, a diverse array of foods in appropriate quantities is required. In Ukraine, access to these specific foods is likely to be disrupted due to market impacts, shop closures, and reduced means to both purchase and prepare foods.

The guidance highlights that organisations should consider contextual factors when providing food assistance, namely the safe availability of nutrient-rich foods in the market, the cultural appropriateness and acceptability for the age group, access to fuel, equipment, utensils and facilities to prepare and offer food to young children, access to clean water for both drinking and food preparation, a clean environment, for hygienic food storage and preparation, and mobility, specifically whether families are stationary or in transit due to the evolving security situation.

The guidance also details what to include in a food assistance package and how much food to provide, calculated based on the energy and nutrient requirements for young children. In addition, it highlights what support activities, services, and supplies can be provided to ensure the beneficiaries are well informed and able to access any additional practical support needed.

The document also outlines five key items that should not be provided in emergencies – foods in feeding bottles due to possible hygiene risks, foods that may cause choking hazards such as whole nuts, powder milk or infant formula as widespread use undermines the uptake of breastfeeding which is the optimal feeding strategy for this age group, foods labelled for children less than six months of age as they may be nutritionally inadequate, and foods and drinks that have a low nutrient value such as high salt soups, noodles, deep fried foods, salty snack foods, cakes, sweets, sugar-sweetened beverages, sweetened fruit puree, or sweetened breakfast cereals.

Poor usability of predictive models for estimating the burden of wasting in crisis-affected countries

This is a summary of the following paper: *Checchi F, Frison S, Warsame A, Abebe KT, Achen J, Ategbo EA et al (2022) Can we predict the burden of wasting in crisis-affected countries? Findings from Somalia and South Sudan. Research Square.*

<https://doi.org/10.21203/rs.3.rs-1250806/v1>

In crisis-affected settings, wasting poses a substantial threat to mortality, health and development as well as being a broader indicator of crisis severity. Information on the burden of child wasting contributes to assessing progress towards national and global targets, identifying appropriate packages of food security and nutritional services, estimating resource needs and monitoring the performance of services as well as detecting changes in crisis severity. Cross-sectional anthropometric surveys among children 6-59 months of age, along with facility-based and programmatic data, are a primary source of nutritional surveillance in crisis settings. However, they are burdensome, have limited geographical coverage and often do not provide adequately timely and granular information.

This article explored the potential of complementing surveys with predictive statistical models of wasting burden in two crisis-affected countries, Somalia and South Sudan. For each country, programmatic datasets collected by humanitarian and government actors on theoretical predictors of wasting (including insecurity, displacement, food insecurity, access to services and epidemic occurrence) were combined with datasets from household anthropometric surveys. The ability of generalised linear models and machine learning random effects forest plots to predict the risk of wasting and severe wasting, based on binary and continuous estimates of weight-for-height and mid-upper-arm circumference (MUAC), was assessed.

In Somalia, livelihood type, measles incidence, vegetation index and water price were identified as important predictors of wasting. In South Sudan, important predictors included livelihood, rainfall and terms of trade (purchasing power). While the predictive accuracy was better for outcomes based on weight-for-height than on MUAC, the overall performance of both statistical methods was low. This may have been contributed to by the range and quality of the data used, with an absence of data on key factors including infant and young child feeding practices, the use of food security coping strategies, dietary diversity, access to water, sanitation and hygiene services and health service utilisation.

At this stage, findings from this article do not support predictive modelling as a viable alternative to ground surveys for estimating the burden of wasting in crisis settings. However, the potential of such an approach warrants further evaluation with larger datasets across multiple settings.



Pregnant women attends an antenatal clinic at a Primary Health Care Centre in Uganda

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Child stunting starts in utero: Growth trajectories and determinants in Ugandan infants

This is a summary of the following paper: *Namirembe G, Ghosh S, Ausman L et al (2022) Child stunting starts in utero: Growth trajectories and determinants in Ugandan infants. Maternal & Child Nutrition, 18, 3 <https://pubmed.ncbi.nlm.nih.gov/35488408/>*

The prevalence of stunting remains a global public health problem – particularly in Africa. In Uganda, the prevalence of stunting among preschool children was estimated to be almost 28% in 2020. Understanding the risk factors for stunting is critical to address this challenge. However, most evidence generated to date has been observational in nature and thus, patterns over time or within group variations cannot be fully examined.

In this study, longitudinal data from the Uganda Birth Cohort Study (n = 4,528) was used to understand the relationship between pre- and post-natal risk factors and observed patterns of growth across different groups of children. The authors argued that the rates of growth and the impacts of associated risk factors are not homogenous at each time point when a young child is measured. Group-based trajectory modelling was used to explore this hypothesis to understand why some children recovered from stunting while others remained stunted in their first year of life.

Multinomial regression modelling was conducted to understand the relationship between the risk factors and the observed patterns across the groups. The risk factors that were explored included maternal education, height, age, distance to a water source, food insecurity, exclusive breastfeeding and a child's diet diversity, preterm birth (gestational age <37 weeks), and birth weight. Sub-analysis also assessed the effects of human immunodeficiency virus (HIV) status, maternal aflatoxin exposure, maternal iron, and maternal vitamin A status.

The study found that the onset of stunting occurred before birth and followed four distinct growth patterns: chronically stunted infants who were born stunted and remained stunted at 12 months of age (Group 1), recovery infants who were born stunted but recovered by the fourth month (Group 2), borderline stunted children who were mildly stunted and remained so (Group 3), and normal children who showed no signs of stunting throughout the first year of life (Group 4). The proportion of children in Groups 1, 2, 3 and 4 was 18%, 10%, 51% and 21%, respectively. The risk factors that increased the likelihood of being in Group 1 or 2 included: increased household distance to a water source, being from a poor household, and being preterm at birth. Increased maternal education and height were protective against being in Group 1 or 2. In all groups, the coexistence of underweight and wasting was observed, with 18% of all the children sampled facing a triple burden (stunting, wasting, and underweight). Compared to other groups, coexistence with underweight was more pronounced in Group 1 with wasting prevalence increasing gradually over time.

Based on these findings, the authors suggest that while all children are responsive to nutrition interventions, a policy and programme focus should be on prioritising those interventions that consider a variety of possible growth trajectories, requiring more nuanced attention to actual rather than assumed mortality risks associated with diverse patterns of malnutrition. Maternal nutrition interventions also remain an important tool in preventing infant malnutrition and programming for adequate growth in utero and beyond.

Carers' and health workers' perspectives on malnutrition in infants aged under six months in rural Ethiopia: A qualitative study

This is a summary of the following paper: Jibat N, Rana R, Negesse A *et al* (2022) *Carers' and health workers' perspectives on malnutrition in infants aged under six months in rural Ethiopia: A qualitative study*. *PloS one*, 17, 7. e0271733. <https://doi.org/10.1371/journal.pone.0271733>

Similar to many other low- and middle-income countries, the Ethiopian Ministry of Health recommends inpatient-only treatment for infants under the age of six months as part of their national guideline for managing severe acute malnutrition.

To inform policy and research in this area, and in particular to inform a planned future cluster randomised controlled trial on the effectiveness of a new management of small and nutritionally at-risk infants under six months and their mothers (MAMI) Care Pathway Package, this qualitative study aimed to assess the perception and understanding of malnutrition in infants under the age of six months and their management among carers, communities and healthcare workers in rural Ethiopia.

In total, 31 interviews (17 in-depth interviews with carers/community members and 14 interviews with healthcare workers and managers as key informants) were conducted using purposive sampling between May and August 2020 in Jimma Zone and Deder District of Eastern Hararghe Zone. The data were analysed using a thematic analysis framework in which several barriers and facilitating factors were explored.

The main findings, according to the five key thematic areas, were as follows: 1) perceptions about health and well-being: an "ideal infant" was one that slept well, fed well, was active and looked "fat"; 2) perceptions about feeding infants: overall knowledge of key recommendations such as exclusive breastfeeding was generally good but practices were sub-optimal – one notable cultural practice was to give water to young infants, which runs contrary to WHO guidance that breastmilk alone is all that is needed for this age group; 3) awareness about malnutrition: a key limitation was knowledge of exactly how to identify small and nutritionally at-risk infants; 4) reasons for malnutrition: levels of understanding varied and included feeding problems and caregiver's work pressures resulting in the premature introduction of complementary feeds; and 5) perceptions of identification and treatment: carers preferred treatment close to home but were concerned about the quality of community-based services.

The study findings further highlight the need to expand efforts beyond a focus on shifting knowledge and attitudes, moving towards offering different practical and context-specific initiatives to support mothers with infants under the age of six months to prevent the occurrence of malnutrition and associated complications in this age group. Such initiatives include supporting the health and well-being of the mother (including maternal mental health), providing economic support to those in need and providing extended maternity leave for employed mothers.

There remains a need for improved nutrition education related to infants under the age of six months. Nutrition actors should also build on existing community/healthcare system strengths and address common myths/misconceptions to increase the likelihood of a positive impact. Future programmes must also ensure a trusted and non-judgemental relationship between mother and health worker, which remains essential. This study has provided the framework for other countries to profile and better understand their context and suggested a path-opening step to effectively implement the MAMI trial project in local and contextual bases.



A mother with her severely malnourished baby in a stabilization unit in Tigray region, Ethiopia

Bioenergy and Nutrition nexus: An exploration of the links for win-win opportunities

This is a summary of the following paper: Global Bioenergy Partnership (2022) Literature review of the linkages between bioenergy and nutrition. <http://www.globalbioenergy.org/programmeofwork/working-group-on-capacity-building-for-sustainable-bioenergy/linkages-between-bioenergy-and-nutrition/ru/>

Nutrition security remains crucial to achieving the Sustainable Development Goals (SDGs), particularly SDG2: zero hunger. At least 12 of the 17 goals contain indicators that are highly relevant to nutrition. However, as pressure on global agricultural systems increases, due predominantly to a combination of rapidly growing populations and climate change, nutrition security and the ability to ensure healthy diets for the global population are threatened. Affordable, reliable, sustainable and modern energy access for all is recognised in Agenda 2030 under SDG7 but also interacts with the achievement of almost all other SDGs. Modern bioenergy, a form of renewable energy produced from organic matter, has the potential to aid in the achievement of the SDGs, particularly for climate targets and nutrition, when managed in an appropriate and sustainable manner.

The Global Bioenergy Partnership (GBEP) and the Food and Agriculture Organization have been collaborating to develop a literature review aimed at collecting and analysing the available evidence most relevant to the relationship between bioenergy and nutrition. The literature review identifies the various positive interlinkages between good practices in bioenergy production and nutrition that have been explored in existing research, especially the implications for food security and better nutrition, and the impacts on agricultural land and soil quality that could influence the nutrient content of food.

The articles analysed for the literature review consisted of peer-reviewed papers, technical papers and documents prepared by non-profit organisations and governments from the period 2006 to 2021. In total, 42 articles were identified through internet searches, specifically Google Scholar, while the remaining articles were provided by the Partners and Observers of the GBEP after a request for specific examples at national and local level.

The strongest links identified between bioenergy and nutrition include improved soil quality through various stages of the bioenergy value chain, enhanced rural livelihoods and income diversification from biomass production for bioenergy, the use of modern bioenergy to encourage better cooking practices and to reduce indoor air pollution and the use of bioenergy in cold chains.

The production and use of bioenergy as part of integrated, sustainable production systems offers the potential to aid in the maintenance and enhancement of nutrition security. Bioenergy production and its byproducts offer the opportunity to facilitate nutrition security by improving soil quality through mechanisms such as phytoremediation, multiple cropping systems and the use of biochar and digestate as soil amendments. Biomass production for bioenergy additionally presents an opportunity to diversify income, particularly that of rural and smallholder farmers, which in turn can have positive impacts on food security. These findings, which highlight the multiple linkages between bioenergy, improved soil quality and nutrition, provide great opportunities for future research and multi-sector collaboration to address food security and improved nutrition.

Malnutrition in infants under six months attending community health centres in Ethiopia

This is a summary of the following paper: *Grijalva-Eternod C, Beaumont E, Rana R et al (2021) Malnutrition in infants aged under 6 months attending community health centres: A cross sectional survey. Nutrients, 13, 2489 <https://doi.org/10.3390/nu13082489>*

The care of small and nutritionally at-risk infants under six months of age represents a critical care gap. The lack of prioritisation of care for this particular group is partly due to a poor understanding of the burden of malnutrition in this age group. This study estimated the anthropometric deficit prevalence in infants under six months of age attending health centres in East Hararge and Jimma zone, Ethiopia, and assessed the overlap between different anthropometric indicators.

This was a cross-sectional survey covering all infants aged under six months who attended the 18 selected health centres over an average period of two weeks. Anthropometric deficit was measured using the Composite Index of Anthropometric Failure (CIAF) which is an aggregated indicator for malnutrition combining the conventional indicators for wasting, stunting, and underweight. Underweight, stunting, and wasting were calculated using 2006 World Health Organization Child Growth Standards and were defined as weight-for-age (WAZ), length-for-age (LAZ), and weight-for-length (WLZ) z-scores <-2 , respectively. Composite Index of Severe Anthropometric Failure (CISAF) represents all infants under six months of age severely underweight, stunted, or wasted, defined by a WAZ, LAZ, or WLZ <-3 , respectively.

The study found that 21.7% of infants had some form of CIAF, of which a fifth (4% of all infants) had CISAF, and over half (11% of all infants) had multiple anthropometric deficits, i.e., a combination of wasting, stunting, or underweight. Low mid-upper-arm-circumference (MUAC), defined as <11 cm if under six weeks of age and <11.5 cm thereafter, overlapped with 47.5%, 43.8%, and 42.6% of the stunted, wasted, and CIAF prevalence, respectively. The overlap was strongly influenced by the infant's age and the threshold used to define low MUAC. As the age of the infants increased, the proportion of MUAC-identified infants with no CIAF reduced, but the overlap with CIAF also decreased. In contrast, wasting-, stunting-, underweight-, CIAF-, and CISAF-based estimates were similar across the different age categories. Furthermore, underweight as the sole case definition criterion overlapped with 63.4%, 52.7%, and 59.6% of the stunting, wasting, and CIAF prevalence, respectively. Overall, underweight identified larger proportions of CIAF and CISAF infants than any MUAC threshold.

Anthropometric deficits, single and multiple, were prevalent in infants attending the selected health centres. WAZ appears to perform better than MUAC to identify any form of anthropometric deficit, as classified by wasted, stunted, underweight, CIAF, or CISAF. Further research is needed to understand which criteria or combination of criteria would be best for future programmes and to understand the associated functional and clinical outcomes.



CHAIN NETWORK

The Childhood Acute Illness & Nutrition Network

A summary of the CHAIN Network

This is a summary of the CHAIN Network and its recent research outputs, *The CHAIN Network (2022) CHAIN Publications*. <https://chainnetwork.org/research>

James Berkley is a Professor of Paediatric Infectious Diseases, Senior Clinical Research Fellow and Consultant Paediatrician in the Nuffield Department of Medicine at the University of Oxford.

The Childhood Acute Illness and Nutrition (CHAIN) Network was set up to address the problem that, despite significant global reductions in child mortality, the overall risk of death among acutely ill children remains high. There is also growing evidence that a large portion of mortality occurs after discharge from hospital. This may be attributed to the types of illness, underlying comorbidities such as malnutrition, HIV and other chronic conditions, social conditions such as poverty, maternal physical or mental ill health, childcare challenges or difficulty accessing services and limitations in medical or nutritional care.

The CHAIN Network (CHAIN) brought together clinicians and scientists to better understand pathways leading to death in children aged 2 to 23 months admitted to hospitals in Africa and South Asia despite aiming to follow the World Health Organization's Care and Treatment guidelines as closely as possible. CHAIN enrolled children at admission to hospital and followed up for six months after discharge, collecting exceptionally detailed data on demographics, geography, health, anthropometry, diet, economic, living and childcare circumstances and maternal characteristics. CHAIN also enrolled children of the same age in the same communities to provide an understanding of what is 'usual' at a single time-point. The CHAIN social science team also undertook detailed qualitative work to understand barriers and opportunities in participants' households.

The epidemiological findings from the 3,101 children included in the CHAIN cohort study and the social science findings have been recently published and a systems biology study utilising samples from the CHAIN cohort remains ongoing – aiming to identify metabolic, nutritional, immunological, infective and co-morbidity pathways to address in future clinical trials.

CHAIN found that admission to hospital was often in the context of a long series of interactions with various health providers regarding the child's illness. Nearly half of all deaths occurred after discharge from hospital regardless of anthropometric classification (using mid-upper-arm circumference and/or edema). Anthropometry was an important predictor of mortality risk capturing many risk exposures besides food

security and diet. However, risks such as maternal mental health and independent employment, household characteristics and access to care had direct effects on mortality risk but were not captured by anthropometry. Risks among severely, moderately or non-wasted children markedly overlapped based on other domains of risk, suggesting that anthropometry, while important, may not be sufficient to identify risk in these vulnerable children. In addition, many admitted children were found to be at very low risk of death, suggesting that de-escalation of treatment and care may be feasible and could allow more targeted allocation of limited resources towards those at highest risk.

Clinicians and families usually believed that children had 'recovered' at the time of discharge, and clinicians could not reliably predict post-discharge mortality. Where children continued to be ill or developed new symptoms after discharge, families felt 'disconnected' from the health system even when they were attending nutrition or other clinics. Consequently, among the post-discharge deaths, more than half occurred at home rather than during a re-admission to hospital.

The results from CHAIN indicate that we need to revisit how care/treatment guidelines are formulated. Currently, clinical syndrome protocols capture children with mortality risks ranging from almost none to very high. Formal risk stratification would allow some lower risk children to go home much earlier, avoiding costs to the health system and financial burden on families and also reducing exposure to the hospital environment. Hospital resources could be allocated towards children identified as higher risk.

Currently, guidelines contain very little advice on discharge or post-discharge care. CHAIN suggests that continuity of care could be improved in several ways. At discharge, communication of ongoing risks, training in danger sign recognition and facilitated access to emergency care may be beneficial. The COVID-19 era has brought forward the concept of the 'virtual ward' where the hospital team could monitor children at home by phone or SMS.

For more information, please contact James Berkley at JBerkley@kemri-wellcome.org



Ethiopia: Are children of employed mothers less stunted than those of unemployed mothers?



A woman working as a paid labourer on a farm to feed her family in Ethiopia

© IFAD/Wairimu Mburathi



Kedir Mohammed is the Nutrition Cluster Coordinator of the Sub-National Emergency Nutrition Coordination Unit (ENCU), Semera, Afar Region, Ethiopia.



Ibrahim Mohammed is a lecturer in the Public Health Programme of Samara University, Ethiopia.



Mohammed Hussein is a head of the Afar Disaster Prevention and Food Security Programme Coordination Office, Ethiopia.

KEY MESSAGES

- This survey explores whether an increase in women's employment has impacted the nutrition outcomes of children in Abala Town, Ethiopia.
- The results of this study indicated that the prevalence of stunting and underweight in children 6-59 months of age was higher in those with unemployed mothers compared to children of employed mothers. Wasting levels were however not significantly different.
- Factors found to be significantly associated with stunting were mothers' education status and employment status as well as diarrhoea in the previous two weeks and the sex, age and immunisation status of the child.

Background

In Ethiopia, undernutrition remains a critical issue with current national estimates suggesting that the prevalence of stunting (36.8%), underweight (21.3%) and wasting (7%) in children 6-59 months of age is among the highest in sub-Saharan Africa (EMDHS, 2019). In Afar Regional State, situated in the north-eastern part of the country, undernutrition rates are estimated to be some of the highest in Ethiopia according to the most recent EMDHS (2019), with stunting, underweight and wasting prevalence estimated to be 42.2%, 31.1% and 13.5% respectively.

The prevalence of child undernutrition is not consistently documented at subnational level and the reasons for these high prevalence estimates in Afar have not been explored in recent research. Natural and manmade disasters, including a recurrent drought and ongoing conflict, being faced in the region have been noted as reasons for high food insecurity and child malnutrition rates (DPFSPCO & NDRMC, 2021). Given these factors, Ethiopia has classified the region as a 'hotspot' area, prioritising it for various nutrition-specific and nutrition-sensitive in-

terventions. To offer the most appropriate intervention strategies, it is important to consider the underlying causes and risk factors for malnutrition in this region.

Previous studies in Ethiopia and many other countries have found that maternal characteristics (maternal education, maternal autonomy and maternal height and weight) are important factors that influence a child's nutrition status. However, the influence of maternal employment status is less clear with mixed results previously being reported in the country (Eshete et al, 2017 & Wondafresh et al, 2017). Women entering the workplace has shifted childcare roles and responsibilities with potential impacts on breastfeeding, complementary feeding, food preparation and healthcare seeking behaviours. On the other hand, increased household income is likely to have a positive effect on diet diversity and access to nutritional foods (Wondafresh et al, 2017). Given these mixed results to date, this study wanted to further explore the role of a mother's employment in nutrition status in this hotspot area. Specifically, it aimed to assess the nutrition status and associated factors among children 6-59 months of age of both employed and unemployed mothers in Abala town, Afar Regional State, Northeast Ethiopia.

Figure 1 The study town location map

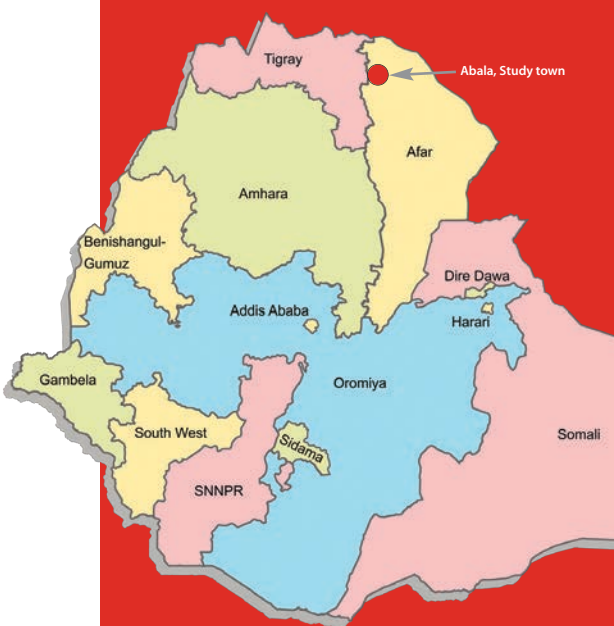
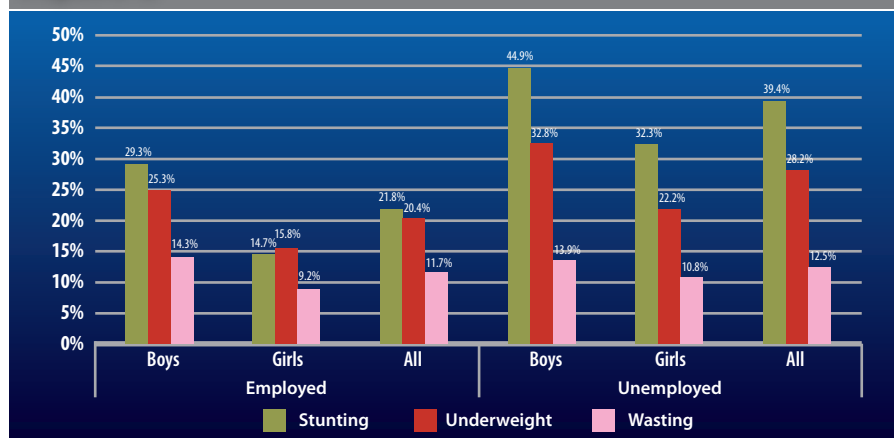


Table 1 Comparison of child nutrition status by mother's employment status in Abala town

Nutrition Status (Children <5)	Mother Employment Status	Prevalence (%)	95% CI	t-value	Sig.
Height for age (stunting)	Employed	21.8	17.8 – 26.4	4.925	<.001
	Unemployed	39.4	34.4 – 44.6		
Weight for height (wasting)	Employed	11.7	8.8 – 15.4	0.213	.831
	Unemployed	12.5	9.5 – 16.3		
Weight for age (underweight)	Employed	20.4	16.5 – 24.9	2.412	.016
	Unemployed	28.2	23.8 – 33.0		

Figure 2 Nutrition status by sex among under-five children in Abala town (n= 723)*

*Chi-squared testing revealed significant differences in stunting ($p<.001$) and underweight ($p=.001$) by child sex but not wasting ($p=.091$)

Abala is a town in north-eastern Ethiopia bordered on the west by the Tigray Region. Abala is in the administrative centre of Afar, with Abala town having a total population of 56,245.

Women's employment levels have been steadily rising in the town, particularly following Government employment reforms which came into effect in 2019. To understand how this increase in women's employment could impact the nutrition outcomes of children, we conducted a survey in Abala Town. We hoped that the findings of this investigation would potentially provide an important initial step to determining how to mitigate nutrition challenges in the region.

Methodology

The study aimed to:

1. assess the nutrition status of children aged 6-59 months of employed and unemployed mothers in Abala Town, and
2. identify factors associated with the nutrition status of children aged 6-59 months of employed and unemployed mothers in Abala Town.

We used a community-based cross-sectional survey that comprised mother-child pairs from both employed and unemployed mothers. This study was carried out from 29th March to 27th April 2021. The definition of employment was kept broad and included formal, informal, regular and casual employment. A mother was considered as employed if she reported earning income in the previous six months.

Five kebeles (the smallest administrative unit in Ethiopia) out of a total of 11 kebeles in the town were randomly sampled and a study questionnaire

was developed and translated into the local language (Afar-afa) for data collection. The questionnaire explored demographic and socioeconomic factors, maternal employment status, childcare practices, health and food-related characteristics (dietary diversity, child illness, immunisation status) and anthropometric measurements (weight and height, mid upper arm circumference and oedema). Interviews were conducted face-to-face using a structured interview guide and anthropometric measurements were converted into weight-for-age z-scores, height-for-age z-scores and weight-for-height z-scores according to World Health Organization child growth standards (WHO, 2006).

Independent sample t-tests were used to compare the children of employed and unemployed mothers based on the prevalence of wasting, stunting and underweight. Bivariate and multivariable logistic regression analyses were used to predict factors associated with child nutrition status (stunting, underweight and wasting). The strength of statistical association between the outcome and predictor factors was measured by adjusted odds ratio (AOR) with 95% confidence intervals (CI) in the final model. Significance was set at a level of 0.05 (5%).

Findings

A total of 723¹ children aged 6-59 months, from 361 employed and 362 unemployed mothers, were included in the study. Boys (52.6%) and girls (47.4%) were equally represented.²

Comparison of child nutrition status by mother's employment status

The results showed that the difference in the prevalence of stunting and underweight was statistically

significant between the children whose mothers were employed compared to those children whose mothers were unemployed mothers (Table 1). This indicated that children of unemployed mothers were more likely to be stunted or underweight than those of employed mothers. However, no statistically significant differences were seen for wasting.

Chi-squared testing revealed that, overall, the prevalence of male child stunting (37.6%) was significantly higher ($p<.001$) than female child stunting (22.7%). Additionally, underweight prevalence in males (29.4%) was significantly higher ($p=.001$) than females (18.7%). This was consistent across both employed and unemployed mother groups, although both male and female children of unemployed mothers had higher stunting and underweight prevalence rates than those of employed mothers (Figure 2).

Factors associated with nutrition status of children

To further examine factors associated with nutrition status, a logistic regression model was used. Factors associated with stunting and underweight were explored separately to understand the potential differences in determinants. Since there were no significant results associated with wasting, this was not analysed further. All factors associated with stunting and underweight were analysed independently of employment status in the study (Tables 2 and 3).

Factors associated with stunting

Among the variables explored in the bivariate logistic regression analysis, mother's employment status, mother's education status, sex and age of child, child immunisation status, diarrhoea in the last two weeks, family size, place of delivery, presence of latrine and timely complementary feeding were associated with stunting (p value<0.25). However, after controlling for potential confounders (as outlined in Table 2), the final multivariable logistic regression analysis revealed that mother's employment (AOR=2.24, 95% CI: 1.61–3.10), mother's education (AOR=2.11, 95% CI: 1.53–2.92), sex of child (AOR=1.97, 95% CI: 1.43–2.79), child immunisation (AOR =2.34, 95% CI: 1.53–3.58) and presence of diarrhoea in the past two weeks prior to the study (AOR=1.69, 95% CI: 1.12–2.53) were independent predictors of child stunting (Table 2).

Therefore, children who had unemployed mothers had 2.24 greater odds of becoming stunted as compared to children whose mothers were employed (AOR=2.24, 95% CI: 1.61–3.10). Children whose mothers had no education were 2.11 times more likely to be stunted as compared to children of a mother who had education (AOR=2.11, 95% CI: 1.53–2.92). Male children had 1.97 times higher odds of becoming stunted compared to female children (AOR=1.97, 95% CI: 1.43–2.79). Finally, the likelihood of being stunted was 1.69 times higher among children who had diarrhoea in the past two weeks compared to those children with no diarrhoea symptoms (AOR=1.69, 95% CI: 1.12–2.53).

¹ Of the total 723, 12 children were excluded from the study due to SMART flags for height-for-age z score.

² Chi-squared testing revealed that there was no statistically significance difference between girls and boys in the sample. Boys (52.6%) and girls (47.4%) equally represented ($p= 0.169$).

Factors associated with underweight

The bivariate logistic regression analysis showed that mother's employment, mother's education, sex of child, dietary diversity and initiation of breastfeeding, family size, postnatal service utilisation, maternal age and prelacteal feeding were associated with underweight (p -value<0.05). However, after controlling for potential confounders, the final multivariable logistic regression model analysis showed that mother's employment (AOR=1.35, 95% CI: 0.84–2.12), mother's education (AOR=1.56, 95% CI: 1.12–2.29), sex of child (AOR=1.78, 95% CI: 1.25–2.53) and dietary diversity (AOR=2.65, 95% CI: 1.61–4.39) were independent predictors of underweight (Table 3).

Therefore, children who had unemployed mothers were at 1.35 times higher odds of being underweight than children of employed mothers (AOR=1.35, 95% CI: 0.84–2.12). Children whose mothers had no education were 1.56 times more likely to be underweight as compared to children of mothers who had education (AOR=1.56, 95% CI: 1.12–2.29). Male children were 1.78 times more likely to be underweight than female children (AOR=1.78, 95% CI: 1.25–2.53). It was also observed that children who consumed dietary diversity of less than four food groups were 2.65 times more likely to be underweight than those children who consumed dietary diversity of four and more food groups (AOR=2.65, 95% CI: 1.61–4.39).

Discussion

The overall nutrition status (stunting, wasting and underweight) of children aged 6–59 months of employed and unemployed mothers was found to be 39.5%, 12.1% and 24.3%, respectively, which is comparable to findings from the most recent EMDHS 2019 for the region.

The results of this study showed that a higher prevalence of stunting and underweight were observed among children of unemployed mothers compared to employed mothers. However, maternal employment did not seem to have an impact on the risk of becoming wasted. The association between maternal employment and stunting and underweight is likely explained through economic gain having a positive impact on children's dietary intake over the longer term. Similar findings were noted in a study exploring the topic although interestingly are in contrast with a study from Central Ethiopia where unemployment was found to impact wasting as well as stunting and underweight prevalence (Wondafrash et al, 2017).

Logistical regression analysis further highlighted factors associated with stunting and underweight and analysis of this study indicated that mothers' education status, the employment status of mothers, diarrhoea in the previous two weeks, sex of child, age of child and child immunisation status were factors significantly associated with stunting. Similar factors were associated with underweight although dietary diversity was also noted as an associated factor and immunisation status and diarrhoea in the previous two weeks were not significantly associated. Mother's educational status was significantly associated with stunting and underweight children. This finding is consistent with the EDHS (2011) and other studies (Wondafrash et al, 2017). Possible explanations could

Table 2 Logistic regression analysis of factors associated with stunting

Variables	Categories	Stunting		COR (95% CI)	AOR (95% CI)
		Yes (%)	No (%)		
Mother's employment status	Unemployed	139 (39.4)	214 (60.6)	2.33 (1.67-3.24)	2.24 (1.61-3.10) *
	Employed	78 (21.8)	280 (78.2%)	1	1
Child's sex	Male	140 (37.6)	232 (62.4)	2.05 (1.48-2.85)	1.97 (1.43-2.79) *
	Female	77 (22.7)	262 (77.3)	1	1
Child age in months	6-17	52 (38.0)	85 (62.0)	2.86 (1.65-4.98)	2.67 (1.75-3.79) *
	18-29	78 (37.0)	133 (63.0)	2.74 (1.64-4.59)	2.20 (1.57-3.08) *
	30-41	50 (31.8)	107 (68.2)	2.19 (1.27-3.78)	2.45 (1.5-3.61) *
	42-53	25 (17.6)	117 (82.4)	1	1
	54-59	12 (18.8)	52 (81.2)	1.08 (0.50-2.31)	0.92 (0.48-1.76)
Mother's education	No education	126 (40.5)	185 (59.5)	2.31 (1.67-3.20)	2.11 (1.53-2.92) *
	Educated	91 (22.8)	309 (77.2)	1	1
Child immunisation	No	160 (34.5)	304 (65.5)	1.75 (1.23-2.49)	2.34 (1.53-3.58) *
	Yes	57 (30.1)	190 (76.9)	1	1
Diarrhoea in the last two weeks	Yes	119 (38.5)	190 (61.5)	1.94 (1.41-2.68)	1.69 (1.12-2.53) *
	No	98 (24.4)	304 (75.6)	1	1

*Significant at $p < 0.05$; COR = crude odds ratio; AOR = adjusted odds ratio; CI = confidence interval

Confounders (confounding factors) that were considered and input into the logistic regression model for **stunting**: family size, presence of latrine, place of delivery, timely introduction of complementary feeding.

Table 3 Logistic regression analysis of factors associated with underweight

Variables	Categories	Underweight		COR (95% CI)	AOR (95% CI)
		Yes (%)	No (%)		
Mother's employment status	Unemployed	102 (28.2)	260 (71.8)	1.53 (1.08-2.16)	1.35 (0.84-2.12) *
	Employed	73 (20.4)	285 (79.6%)	1	1
Child's sex	Male	111 (29.4)	267 (70.6)	1.81 (1.27-2.56)	1.78 (1.25-2.53) *
	Female	64 (18.7)	278 (81.3)	1	1
Mother's education	Not educated	72 (29.0)	176 (71.0)	1.46 (1.03-2.08)	1.56 (1.12-2.29) *
	Educated	103 (21.8)	369 (78.2)	1	1
Dietary diversity (Food Groups)	<4	132 (29.7)	312 (70.3)	2.29 (1.56-3.36)	2.65 (1.61-4.39) **
	≥ 4	43 (15.6)	233 (84.4)	1	1

*Significant at $p < 0.05$; COR = crude odds ratio; AOR = adjusted odds ratio; CI = confidence interval

**P-value < 0.01

Confounders (confounding factors) that were considered and input into the logistic regression model for **underweight**: early initiation of breastfeeding; family size; maternal age; prelacteal feeding

be that educated mothers may be more aware of their child's health and have more knowledge of optimal child feeding practices.

Limitations of the study

As the study involved a single cross-sectional design, the factors explored cannot be attributed to causing undernutrition in this study population. There might be the possibility of recall and reporting bias in some infant and young child feeding indicators such as breastfeeding patterns, dietary diversity scores and a child's history of illness.

Conclusion

This study indicated that the employment status of mothers has an association with nutrition status (particularly stunting and underweight) among children aged 5–69 in Abala town. Thus, improving mothers' opportunities for employment appears to be an important intervention to improving the nutrition status of children aged 6–59 months in this study region, while at the same time ensuring flexible workplace conditions that preserve optimum infant and young child feeding practices.

For more information, please contact Kedir Mohammed at afarencu@gmail.com

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2022 Global Report on Food Crises



This is a summary of the following report: *Global Network against Food Crises (2022) 2022 Global report on food crises: Joint analysis for better decisions*. <https://www.wfp.org/publications/global-report-food-crises-2022>

In its sixth edition, the 2022 Global Report on Food Crises (GRFC) presents higher global levels of hunger than any previous year. The number of people classified as 'in Crisis or worse' (Integrated Food Security Phase Classification (IPC)/Cadre Harmonisé (CH) Phase 3 or above), or equivalent, reached close to 193 million across 53 countries/territories in 2021. This equates to an increase of nearly 40 million since 2020 and an 80% increase since 2016. While such increases reflect greater availability of acute food insecurity data, broader geographical coverage, and revised population figures, they also indicate deteriorating levels of food security in several countries. Over half a million people (570,000) faced Catastrophe (IPC/CH Phase 5) – starvation and death – in four countries: Ethiopia, South Sudan, Southern Madagascar and Yemen, the highest number in GRFC history.

Food crises in 2021 were driven by multiple, integrated and often mutually reinforcing factors including economic shocks and uneven global recovery from the COVID-19 pandemic, as well as weather extremes and related disasters. However, conflict/insecurity remained the main driver and was primarily responsible for placing 139 million people across 24 countries/territories in need of urgent food and livelihood assistance. This is a stark increase from 99 million people across 23 conflict-affected countries/territories in 2020.

In 23 of the 35 major food crises, limited data suggests that almost 26 million children under five years of age suffered from wasting and over five million were at a markedly increased risk of death due to severe wasting. As with the food crises themselves, malnutrition was driven by a complex interplay of factors in these contexts, including acute food insecurity, poor child-feeding practices, a high prevalence of childhood illnesses, and poor access to sanitation, drinking water and health care. This highlights the fragility of global and local food systems which are under mounting pressure due to the increased frequency and severity of weather extremes, repercussions from the COVID-19 pandemic and related restrictions, increasing conflict and insecurity, and rising global food prices.

Projections for 2022 indicate persistent or increasing acute food insecurity for most of the world's major food crises. Major deterioration is anticipated in northern Nigeria, Yemen, Burkina Faso and the Niger due to conflict, and in Kenya, South Sudan and Somalia, largely due to consecutive seasons of below-average rains. This deterioration will likely be exacerbated by the repercussions of the war in Ukraine on global food, energy and fertiliser prices and supplies.

The GRFC recognised that the international community has stepped up to calls for urgent action towards mitigating famine, but that global humanitarian and development funding for food crises is failing to match growing demands. The report further emphasised the need for at-scale action to protect lives and livelihoods and support sustainable food systems and production where it is needed most. Where food availability is limited, this should include supporting local food supply chains and market access, diversified livelihoods, and greater resilience to shocks. There is also a need to mobilise investments and political will to collectively address the causes and consequences of escalating food crises. While the overall quality of data has improved, further work is needed to improve the coverage, quality, and the timeliness of data collection and analysis.

Women's nutrition: A summary of evidence, policy and practice including adolescent and maternal life stages



This is a summary of the following report: *James P, Wrottesley S, Lelijveld N et al (2022) Women's nutrition: A summary of evidence, policy and practice including adolescent and maternal life stages*.

<https://www.enonline.net/womensnutritionasummarytechnicalbriefingpaper>

Malnutrition – including undernutrition, overweight and obesity, and micronutrient deficiencies – disproportionately affects women and girls, with more than 1 billion women globally experiencing at least one form of malnutrition. While women and girls have a biological vulnerability to certain forms of malnutrition, such as anaemia, a number of economic, social and cultural factors contribute to gender inequalities that limit their access to optimal nutrition.

In 2013, ENN published a technical background paper summarising the evidence on maternal nutrition and identifying knowledge gaps regarding maternal undernutrition specifically in emergencies. While huge progress has been made, substantial gaps remain in our understanding of the current state of maternal nutrition globally. This technical paper therefore aimed to update and expand this evidence base, summarise current international guidance and explore what strategies and interventions are being implemented in both development and humanitarian settings. It extended the focus from just mothers to also include adolescent girls and women more broadly.

In this paper, ENN initially summarise the global goals and targets related to women's and girls' nutrition, the current relevant international guidelines, and the most common ways of assessing and reporting nutritional status in this population. The next section describes the scientific evidence on several key interventions, including supplementation (both macro and micronutrient) as well as important health-related interventions and nutrition-sensitive interventions such as social protection, education and counselling, and women's empowerment. In the final section the authors highlight key

gaps in this field and make recommendations for each.

In summary these recommendations are:

- Collate relevant guidelines in one place across pre-conception, pregnancy, and postnatal stages. Updated guidelines should reference each other.
- Global evidence, policies and programmes are needed for non-pregnant girls and women.
- Clear indicators that are disaggregated for adolescent girls, pregnant women and non-pregnant women are needed as part of global and national targets.
- Guidance and clarity on the assessment of nutritional status in adolescent girls and women is needed including mid-upper arm circumference cut-offs, dietary adequacy indicators, and gestational weight gain.
- A consultation on the use of multiple micronutrient supplementation versus iron folic acid in pregnancy is needed.
- One comprehensive set of guidelines that covers the different options for macronutrient supplementation in both humanitarian and development settings, during and outside of pregnancy, is needed.
- There is a need for women's empowerment and climate change to be mainstreamed into all nutrition programming and more research is needed on maternal mental health.
- Nutrition services need to be fully integrated into health systems, not only during antenatal care.

An accompanying report focusing specifically on women's nutrition in humanitarian settings is expected for an October 2022 launch.

For more information, please visit the three-minute introduction video to the paper. French readers can also access a francophone summary at https://www.youtube.com/watch?v=57go_Z9GNYE&t=3s

Severe wasting: An overlooked child survival emergency

This is a summary of the following report: *UNICEF (2022) Child alert: Severe wasting*. <https://www.unicef.org/child-alert/severe-wasting>

In May 2022, UNICEF issued a Child Alert entitled 'Severe wasting: An overlooked child survival emergency'. The brief highlights that due to climate crises, conflicts and economic shocks, including the ongoing fallout from the COVID-19 pandemic, even in fairly stable countries, child wasting has risen by more than 40%. The number of severely wasted children in need of treatment remains nearly as high as it was in 2015, with wasting mostly concentrated among the youngest children in the most underserved areas, both rural and urban. The availability of treatment remains predominantly in emergency contexts, despite three quarters of children suffering from severe wasting living in non-emergency contexts, e.g., in India and Indonesia.

The report calls for countries to include ready to use therapeutic food (RUTF) in their essential medicines and commodities lists and to better integrate wasting treatment into routine services. It highlights the need for flexible funding to ensure a continued RUTF pipeline given that the average price per RUTF carton is projected to increase by up to 16% over the next six months. A scaling up of community screening approaches using the measurement of mid-upper arm circumference, 'Family-MUAC', is emphasised to promote the early detection of child wasting to prevent more severe illness and death.

The report recognises that aid for wasting remains woefully low and the current aid landscape for wasting is unsustainable. Most funding for wasting comes from just a few donors and is increasingly provided as humanitarian aid which is generally shorter-term, less predictable and less focused on strengthening national systems. Reaching almost every child in need, the Child Alert estimates, can be achieved with just US\$300 million in additional funding

– just 0.1% of total Official Development Assistance spent in a year. Furthermore, targeting resources to those at highest risk, severely wasted children less than two years of age, will save more lives.

UNICEF notes the urgency of additional funding with conflict and climate shocks increasing severe wasting where the risk of child mortality is already highest. It notes crises in the Horn of Africa, in particular Somalia where only 20% of funding needs are currently met, West and Central Africa, where acute funding shortages for RUTF supplies could place the lives of 900,000 children at risk in 2022, and South Asia, where intergenerational transmission of severe wasting is stubbornly prevalent. Additional countries spotlighted in the report include Afghanistan where a record 1.1 million children are projected to need treatment for severe wasting this year, South Sudan where at least 8,700 people are facing catastrophic levels of acute food insecurity, and Southern Madagascar where an estimated half a million children are wasted.

The report concludes with calling for:

- Donors to fully fund the Global Action Plan to scale up child wasting prevention and treatment on a massive scale and provide multi-year funding through both humanitarian and development funding streams.
- Governments to integrate programmes for child wasting as a central priority in national primary health care services.
- All stakeholders to prioritise the early prevention and treatment of child wasting as an essential child survival intervention, prioritising resources for children under two years of age in particular.



A malnourished child eats a Ready-to-use therapeutic food (RUTF) in Madagascar

Food security and gender equality

This is a summary of the following report: *CARE (2022) Food security and gender equality: a synergistic understudied synergy*.

<https://careevaluations.org/evaluation/food-security-and-gender-equality/>

Gender equality is fundamental to improving food security at local, national, and global levels. However, in 2021, an estimated 150 million more women were food insecure than men globally. Despite the links between gender equality and food security, most global food security datasets fail to collect or incorporate sex-disaggregated data. This restricts our understanding of effective actions to address gender inequality and food security and discourages policymakers from incorporating gender equality into food security solutions. Of 84 food policies identified in December 2021, only 4% referred to women's roles as leaders in food security solutions.

This report summarises secondary data exploring the correlation between gender inequality values and food security scores. Drawing on existing literature, the authors support the need to produce, publish, and use global data on gender equality and food more consistently. The primary results were based on a regression analysis of data from 109 countries that were included in both the 2019 Human Development Report's Gender Inequality Index and The Economist's 2021 Food Security scores.

Results from the regression analysis showed that, across the 109 countries, rising gender inequality was associated with reduced food security. This was supported by existing literature indicating strong relationships between gender equality and rural households' capacities to acquire coping mechanisms and to reduce poverty and food insecurity. Specifically, findings from previous studies focused on:

Women's participation and the household: Food security was impacted by gender norms which define women's participation in income generation activities. For example, households in which women were employed, or contributed through income generating activities, had an 11% lower probability of food insecurity and their households experienced a 43% reduction in childhood malnutrition.

Diets and food consumption: Despite being responsible for 90% of food purchasing and preparation, women eat last and least. In Sudan, a substantially higher percentage (65%) of women reported being food insecure when compared to men (49%).

Agriculture and land: Women's land ownership is associated with income growth and better child nutrition, yet only 15% of land worldwide is owned by women. A study in Burundi demonstrated a USD 5 return for every USD 1 invested in gender equality in agriculture, compared to a USD 2 return for every USD 1 invested in agriculture programmes that ignored gender equality.

Overall, this report highlights the need to incorporate and utilise sex-disaggregation into global datasets on food/food security. This would contribute to increasing the visibility of gender inequalities, which is essential given this report shows how increasing gender inequality is associated with lower food security. Identifying and addressing the differences in gender roles, responsibilities, and participation at the household level has the potential to strengthen global food security as well as the nutrition and health status of populations.

A positive postnatal experience: World Health Organization recommendations



This is a summary of the following report: World Health Organization (2022) *WHO recommendations on maternal and newborn care for a positive postnatal experience* <https://www.who.int/publications/i/item/9789240045989>

The postnatal period – defined by the World Health Organization (WHO) as beginning immediately after birth and extending up to six weeks later – is a critical window not only for newborns but also their mothers, caregivers, and extended families. However, maternal and neonatal mortality remains high globally and, despite improvements over the last few decades, more work is needed to achieve the Sustainable Development Goals on reproductive, maternal and child health. This guidance aims to improve the quality of essential, routine postnatal care for women and newborns by targeting a “positive postnatal experience” which is recognised as a significant platform for improving both short- and long-term health.

This guidance highlights 63 recommendations to improve the provision, utilisation, and experience of postnatal care. The recommendations are grouped according to maternal care, newborn care, and health systems and health promotion interventions. Interventions were also classified as ‘recommended’, ‘not recommended’ or ‘recommended under certain conditions’ based on the guidance of the Guideline Development Group (GDG) – an international group of experts who were assembled for the purpose of developing this report. The guidance includes recommendations on the following nutrition interventions: postpartum oral iron and folate supplementation; postpartum and neonatal vitamin A supplementation; vitamin D supplementation for breastfed, term infants; and exclusive breastfeeding.

The GDG recognised that any recommendations need to be delivered within an appropriate model of postnatal care, as well as being adapted to the needs of different countries and local contexts, whilst also considering the individual women, newborns, parents, caregivers, and families involved. The GDG also noted the importance of the WHO postnatal care model which places the woman-newborn dyad at the centre of care. Both the postnatal care model and the broader guidance of the GDG highlight the importance of postnatal care during the first 24 hours after birth, recommending a minimum 24-hour stay after birth in the health facility which entails continuous care and monitoring throughout.

A breakdown of the full list of recommendations can be found in the executive summary of the report.

Dying to adapt: A comparison of African healthcare spending and climate adaptation costs



This is a summary of the following report: *Tear Fund Report (2022) Dying to Adapt: A comparison of African healthcare spending and climate adaptation costs.* <https://learn.tearfund.org/en/resources/policy-reports/dying-to-adapt-a-comparison-of-african-healthcare-spending-and-climate-adaptation-costs>

The climate crisis is a global challenge, yet its costs and impacts are disproportionately felt by people living in poverty in low-income countries, those who did the least to cause it and have the fewest resources to respond to it.

Eleven countries in sub-Saharan Africa, with a total population of over 350 million people, now face climate adaptation costs that exceed their national spend on healthcare – over four times more in the most vulnerable country (Eritrea). These nations include Cameroon, Cape Verde, Chad, Republic of Congo, the Democratic Republic of Congo, Eritrea, Ethiopia, Madagascar, Mali, Mauritania, and Sudan.

The scale of climate adaptation needs continues to grow, but it is estimated that low-income countries are currently receiving as little as 10% of what they require for adaptation from international climate finance. Urgent action is needed to ensure that climate-vulnerable countries can protect themselves in advance of worsening climate shocks. In the meantime, innovative climate solutions, such as solar-powered wells and sustainably oriented farming practices, are being developed by those communities most affected by climate change. For example, in

southern Ethiopia, over 10,000 farmers are now practicing conservation agriculture, allowing crops to be grown in dry seasons. Yet, in many cases, the full impact of these solutions is being held back by a lack of finance.

In 2009, world leaders promised to deliver US\$100 billion a year from 2020 to 2025 to support low-income countries and communities to mitigate and adapt to climate change. Yet, despite many repetitions of this pledge, in 2022 this promise has still not been fully met. Of the funding that has been delivered, most has arrived in the form of loans rather than grants, adding to national debts that have already grown rapidly because of the COVID-19 pandemic.

Funding to support climate resilience in this particularly vulnerable region is long overdue. Delivering this promised finance is key to rebuilding trust in climate vulnerable communities and alleviating their suffering. Not only that, but investment in this area may offer tremendous impact where climate finance enables sustainable solutions that could unleash the great economic and innovative potential that already exists in climate-vulnerable communities, allowing them to lift themselves out of poverty.

Multiple micronutrient supplementation to improve the quality of nutrition care and prevent low birthweight



This is a summary of the following report: *UNICEF (2022) Multiple Micronutrient Supplementation: An approach to improving the quality of nutrition care for mothers and preventing low birthweight.* <https://www.unicef.org/media/123271/file>

Women across the globe consume poor-quality diets that fail to meet their nutrient requirements and put them at risk of micronutrient deficiencies. Those who suffer from anaemia during pregnancy are twice as likely to die during, or shortly after, pregnancy. Being born to an undernourished and anaemic mother also puts infants at risk of low birthweight and of subsequent wasting, stunting and developmental delays.

Multiple micronutrient supplementation (MMS) is a safe and effective strategy to improve maternal nutritional status during pregnancy, demonstrating greater benefits for reducing anaemia and preventing low birthweight than iron and folic acid alone. As part of its 2020-2030 Nutrition Strategy, UNICEF aims to support national MMS scale up.

This advocacy brief was released in early 2022 to garner support for, and commitment to, the

introduction and scale up of MMS at country level. In addition to being good value for money, the brief highlights how scaling up MMS provides opportunities to strengthen the integration and delivery of essential nutrition services in antenatal care, using MMS as a key indicator of quality of care alongside counselling; promote social equality through universal access to MMS; and enhance affordability, programme ownership and national economies through local supplement production.

To support the introduction and scale up of MMS, UNICEF is advocating for its inclusion in national policies, strategies, guidelines, and budgets, as well as supporting national coordination mechanisms. Technical assistance is also provided to generate evidence to inform the effective implementation and local production of MMS, while working to expand global supply chains and ensure robust quality control mechanisms.

ENN CEO: Nigel Tricks

ENN Directors: Marie McGrath, Tanya Khara

Operations Team Support: Annabel Miller, Holly Ruffhead, Nicola Johnstone, Rosaleen Cunningham, Sophie Harris

Design: Orna O'Reilly/Big Cheese Design.com

Website: Oxford Web Applications

Contributors for this issue:

Airin Roshita	Koki Kyalo
Alison Donnelly	Linda Shaker Barbari
Amal Abdelhay Ebrahim	Luisa Bocconcelli
Amira Amer	Lusungu Chitete
Amer Bashir	Mahbubur Rahman
Andrew Seal	Main Chowdhury
Barbara Bailie	Mamadou Ndiaye
Benson Kazembe	Margit Bach
Beverly Shaila Laher	Messerassi Ataupah
Bhaskar Krishnamurthy	Minnie Bodhanwala
Blessings Hendrina	Moataz Saleh
Likoswe	Mohammed Hussein
Blessings Muwalo	Mohammad
Blandina Rosalina Bait	Shahnewaz Morshed
Britt Titus	Mohammad Zahidul
Carla El Mallah	Manir
Carla Pramila Lopez	Naglaa Arafa
Chloe Angood	Najwa Al-Dheeb
Faustin N'Dri	Najwa Rizkallah
George Kinyanjui	Nanies Abdel Mohsen
Gislain Ake	Niéle Hawa Diarra
Grainne Moloney	Nisha Kamble
Gwénola Desplats	Omar Obeid
Harmonie Bucher	Penjani Kamudoni
Ibrahim Mohammed	Piyali Mustaphi
James Berkley	Radhika Mathur
Jen Burns	Roland Mady
John Phuka	Sanjay Prabhu
Julia Suryantan	Selena Bajraktarevic
Julien Chalimbaud	Tammam Ahmed
Karanveer Singh	Thembikile Nyasulu
Karima Al-Hada'a	Vanessa Oddo
Karin Christianson	Vrushabh Gavali
Kavita Sethuraman	Wael Abdel-Razek
Kedir Mohammed	

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Cover

Alinafe Mandaalaza being fed micronutrient fortified porridge in Chiwiri, Malawi 2022;
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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.

Field Exchange Team



Nicki Connell
Editor



Anne Bush
Editor



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Editor



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Content
Coordinator



Gwénola
Desplats
French Content
Coordinator



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Sub-Editor



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Wrottesley
Sub-Editor



Eilise Brennan
Sub-Editor



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Design and
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Nutrition Network)



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ENN

2nd Floor, Marlborough House, 69 High Street,
Kidlington, Oxfordshire, OX5 2DN, UK

Tel: +44 (0)1 865 372340

Mobile: +44 (0)7737 996822

Email: office@ennonline.net

www.ennonline.net

