

# Field Exchange

Emergency Nutrition Network



**Emergency nutrition preparedness in Latin America and Caribbean**  
**Capacity building for nutrition in emergencies in East Asia and Pacific**  
**Coordination of the nutrition response in Cox's Bazar**  
**Management of 'at risk' mothers and infants in Ethiopia**  
**Budgeting for nutrition in Nepal**  
**Community-based approaches for nutrition in Ethiopia**  
**Nutrition-sensitive social protection in northern Nigeria**



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Mebrat Assefa plays the 'buy and sell' game designed to promote the purchase of nutritious foods during an ECC session, Shire District, Tigray Region Ethiopia, 2019



## Dear readers,

In July 2019, we produced a special edition of Field Exchange (issue 60) on continuum of acute malnutrition care. Our editorial<sup>1</sup> identified areas of action we felt were needed to address significant shortcomings hampering this provision. These related to United Nations (UN) institutional arrangements and divisions of roles among agencies, supply-chain management of ready-to-use products, and the lack of normative guidance in areas such as treatment of moderate acute malnutrition. Since then, we have engaged with different stakeholders at multiple levels to highlight these issues and have tried, as many others are doing, to catalyse progress. A key moment for everyone was the eagerly anticipated Global Action Plan (GAP) on wasting developed by five UN agencies (United Nations Children's Fund (UNICEF), World Food Programme (WFP), the World Health Organization (WHO), the Food and Agriculture Organization (FAO) and the United Nations High Commissioner for Refugees (UNHCR)). As we release this edition, the final GAP on wasting<sup>2</sup> has been released and a more targeted Roadmap for Action will follow. Discussions to identify commitments and actions by governments and other key stakeholders will continue throughout 2020, with the aim of releasing the comprehensive global plan at the Tokyo Nutrition for Growth (N4G) Summit in December 2020.

Many, including the Emergency Nutrition Network, acted quickly to provide feedback on the draft GAP on wasting within a short public consultation period in February. Given that 2020

marks 20 years since the birth of community-based management of acute malnutrition (CMAM) (community-based therapeutic care), we felt it most fitting to share reflections on the GAP from Dr Steve Collins of Valid International/Valid Nutrition, who conceptualised and was instrumental in the development and rollout of the community-based approach that is at the heart of case management of wasting today. Never one to shy away from challenging the status quo, Steve's reflections provide rich food for thought and debate – your responses are welcome in the form of letters to the editors.

The Lancet Double Burden series, summarised in this edition, challenges us to address all forms of malnutrition – underweight, micronutrient deficiencies and overweight – together. Balancing the immediate and longer-term risks of different forms of malnutrition and associated interventions is complex. This is reflected in a views article by Manary *et al* that challenges the caution promoted by the Lancet series on the use of high energy and nutrient-dense foods for wasting treatment, due to concerns this may fuel long-term health problems down the road. The heightened and overdue focus on the double burden should not come at the price of attention (and resourcing) to address the more immediate mortality risks of wasting. On that note, it will be interesting to see how far we have come (or not) in addressing undernutrition when a follow-up to the 2013 Lancet series on maternal and child undernutrition is launched in June.

The need for context-specific emergency preparedness is another theme of this issue. An article by UNICEF Latin America and Caribbean Regional Office (LACRO) describes a regional initiative that leverages an existing risk-assessment model to determine nutrition risk scores (a composite of nutrition vulnerability and capacity indicators) to inform emergency planning. Data from 33 countries reveals a large gap in capacity and high nutrition vulnerability across the region. Country and regional action has been sparked to begin to address shortfalls. Building on this theme of contextual preparedness, an article by Mutunga *et al* describes experiences of using an adapted global nutrition in emergencies (NIE) training package as part of a regional emergency preparedness and response capacity-building initiative in Southeast Asia. Strong government participation, drawing on real-time experiences and integrated within national and sub-national planning and training curricula, has catalysed sustained initiatives. The current global NIE training package only focuses on CMAM, infant and young child feeding (IYCF) and wasting treatment; adjustments are needed to cover other prevailing nutrition problems in this context, including stunting, anaemia and non-communicable dis-

<sup>1</sup> [www.enonline.net/fex/60/extendededitorial](http://www.enonline.net/fex/60/extendededitorial)

<sup>2</sup> Global action plan on child wasting: a framework for action to accelerate progress in preventing and managing child wasting and the achievement of the Sustainable Development Goals. 9 March 2020. [www.who.int/internal-publications-detail/global-action-plan-on-child-wasting-a-framework-for-action](http://www.who.int/internal-publications-detail/global-action-plan-on-child-wasting-a-framework-for-action)



eases. This suggests that a review of the current NiE package is needed to ensure it is global in reach, relevance and application.

Unpredictable events challenge even the most sophisticated levels of preparedness. UNICEF's article describing experiences in responding to the influx of Rohingya people in Cox's Bazar, Bangladesh, is a case in point. The authors document a hybrid nutrition sector coordination model that drew on the planning of existing government preparedness clusters and the Inter-Agency Standing Committee (IASC) cluster approach, but did not involve official IASC cluster activation. The lack of recognition of the new Rohingya influx as official refugees by the Government of Bangladesh complicated the typical UN division of labour and UNHCR assumed coordinating authority. The nutrition response was fragmented in the context of an overwhelming situation. Based on this experience, the author suggests that coordination models for atypical scenarios should be examined and appropriate global guidance/coordination mechanisms developed and embedded within national and sub-national systems, in close consultation with government.

The current COVID-19 pandemic is perhaps the most extreme example of unpredictability and is completely uncharted waters for a global response. The potential fallout from this outbreak for nutrition – from redirected financing to compromised treatment in stretched facilities to reduced access to preventive services like mass vitamin supplementation campaigns or vaccination uptake – could be immense. Most immediately, what needs to happen now to prepare for outbreaks of the virus in Africa and parts

of Asia where there is currently no diagnostic capacity and health systems are weak? Two research snapshots in this issue share some initial thinking, while a technical brief has been prepared by the Global Technical Mechanism on Nutrition (GTAM). This provides links to a compilation of guidance documents and resources to support practitioners to integrate COVID-19 preparedness and response into humanitarian nutrition programmes. Regular updates of this brief are planned.

The challenges in determining nutrition impact of interventions are reflected in several articles, yet demonstrating impact is critical for scale-up. Evaluation of a social protection programme in Nigeria that targeted mothers and infants within the first 1,000 days failed to show impact on wasted or underweight prevalence (as intended), but saw positive impact on uptake of antenatal clinic (ANC) services, health indicators, IYCF practices and stunting prevalence. The question is, does this reflect a lack of nutrition impact, or simply the limitations of a blunt anthropometric tool that we overly equate to nutrition status? An article by Berhanu *et al* shares lessons from the rollout to date of the Growth through Nutrition in Ethiopia project, a five-year (2016-2021), multi-sector programme implemented in 110 districts in four regions of Ethiopia. Midline assessments found improvements in child minimum acceptable diet, iron and folic acid supplementation in pregnant women, ANC uptake, and household water, sanitation and hygiene practices, but mixed results on breastfeeding behaviours. Impact on child nutrition status remains to be seen; the challenge will be to unpack the pathways of any demonstrated

impact. Two research articles from Tufts University demonstrate the pressing need to ensure rigorous research and quality evidence to improve policy and programming. A landscape review of current research on specialised nutritious foods (SNFs) used to impact nutrition found narrow scope in terms of context and nutrition outcomes. More research is needed in emergency contexts and urban settings and on prevention, cost-effectiveness of alternative programme approaches, and long-term health and nutrition impacts. A review of research methods used to study SNFs by the same team identified many limitations in research design that compromise the evidence base and so fail to influence policy and programming. The authors propose specific actions for global agencies, research funders, researchers and practitioners to build a higher-quality evidence base for impact.

While demonstration of impact and efficacy are critical for creating an enabling environment for scaling up nutrition programmes, these are not sufficient enablers on their own. We have seen this with CMAM, where evidence of impact and efficacy is incontrovertible, yet many countries struggle to achieve adequate programme coverage. Equally, if not more important, is the extent to which programmes are embedded within government systems and assured of long-term financing, either through government and/or long-term development funding. The cost and opportunity cost for government and health services are therefore critical factors that need to be considered when trialing nutrition interventions. These considerations are highly context-specific and depend on country economic prosperity, policies (pro-poor and equity-oriented) and the location of nutrition in government. It is not enough for nutritionists to simply focus on the technical merits and achievements of programmes. At the outset of design and implementation, programme planners must consider the likelihood and feasibility of national governments supporting programmes in the longer term. With this in mind, it is heartening to see that several articles in this issue demonstrate government leadership and true collaboration with development partners. Some insights on this front are shared in a qualitative study by Suaahara II (Manandhar *et al*) which explores factors affecting the allocation and utilisation of local budgets, particularly those affecting investments for nutrition, in four districts of Nepal. While local government was sensitised to the need and rationale for this programme, many barriers remained, especially around local budgetary processes.

Nutrition has always been an inter-disciplinary subject yet, at times, practitioners may be guilty of an over-focus on the technical aspects of programming, while paying less attention to the all-important question of whether a proven intervention can feasibly be implemented at scale.

Marie McGrath, Jeremy Shoham and Chloe Angood, Field Exchange Editors  
[www.enonline.net/fex](http://www.enonline.net/fex)



Postnatal mother being provided nutritious foods by the Ward Chairperson during Suaahara's key life event celebration, Nepal, 2020

Dr. Nandini Cumming-Jones

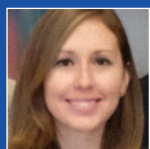




Child standing by a water point in Sinaneca, San Jorge, Guatemala, 2016

## Regional overview of emergency nutrition preparedness in Latin America and the Caribbean

By Yvette Fautsch Macías and Stefano Fedele



Yvette Fautsch Macías is Nutrition Specialist at the UNICEF Regional Office for Latin America and the Caribbean (LACRO), where she has performed the role of GRIN-LAC Focal Point for the last two years.



Stefano Fedele is the former Regional Nutrition Specialist at UNICEF LACRO and the former coordinator of GRIN-LAC. He has been with UNICEF for the last 12 years.

Before LACRO he led nutrition-sector coordination in Haiti, Sierra Leone, Mali, Chad and Afghanistan. He has been the Global Nutrition Cluster Coordinator since July 2019.

Location: *Latin America and Caribbean (LAC)*

**What we know:** Nutrition in emergency (NiE) preparedness can lead to a more rapid and cost-effective scaling up of emergency programming, thereby preventing malnutrition and saving lives.

**What this article adds:** An NiE risk-assessment model was developed by GRIN-LAC, a regional coordination group for NiE. The 2019 model combines results of the existing Index for Risk Management for Latin America and the Caribbean (LAC-InfoRM) with six indicators of country nutrition capacity and four indicators of country nutrition vulnerability; namely child health and nutrition status. Data for 33 countries in the region were collected and, using newly developed risk indices and thresholds, country combined 'nutrition in emergencies' risk scores calculated. Results show that 27% of countries in the region are at high or very high risk of deteriorating population nutrition status in an emergency (with Haiti, Honduras, Guatemala and Venezuela at highest risk). Results show that 73% of countries have major gaps in nutrition capacity and 76% have high or very high levels of nutrition vulnerability (low rates of exclusive breastfeeding, poor minimum dietary diversity of complementary foods, high diarrhoea prevalence in children under five years old, and high rates of anaemia in children under five years old and women of reproductive age). There is an urgent need for LAC governments to strengthen nutrition-specific coordination mechanisms with a specific mandate in NiE; incorporate nutrition into national emergency-response plans; and strengthen optimal infant and young child feeding practices.

### Background

The Latin America and Caribbean (LAC) region is one of the most disaster-prone regions of the world, second only to Asia (Vargas, 2015). In 2017, an estimated 15.6 million people, including 8.2 million children, were affected by large-scale emergencies in the region (ECLAC, 2018). The average number of natural disasters affecting the LAC region more than tripled from an average of 19 each year in the 1960s to 68 each year in the 2000s. Now, approximately 13.4 million children and adolescents in LAC live in drought-prone or extremely drought-prone areas and 13.1 million live in areas at extreme risk of flooding (United Nations Children's Fund (UNICEF),

2015). The region is also vulnerable to political and economic shocks. In 2019, around 4 million people were estimated to have fled Venezuela into neighbouring countries and 1.1 million children were in need of assistance, including host children as well as migrant children, due to the increased demand on host systems and services (UNICEF, 2019). A lack of emergency nutrition preparedness exists in LAC countries due to a lack of a common understanding of the key elements required for effective emergency nutrition preparedness and response. Furthermore, nutrition has been deprioritised in the region in disaster response, due in part to declining levels of wasting and stunting.

### Box 1 InfoRM (Index for Risk Management)

InfoRM is a global, open-source tool for assessing the risk of humanitarian crises and disasters.

It involves a composite index analysis that combines information about hazards, vulnerability and coping capacity. It aims to identify countries at risk of humanitarian emergencies and determine the major underlying conditions leading to the risk, so that these can be better managed. The InfoRM database combines around 80 different indicators that measure the following three dimensions:

**Hazard and exposure risk index:** captures events that could occur and the population that could potentially be exposed to those events. Hazards can be natural or human.

**Lack of coping capacity risk index:** captures the ability of a country to cope with an emergency in terms of institutional and infrastructure capacity.

**Vulnerability risk index:** captures the fragility of socioeconomic systems and the strengths of communities, households and individuals to confront a crisis situation. The index includes some nutrition indicators for vulnerable and uprooted groups, including stunting in children under five years old, low birth weight, and anaemia in pregnant and lactating women. These were included after GRIN-LAC advocated for their inclusion in 2017-2018.



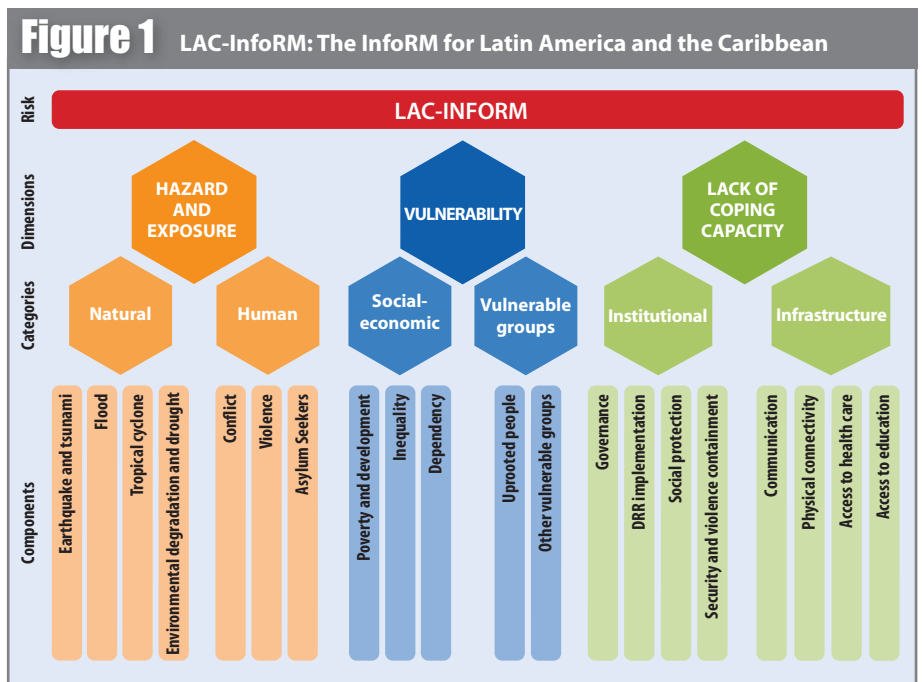
Given this, a regional coordination group on nutrition was set up by UNICEF Regional Office for Latin America and the Caribbean in 2013, in collaboration with United Nations (UN) agencies, non-governmental organisations (NGOs), donors and research institutions at regional and national levels.<sup>1</sup> The goal of GRIN-LAC ('Grupo de Resiliencia Integral de Nutrición') is to prevent the deterioration of the nutrition status of populations affected by crises in LAC by strengthening national capacities to prepare for and respond to issues related to NiE. Activities of GRIN-LAC include evidence generation; knowledge management, sharing and exchange; and capacity development. This article describes the process the GRIN-LAC undertook to develop a 'Nutrition in Emergency Risk Assessment' process and the results of the 2019 assessment of countries in the LAC region.

### NiE risk-assessment model

The Index for Risk Management for Latin America and the Caribbean (LAC-InfoRM) is a regional adaptation of the global InfoRM model (see Figure 1 and Box 1) used to assess the risk of humanitarian crises and disasters in all countries of the region. The InfoRM model was adapted to specific countries in Central America and the Dominican Republic. In order to assess the NiE risk more specifically, GRIN-LAC proposed a set of additional nutrition indicators representing minimum standards for emergency nutrition preparedness in LAC (Box 2). These were selected after discussion and agreement among group members. When combined with results of the LAC-InfoRM using an Excel file (the GRIN-LAC matrix<sup>2</sup>), these indicators produce an easy-to-interpret measure of NiE risk, identify gaps in nutrition preparedness, and highlight areas for improvement in policies, programmes and interventions to enable a stronger nutrition response in times of crisis. These indicators include six indicators of country nutrition capacities and four indicators of country nutrition vulnerability; namely the health and nutrition status of children (see Box 2). Nutrition indicators included in the 'vulnerability risk index' of the LAC-InfoRM 2019<sup>3</sup> were not included in the nutrition indicators as these were already accounted for.

During 2019, data were collected against each of the 10 indicators from 33 countries in the LAC region using national surveys, global databases and reports from national authorities. The process aimed to engage the National Nutrition Focal Points at the Ministries of Health (MoH) to generate awareness of nutrition-related risks, stimulate national-level discussions around nutrition capacity gaps and vulnerabilities, and prompt the development of national plans and strategies to address them.

Once collected, data was weighted according to the relative importance of each of the 10 indicators. A weighting of five was given to indicators



### Box 2 Indicators representing minimum standards for emergency nutrition preparedness in LAC

#### Nutrition capacity indicators

- Existence of a national nutrition coordination mechanism
- Existence of a sub-national nutrition coordination mechanism
- Existence of a national emergency response plan that includes nutrition
- Existence of a national protocol for the management of severe acute malnutrition
- Proportion of coverage for the management of care of severe acute malnutrition (%)
- Density of nursing and midwifery personnel (number per 1,000 inhabitants)

#### Nutrition vulnerability indicators

- Prevalence of diarrhoea among children under five years old (%)
- Prevalence of wasting (moderate and severe) among children under five years old (%)
- Minimum dietary diversity – proportion of children 6–23 months of age who receive foods from four or more food groups (%)
- Prevalence of exclusive breastfeeding among infants 0–6 months of age (%)

### Table 1a Lack of nutrition coping capacity risk index

This is estimated from each country's lack of nutrition coping capacity score. It captures the ability of a given country to cope with an emergency in terms of coordination and institutional capacity around nutrition to protect the nutrition status of children in emergency situations.

- 4** Very low level of nutrition capacities to protect the nutrition status of children in emergencies
- 3** Low level of nutrition capacities to protect the nutrition status of children in emergencies
- 2** Moderate level of nutrition capacities to protect the nutrition status of children in emergencies
- 1** High level of nutrition capacities to protect the nutrition status of children in emergencies

### Table 1b Nutrition vulnerability risk index

Estimated from each country's nutrition vulnerability score, this captures children's food and nutrition characteristics of a given country that can deteriorate in emergency situations.

- 4** Very high level of nutrition vulnerability
- 3** High level of nutrition vulnerability
- 2** Moderate level of nutrition vulnerability
- 1** Low level of nutrition vulnerability

<sup>1</sup> PAHO/WHO, WFP, FAO, Care, the International Federation of Red Cross, Save the Children, ACF, Plan International, INCAP and others.

<sup>2</sup> [www.humanitarianresponse.info/en/operations/latin-america-and-caribbean/document/grin-lac-matrix-nutrition-emergency-risk-assessment](http://www.humanitarianresponse.info/en/operations/latin-america-and-caribbean/document/grin-lac-matrix-nutrition-emergency-risk-assessment)

<sup>3</sup> Anaemia in women of reproductive age, low birth weight, anaemia among children under 5 years old, stunting among children under 5 years old.



that form the basis of emergency nutrition preparedness (national nutrition coordination capacity; national nutrition response plan; adequate infant and young child feeding practices). A weighting of four was given to elements that help to operationalise the basic elements (protocol for management of acute malnutrition and adequate number of healthcare professionals). A weighting of three was given to other elements, including existence of sub-national nutrition coordination capacity and coverage of management of acute malnutrition and vulnerability indicators (prevalence of diarrhoea and acute malnutrition). The sum of the weighted scores produced a *lack of nutrition coping capacity score* (sum of weighted nutrition coping capacity indicators) and a *nutrition vulnerability score* (sum of weighted nutrition vulnerability indicators) for each country.

To determine levels of risk indicated by these scores, risk indices were developed for both dimensions (Tables 1a and 1b). Risk thresholds for each individual indicator were then set, the mean of which helped to guide thresholds of risk for each dimension (Table 2a and 2b).

Following this, the nutrition scores were combined with LAC-InfoRM scores to obtain an overall score for each country to indicate the level of emergency nutrition preparedness and risk of deterioration in nutrition status during an emergency (Figure 2). To interpret these scores, overall indices and risk thresholds were set using the same process (Tables 3 and 4).

**Limitations of the model**

The model has some limitations; therefore the results should be interpreted with caution. The selection of parameters to determine risks was a subjective process and changes in weights and thresholds may lead to different risk scores. Data for all nutrition capacity indicators, except the density of nursing and midwifery personnel, were obtained from direct reports from national authorities or UNICEF country offices. The subjective nature of these indicators means that the data is open to under or overestimation and may not always provide an accurate picture of the situation. Some countries do not collect data against some of the indicators included in the model. In these cases, the regional value of the indicator is inserted; or, when the regional value is not available, a score of four was used to calculate risk scores and indices. Lastly, some of the country-level data used were not up-to-date and may reflect the situation in years before 2019.

**Results of the 2019 LAC NiE risk assessment**

Based on data collected in the region, overall NiE risk-assessment scores were calculated and are presented in Table 5. This is the third time an NiE risk assessment was undertaken (previously conducted in 2016 and 2017). Countries were assigned to risk categories from highest to lowest risk, with characteristics of this level of risk described. Table 6 shows the number of countries grouped by risk index and level of risk.

Twenty-seven per cent (9/33) of countries

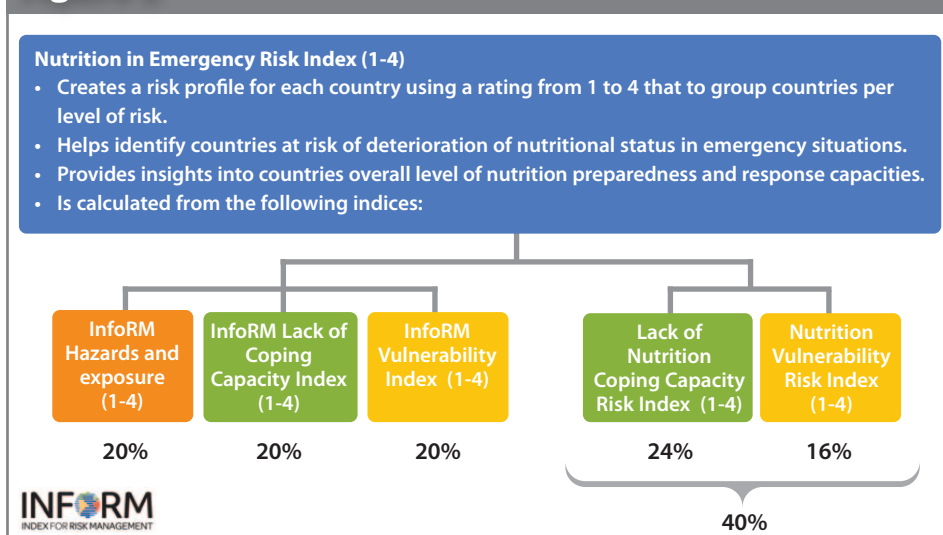
**Table 2a** Thresholds for lack of nutrition coping capacity risk scores

| Risk level | Weighted Lack of Nutrition Coping Capacity Risk Score | Risk threshold |
|------------|---|----------------|
| 4          | 88  | ≥ 75           |
| Mean       | 77.5  |                |
| 3          | 67  | 55 - 74        |
| Mean       | 56.5  |                |
| 2          | 46  | 35 - 54        |
| Mean       | 34  |                |
| 1          | 22  | ≤ 34           |

**Table 2b** Thresholds for nutrition vulnerability risk scores

| Risk level | Weighted Nutrition Vulnerability Risk Score | Risk threshold |
|------------|---|----------------|
| 4          | 64  | ≥ 55           |
| Mean       | 56  |                |
| 3          | 48  | 40 - 54        |
| Mean       | 40  |                |
| 2          | 32  | 25 - 39        |
| Mean       | 24  |                |
| 1          | 16  | ≤ 24           |

**Figure 2** NiE risk-assessment model



**Table 3** NiE risk index

|   |  |
|---|--|
| 4 | Very high level of risk of deterioration of the nutrition status of children in emergency situations |
| 3 | High level of risk of deterioration of the nutrition status of children in emergency situations      |
| 2 | Moderate level of risk of deterioration of the nutrition status of children in emergency situations  |
| 1 | Low level of risk of deterioration of the nutrition status of children in emergency situations       |

**Table 4** Thresholds for overall NiE risk scores

| Risk level | Weighted Nutrition in Emergency Risk Score | Risk threshold |
|------------|--|----------------|
| 4          | 392  | ≥ 345          |
| Mean       | 343.5                                      |                |
| 3          | 295  | 245 - 344      |
| Mean       | 246.5                                      |                |
| 2          | 198  | 150 - 244      |
| Mean       | 148  |                |
| 1          | 98   | ≤ 149          |





**Table 5** Level of nutrition risk in LAC countries

| Category | Risk score | Risk Index | Country                          | Characteristics   |
|----------|------------|------------|----------------------------------|---|
| D        | 356        | 4          | Haiti                            | <b>Hazard and Exposure:</b> Very high or high risk.   |
|          | 349        | 4          | Honduras                         | <b>Lack of coping capacity:</b> Critically low or low levels of resources that can alleviate the impact of hazards.   |
|          | 338        | 3          | Guatemala                        | <b>Vulnerability:</b> Heterogenous: from low (Dominican Republic and El Salvador) to very high (Guatemala and Haiti). In all countries, anaemia among children under five >25%.     |
|          | 302        | 3          | Venezuela                        | <b>Nutrition capacities:</b> Low in general, except Colombia and Guatemala (moderate):  |
|          | 263        | 3          | El Salvador                      | • Two thirds of countries have a nutrition-specific coordination mechanism; one third has a mandate in NiE.   |
|          | 260        | 3          | Nicaragua                        | • Only three countries include some nutrition provisions in the national emergency plan.  |
|          | 260        | 3          | Mexico                           | <b>Nutrition vulnerability:</b> high to very high, except for Mexico (moderate):  |
|          | 259        | 3          | Colombia                         | • Very low (<40%) exclusive breastfeeding rates. Only Guatemala and El Salvador have higher rates.  |
|          | 253        | 3          | Dominican Republic               |   |
| C        | 236        | 2          | Peru                             | <b>Hazard and exposure:</b> Moderate to high risk. Low for Trinidad and Tobago and Suriname.  |
|          | 235        | 2          | Bolivia                          | <b>Lack of coping capacity:</b> Moderate to low, except Belize (high capacities).   |
|          | 234        | 2          | Jamaica                          | <b>Vulnerability:</b> Low to moderate. In general, high levels of anaemia among children under five years old and among women of reproductive age.                                  |
|          | 229        | 2          | Suriname                         | <b>Nutrition capacities:</b> Moderate to very low:  |
|          | 228        | 2          | Ecuador                          | • Only three countries have a nutrition-specific coordination mechanism; two had NiE as part of their mandate (Bolivia and Guyana).   |
|          | 226        | 2          | Guyana                           | • Only three countries included some nutrition provisions in their national emergency response plan. Only one of them (Bolivia) included nutrition in children under two years old. |
|          | 221        | 2          | Trinidad and Tobago              | <b>Nutrition vulnerability:</b> High:   |
|          | 212        | 2          | Belize                           | • Very low exclusive breastfeeding rates (<40%), except Bolivia and Peru, which are around 60%.   |
| B        | 208        | 2          | Bahamas                          | <b>Hazard and exposure:</b> Moderate and low risk, except Bahamas and Brazil (high risk).   |
|          | 200        | 2          | Panama                           | <b>Lack of coping capacity:</b> Overall adequate capacity level at the institutional and infrastructure level to cope with an emergency among all countries.                        |
|          | 199        | 2          | Paraguay                         | <b>Vulnerability:</b> Low. In general, high levels of anaemia among children under five years old (except Costa Rica) and among women of reproductive age (>20%).                   |
|          | 199        | 2          | Brazil                           | <b>Nutrition capacities:</b> Low (except Panama; moderate):   |
|          | 189        | 2          | Argentina                        | • Only three countries (one third) have a nutrition-specific coordination mechanism. None has a mandate on NiE.   |
|          | 186        | 2          | Saint Kitts and Nevis            | • In all countries, nutrition is not considered in the national emergency plan.   |
|          | 184        | 2          | Costa Rica                       | <b>Nutrition vulnerability:</b> High:   |
|          | 182        | 2          | Saint Lucia                      | • Very low exclusive breastfeeding rates (<40%) in all countries, except Brazil.  |
| A        | 177        | 2          | Barbados                         | <b>Hazard and exposure:</b> Low risk, except for Cuba and Chile (high risk).  |
|          | 176        | 2          | Cuba                             | <b>Lack of coping capacity:</b> Adequate capacities to cope with an emergency, reflecting adequate level of resources to alleviate the impact of hazards.                           |
|          | 172        | 2          | Chile                            | <b>Vulnerability:</b> Low. Two thirds of countries have high levels of anaemia among children under 5 years old and among women of reproductive age (>20%, except Chile).           |
|          | 171        | 2          | Grenada                          | <b>Nutrition capacities:</b> Moderate to low:   |
|          | 168        | 2          | Saint Vincent and the Grenadines | • Two thirds of countries have a nutrition-specific coordination mechanism, including one third with a mandate in NiE.  |
|          | 166        | 2          | Dominica                         | • Only one quarter of countries include some nutrition provisions in their national emergency response plan (Cuba and Chile).   |
|          | 156        | 2          | Antigua and Barbuda              | <b>Nutrition vulnerability:</b> Moderate and low: 50% - 50%:  |
|          | 150        | 2          | Uruguay                          | • Low exclusive breastfeeding <6 months (<40%) in two thirds of countries.  |

in the LAC region are at high or very high risk of deterioration of nutrition status if an emergency arises. Almost three quarters of countries (73%; 24/33) are at high or very high risk due to gaps in nutrition capacity. Key gaps identified across the region include capability of nutrition-specific coordination mechanisms at national and sub-national levels to identify and address nutrition-related vulnerabilities and capacity gaps; capability of nutrition plans to prevent and/or address nutrition problems of children under two years old; lack of updated protocols for the management of acute malnutrition; and insufficient capacity in the available health workforce to respond in a crisis.

Results show that over three quarters of countries in the LAC region (76%; 25/33) have high or very high levels of nutrition vulnerability, explained by low rates of exclusive breastfeeding among children under six months of age; poor minimum dietary diversity of complementary

foods among children age 6-23 months, ranging from 29.2% (Haiti) to 90.4% (Peru); and diarrhoea prevalence among children under five years old higher than 13% in one quarter of countries (27%). Wasting appears to be less of a problem, with prevalence lower than 4% in approximately 85% of countries (28/33), ranging from 0.3% (Chile) to 6.8% (Barbados).

The 2019 LAC InfoRM vulnerability risk index shows that anaemia among children under five years and women of reproductive age are important concerns. In total, 85% countries have rates of anaemia among children under five years of over 20%, and in 91% countries, 15% (or more) of women of reproductive age are currently anaemic. In terms of low birth weight and stunting, most countries (30/33; 91%) have low birth weight rates of less than 12% and almost two thirds of countries (22/33; 67%) have stunting rates lower than 10%.

## Discussion and next steps

The NiE risk assessment has provided a much-needed overview of the emergency nutrition preparedness situation in the LAC region. Results show that, while many countries have some degree of emergency nutrition preparedness in place, no country demonstrates optimal capacity. Results provide a clear call for greater action to identify capacity gaps and vulnerabilities at country level and develop policies, plans, programmes and interventions to address them. Compared to previous years (2016 and 2019), some improvements have been made at country level, but limited nutrition human resources and budgetary constraints were cited as main barriers to the development of policies, plans and strategies to improve country-level preparedness.

The following actions are suggested by GRIN-LAC to strengthen the most important elements



**Table 6** Country grouping per risk index and level of risk

| Risk Index                         | Level of risk |            |        |             |
|------------------------------------|---------------|------------|--------|-------------|
|                                    | 1 Low         | 2 Moderate | 3 High | 4 Very high |
| <b>LAC-InfoRM Risk Indices</b>     |               |            |        |             |
| Hazards and exposure               | 11            | 4          | 11     | 7           |
| Lack of coping capacity            | 14            | 9          | 7      | 3           |
| Vulnerability                      | 23            | 7          | 1      | 2           |
| <b>Nutrition Risk Indices</b>      |               |            |        |             |
| Lack of nutrition coping capacity  | 0             | 9          | 22     | 2           |
| Nutrition vulnerability            | 1             | 7          | 21     | 4           |
| <b>Overall</b>                     |               |            |        |             |
| Nutrition in Emergency Risk (NERI) | 0             | 24         | 7      | 2           |

that form the basis of emergency nutrition preparedness in the region:

- Establish or strengthen national and sub-national nutrition-specific coordination mechanisms, including the participation of government and non-governmental institutions, humanitarian groups and bilateral and multilateral partners, with a specific mandate in NiE.
- Incorporate nutrition in national emergency response plans by linking nutrition actors and services to disaster-management agencies at national, sub-national and community level, developing national guidelines on infant and young child feeding in emergencies and developing a contingency plan in nutrition, including the prepositioning of supplies; e.g., multiple micronutrient powders, micronutrient

supplements for pregnant and lactating women, oral rehydration salts, fortified nutrition products and anthropometric equipment.

- Establish/strengthen policies and strategies to promote optimal infant and young child feeding practices.

Some countries have already acted to improve their NiE preparedness with the support of GRIN-LAC. In 2016, GRIN-LAC, together with UNICEF Nicaragua, supported the Nicaraguan government to conduct a national NiE risk assessment. Results were presented to the Health Commission of the National System for Disaster Prevention, Mitigation and Attention, and guidelines for NiE were subsequently developed by the Ministry of Health (MoH) with technical and financial

assistance from UNICEF and in collaboration with other actors at national and local level. The process ensured broad ownership and application by multiple relevant government bodies and organisations. An NiE national coordination mechanism (GRIN-RD) was also established in the Dominican Republic in 2017 to coordinate the food and nutrition response in emergency situations. In 2019, support was provided by GRIN-LAC to GRIN-RD to strengthen the functioning of the group through a four-day workshop on leadership and coordination, resulting in an 18-month work plan detailing subsequent actions to be taken.

A similar process was followed by Guyana's Nutrition Focal Point at the MoH. After discussions with GRIN-LAC on country nutrition capacities and vulnerabilities, establishment of a nutrition coordination group was identified as a first step in emergency nutrition preparedness. The MoH drafted Terms of Reference for this national mechanism and hosted a one-day stakeholders' meeting in 2018 to chart the way forward for the establishment of the nutrition coordinating body, beginning by clarifying roles and responsibilities of various agencies. This body became operational in 2019.

## Conclusion

GRIN-LAC is a regional NiE mechanism that can assist countries to minimise vulnerabilities and increase coping capacities for improved emergency nutrition preparedness and strengthen resilience. Enhanced methods to assess NiE risks in the region have resulted in a valuable measure of the nutrition capacity gaps and vulnerabilities that exist at country level. Results of the 2019 assessment suggest that, although there is variation both in terms of NiE capacity and vulnerability across the region, significant gaps persist in most countries. Urgent action must be taken to raise nutrition on national agendas and to strengthen sector coordination, early planning and mobilisation of capacities and resources to improve preparedness and response capacity, and enhance resilience to recurrent shocks.

For more information, please contact Yvette Fautsch Macías at [yfautsch@unicef.org](mailto:yfautsch@unicef.org)

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Damage caused by Hurricane Matthew at the École Chrétienne de Lundi on the outskirts of Jeremie, Haiti, 2016



WFP/Alexis Masciarelli



# Building national capacities for emergency nutrition preparedness and response in East Asia and the Pacific

By Mueni Mutunga, Caroline Abla, Alexandra Rutishauser-Perera and Sri Sukotjo



Mueni Mutunga is a regional Nutrition Specialist in UNICEF East Asia and Pacific Region. She was previously Chief of Nutrition for UNICEF in Sudan.



Caroline Abla is a consultant with 27 years of international experience managing nutrition and public health programmes in Africa, Asia and the

Middle East, including curriculum development and training.



Alexandra Rutishauser-Perera is Head of Nutrition for Action Against Hunger UK. She has 13 years of experience in public health nutrition across Africa and Asia, with a focus on capacity transfer.



Sri Sukotjo is a Nutrition Specialist with UNICEF Indonesia and has closely supported the Ministry of Health Indonesia in the design and rollout of the Nutrition in Emergencies capacity-building initiative in Indonesia.

The authors would like to acknowledge UNICEF, Action Against Hunger UK and the Ministries of Health of Myanmar, Indonesia, Fiji and Kiribati for their collaboration in this programme.



Indonesian participants at the second NiE training, Indonesia, 2019

Location: *Indonesia, Fiji and Kiribati*

**What we know:** Asia and the Pacific regions are extremely vulnerable to natural disasters and highly exposed to the effects of climate change.

**What this article adds:** UNICEF and Action Against Hunger undertook nutrition in emergency (NiE) training in Indonesia, Fiji and Kiribati in 2018-2019 as part of a regional emergency preparedness and response capacity-building initiative for East Asia Pacific. NiE training materials were adapted to suit each country context with support from each national government. In Indonesia, the development of a national curriculum was government-led and resulted in multiple trainings at national and sub-national levels. In each context, national and sub-national action plans were developed to address gaps and improve nutrition preparedness and response plans that are being actioned. Lessons learned include the need to adapt NiE training to the national context; use simulation exercises based on national real-life examples; incorporate aspects of coordination into the training; generate buy-in from government, non-governmental organisations and academics; encourage the cascade of training to sub-national levels for different cadres of the health workforce; and incorporate time and support to develop action plans to be taken forward post-training.

## Background

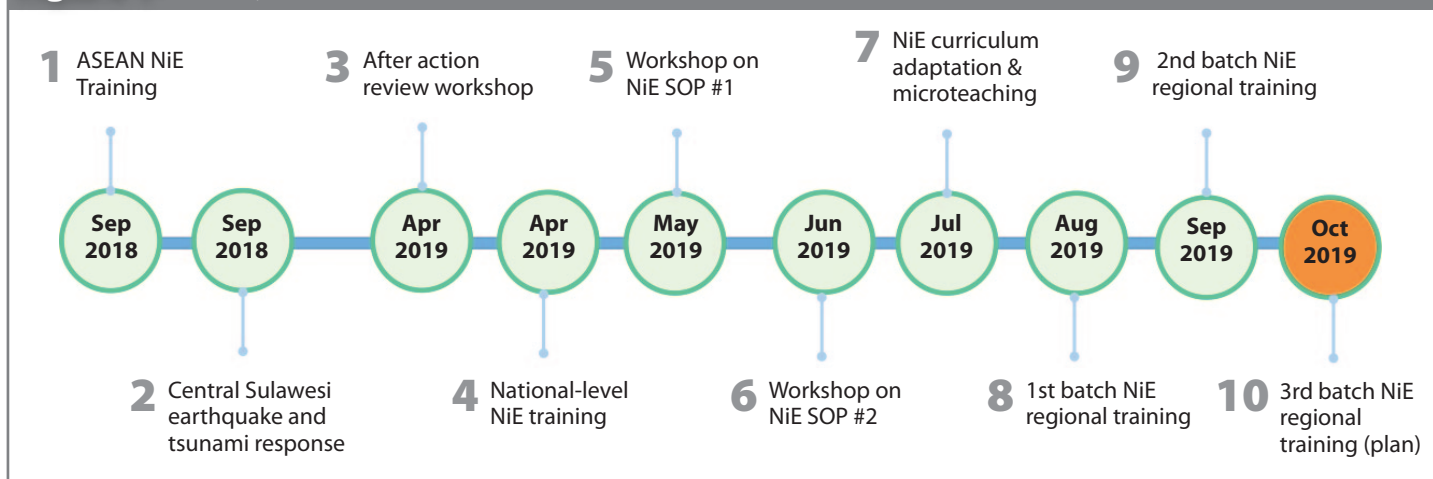
Asia and the Pacific are areas of the world that are extremely vulnerable to natural disasters, both in terms of the frequency of disasters and the high number of people affected (ADB, 2013). The region is also highly exposed to the impacts of climate change. Extreme climate events are expected to have increased impacts in the coming years on human health, security, livelihoods and poverty by aggravating pressures on natural resources and environments (IPCC, 2014). This is expected to increase the risk of acute malnutrition in a region where the population already has extremely high levels of stunting. In recognition of this growing threat to nutrition, in 2017 the Association of Southeast Asian Nations (ASEAN) Health Cluster identified the urgent need to strengthen the emergency preparedness and response capacity of member states to improve regional nutrition resilience.

Also in 2017, UNICEF undertook a qualitative analysis of the level of nutrition emer-

gency readiness in the region, based on the core Nutrition in Emergencies (NiE) competencies (Meeker *et al*, 2014), to inform the development of a regional NiE strategy. A resulting recommendation was to use the ASEAN platform to advocate for the prioritisation of NiE and provide technical assistance to member countries to strengthen local government and health system capacities to prepare for and respond to emergencies. Four countries – Myanmar, Indonesia, Fiji and Kiribati – were prioritised for this process, based on their level of disaster vulnerability (frequency and expected impact of disasters) and available national capacity for response. In 2018, UNICEF launched a regional NiE capacity-building initiative focused on these countries, with the aim of developing a pool of national NiE experts who could support NiE preparedness and response in-country and in other ASEAN member states (constituting a national/regional response team), act as NiE ‘trainers of trainers’, and strengthen health



**Figure 1** capacity-building milestones



systems and existing service-delivery platforms to deliver routine nutrition services. In this article we present experiences of the rollout of this programme through context-specific national and sub-national trainings in Indonesia, Fiji and Kiribati, and resulting efforts to develop and improve national preparedness plans.

**Indonesia**

Indonesia straddles the seismically active ‘Pacific Ring of Fire’ and sees frequent earthquakes, volcanic eruptions, tsunamis and localised incidents such as landslides, floods and forest fires. In 2018, the country experienced its worst year in over a decade when more than 3,000 people died in tsunamis and earthquakes in Sulawesi, Lombok, and West Java and Sumatra islands. Subsequently, in 2019, the National Disaster Mitigation Agency (BNPB) recorded a total of 3,622 natural disasters across the country.

In September 2018, the United Nations Children’s Fund (UNICEF) in collaboration with Action Against Hunger (AAH) UK supported the Indonesia Ministry of Health (MoH) to host the first-ever ASEAN NiE training. The five days training gathered policy-makers and decision-makers from nine ASEAN member countries to orientate them on and advocate for ca-

capacity development, systems strengthening and public health planning for NiE response in their respective countries.

On 28 September, the day after the ASEAN training, an earthquake and tsunami struck the Central Sulawesi province in Indonesia, revealing critical gaps in the NiE response capacity. The disaster demonstrated limited NiE capacity at national and sub-national levels and a lack of NiE standard operating procedures and guidance. Even though Indonesian participants of the ASEAN NiE regional training had gained some initial knowledge, this was not sufficient to aid a fast and effective nutrition response to the emergency. Informed by this experience, Indonesia MoH made a policy decision to strengthen national capacity for NiE response, officially launching an NiE capacity-building initiative in November 2018. This was further informed by the findings of an ‘after-action’ review of the Central Sulawesi disaster, conducted in April 2019. A timeline of this and other important actions in Indonesia is presented in Figure 1.

*Development of a national NiE training curriculum*

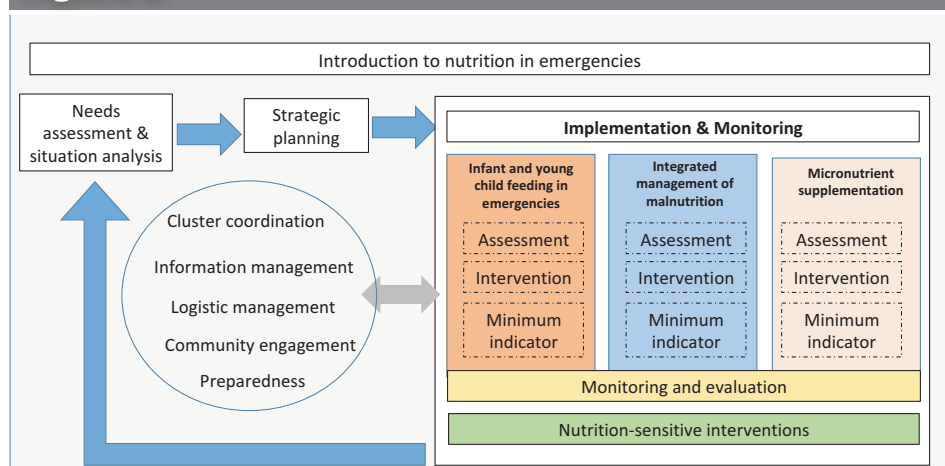
A national NiE training curriculum was developed for the Indonesia context as part of the

MoH capacity-building initiative. This was adapted from the global and the ASEAN NiE training packages. Adaptations were made with support from AAH UK to align the training to the national context and policies, including the national Integrated Management of Acute Malnutrition (IMAM) guidelines and infant and young child feeding (IYCF) policy. Lessons from the nutrition response to the Central Sulawesi earthquake and tsunami in 2018 were used to identify gaps in the system to further inform the curriculum, including a lack of coordination for a nutrition response and a lack of tools for assessment. There was a marked lack of capacity within the health workforce to support optimal IYCF – even after breastfeeding corners were established, there were no skilled IYCF counsellors to support breastfeeding mothers at community-level and trained counsellors had to be brought in from Jakarta. There was also very limited capacity to treat children with severe acute malnutrition (SAM), in spite of a reported prevalence of 10.2% in 2018, with no outpatient therapeutic programmes, few doctors trained in the inpatient management of SAM, and inadequate screening and referral of SAM cases at community level. Care was taken to include these aspects in the first iteration of the training curriculum. Figure 2 depicts the structure and components of the training course. It was not possible to include a whole session on multi-sector programming; however, cash and food interventions were brought into the session on MAM and aspects of food security and livelihoods were included in the needs assessment session. Aspects of government coordination were included in the cluster coordination session.

*National-level training*

The first national-level NiE training using the new curriculum was conducted in April 2019. Nineteen participants attended, including staff from the MoH at national and provincial levels, national and local non-governmental organisations (NGOs), and key academic institutions. Around one third of participants had been involved in the emergency response during the preceding months in Indonesia. One full day

**Figure 2** Indonesia NiE course content





was dedicated to an emergency simulation focused on nutrition response and cluster coordination. The latest simulation used in the NiE UNICEF training in Lebanon was used as a model but contextualised and adapted to the Indonesia context.

The training also included a day and a half workshop on next steps for NiE preparedness and implementation, led by the MoH. This led to the development of national Standard Operating Procedures (SOPs) for different areas of NiE, based on lessons learned in the training, simulation exercises and extensive discussions between participants on next steps. SOPs were developed for coordination, assessment, IYCF, micronutrient deficiencies and IMAM. Each TOR incorporated NiE response planning, as well as plans for emergency preparedness and post-emergency.

Following the national training, feedback from participants and facilitators was gathered. A follow-up workshop consisting of representatives from the MoH, academia and local NGOs was held in July 2019 to further review and adapt the curriculum and to further align the material to the national context and policies. A facilitators' guide was developed and the curriculum translated into Indonesian language. Trainers of trainers (TOT) were identified from the initial participants of the national training course and further equipped through a micro-teaching exercise. Following the micro-teaching exercise, the module was pre-tested in two NiE regional trainings.

### Sub-national regional training

Two regional trainings were held using the updated curriculum in September 2019 with 50 participants, covering 12 of the most disaster-prone provinces in Indonesia. These trainings were carried out by the national TOT team with technical support from UNICEF Indonesia.

Several adaptations were made for the sub-regional training, including the featuring of a simulated nutrition sub-cluster meeting to demonstrate effective facilitation techniques; completion, analysis and interpretation of the '4Ws matrix' to support decision-making in nutrition sub-cluster contexts; and a practical exercise on the use of mobile data collection tools in assessment (kobo toolbox<sup>1</sup>). Case studies were included to help participants identify appropriate nutrition-sensitive interventions in a response and demonstrate links that nutrition clusters can make with other sectors during emergencies, including health; food security and livelihoods; Water Sanitation and Hygiene (WASH); and logistics.

Participants were invited to develop an NiE implementation plan for their province at the outset of the course, drawing from lessons learned during each course session. At the end of each day, participants were grouped by province to discuss their learning and how this could be reflected in their NiE plans. At the end of the training, each province presented its plan

to all participants for feedback on further improvement. After each regional training, the training curriculum was further adapted and improved. Efforts to accredit the NiE curriculum for delivery at local technical institutions and universities are ongoing.

Since the start of this process, the Government has doubled its disaster budget and the MoH has allocated a budget specifically to support the rollout of the training in the districts of each of the trained provinces. There is also now a national plan for scale-up for eight essential nutrition interventions to be delivered through the health system as part of the global financing facility to reduce stunting, some of which is expected to support the rollout of NiE preparedness plans.

### Fiji

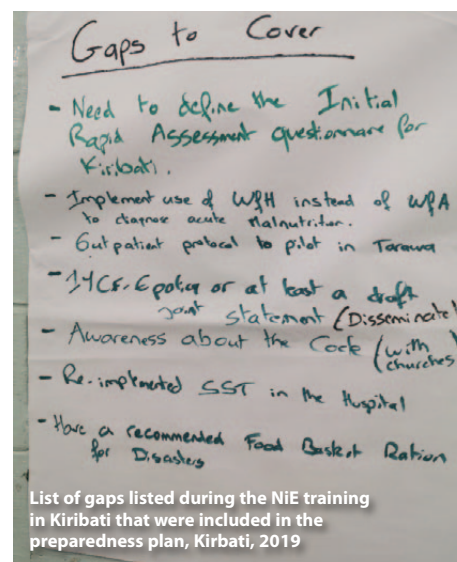
Fiji is prone to landslides, flash floods and storm surges as a result of tropical weather phenomena, including depressions and cyclones. In 2016, Fiji was heavily hit by Tropical Cyclone Winston, a category-five cyclone which destroyed many infrastructures and compromised the livelihoods of almost 60% of Fiji's population. In September 2019, the Head of Nutrition from AAH UK visited the main stakeholders involved in emergency response in Fiji. This included a two-hour consultative meeting with different departments of the MoH and NGOs involved in nutrition to understand the national context and gather relevant documentation. On this basis, the planned NiE training for Fiji was tailor-made for the national context and MoH needs and relevant practical exercises devised.

A five-day NiE training was held in November 2019 in Nadi attended by 25 participants from the Ministry of Health and Medical Services. The training covered concepts of NiE; needs assessment and situational analysis; IMAM (based on the updated but not-yet-implemented national IMAM guidelines); IYCF-E (teaching participants how to use the Operational Guidance on Infant Feeding in Emergencies<sup>2</sup>); micronutrients; and the use of NutVal<sup>3</sup> to plan, calculate and monitor the nutritional value of food assistance. Participants applied real-life data from Fiji to NutVal, and in doing so were able to agree on the revised composition of the Fiji food basket, taking into consideration the high prevalence of non-communicable diseases in the country.

Throughout the course, participants were encouraged to highlight gaps that needed to be addressed to improve Fiji's preparedness; for example, the need to develop a multi-cluster/sector Initial Rapid Assessment (MIRA) questionnaire to ascertain prevalence of wasting and the need to develop to develop an IYCF-E policy. On the final day participants worked in four self-selected groups (assessment, acute malnutrition, IYCF-E and micronutrients) to develop preparedness plans, using the 2013-2017 Fiji National Health Emergencies and Disaster Management Plan (HEADMAP) as a template. The intention is to use the resulting plans to integrate nutrition (which was previously mostly absent)



Alexandra Rutschhauser-Perera



into the updated HEADMAP, which is currently in development.

### Kiribati

Kiribati's location puts it at risk of numerous types of natural disasters, including earthquakes and tsunamis, and is rated high on the vulnerability risk scale for humanitarian crises and disasters.<sup>4</sup> Since November 2016, the country has been increasingly affected by drought as a result of the depletion of freshwater supplies. This situation has been exacerbated by frequent storms, rising sea levels and coastal flooding, leaving wells and groundwater sources unusable.

A visit was conducted in Kiribati in September 2019, involving site visits and key stakeholder meetings. The NiE training, tailor-made to suit

<sup>1</sup> The kobo toolbox is an online data-collection tools and analysis platform that can be used to collect data in the area without mobile network and internet coverage.

<sup>2</sup> [www.ennonline.net/operationalguidance-v3-2017](http://www.ennonline.net/operationalguidance-v3-2017)

<sup>3</sup> [www.nutval.net](http://www.nutval.net)

<sup>4</sup> <https://drmkc.jrc.ec.europa.eu/inform-index>



the national context and needs, took place in early December 2019. Although it focused on the same topics as the training in Fiji, the 18 participants came from very varied backgrounds, from paediatric doctors to members of the Ministries of Fisheries and Commerce, as well as project managers of NGOs. The training allowed for rich discussions on the management of acute malnutrition, since the paediatric team in Kiribati has not yet adopted the 2013 World Health Organization update on the management of SAM.<sup>5</sup> During the training on NutVal, participants agreed on a basic ration to be advised to businesses making donations to the disaster-affected population and, on the last day, key interventions were designed to be included in the draft emergency preparedness plan of the MoH and medical services. This included a draft IYCF-E joint statement, questionnaires for assessments, and a plan to ensure a regular supply of F75/F100 therapeutic milks and micronutrient powders for the management of acute malnutrition and to pilot the use of ready-to-use therapeutic food (RUTF). There is currently no data on prevalence of wasting, although this is forthcoming.

### Lessons learned

The NiE trainings held in Indonesia, Fiji and Kiribati offer several lessons that can be used in other contexts to ensure that NiE training is effective and leads to concrete improvements in NiE preparedness and response at national and sub-national levels.

#### *Adapt training to suit national context*

The success of the trainings was greatly helped by adaptation of materials to suit the national context and respond to identified gaps in NiE preparedness and response in each country. This is most effective when course designers gain a good understanding of the nutrition situation, existing systems, and platforms and policies, taking into account actions in previous disasters where possible. In each country stakeholders were engaged in this process of learning; in the case of Indonesia, they were also engaged in the curriculum-development process, which was important in increasing national ownership of the capacity-building process. Care should be taken to ensure that training materials align with national policies and the nutrition context (for example, prevalence of wasting, stunting and non-communicable disease), including terminology used, to enable maximum synergy between lessons learned and post-training actions. In the Indonesia context, the adaptation of the training to the national context helped to improve local acceptance of global guidance, including the use of mid-upper arm circumference (MUAC) in addition to weight-for-height for the detection of SAM and the use of the supplementary suckling technique for complicated cases of wasting in infants under six months of age.

#### *Use of simulation exercises*

Simulation exercises were useful in translating classroom knowledge into practice and in motivating participants to apply learning to their

contexts. They helped to identify skills among participants that needed further strengthening and missing local guidance, which could then be included in action plans going forward. Simulation exercises were especially useful when based on real-life data and scenarios for that country, such as in the Indonesia context, where many had first-hand experience of the recent Central Sulawesi disaster, and the application of national data in Fiji and Kiribati.

*Incorporation of coordination aspects*  
Training, orientation and planning should include aspects of coordination to ensure that appropriate systems are put in place to sustain preparedness and response actions.

#### *Include relevant stakeholders*

In all three contexts, efforts were made in advance of the trainings to ensure buy-in from government, which was critical to their success. In Indonesia, MoH leadership and ownership of the capacity-development process was crucial for the implementation of actions identified during the training, including the development of TORs and funding for further curriculum refinement and sub-national trainings. In Fiji and Kiribati, senior participants from the MoH reported that they felt empowered to replicate the sessions specifically on the basics of nutrition, pathophysiology of SAM, implementation of the International Code of Marketing of Breastmilk Substitutes, and management of donations. The involvement of a wider range of stakeholders in all countries beyond the MoH, including local NGOs and academia, was also important and contributed to the development of NiE national teams and the further rollout of training and national plans, as well as an enriched learning process. The involvement of academia in Indonesia in particular facilitated efforts towards accreditation of the national NiE training curriculum and future plans to teach the curriculum in local universities.

#### *Cascade training to sub-national levels*

The Indonesia example demonstrates the need to train not just at national level, but right down to provincial and district levels to promote real change and enable meaningful emergency preparedness and response actions. The example of Kiribati shows the need to include capacity-building of health workers at each level to ensure that plans are actionable down to community and facility levels. Efforts are being made to institutionalise training in Indonesia and this should be encouraged where possible to ensure sustainability.

#### *Incorporate time and support to develop action plans*

All three examples demonstrate the value of giving time for participants to work together and immediately apply their learning to actionable preparedness plans to effect real change. In all three country examples, the MoHs have requested support for further training and development of preparedness plans, which indicates their intention

to incorporate lessons learned into national strategies and plans. In Indonesia, following the ASEAN training, an NiE capacity-building initiative was launched by the MoH and an NiE coordination body composed of government, local NGO and United Nations representatives was set up, which demonstrates long-term commitment.

### Conclusion

The example of NiE training in Indonesia, Fiji and Kiribati by UNICEF and AAH demonstrates the potential for using contextualised training materials to build the capacity of national and sub-national stakeholders in nutrition preparedness and response. As a result of this programme, a pool of trained personal in NiE is now available across the three countries that can be used to develop in-country nutrition preparedness and who can be called on during crises in their own countries and beyond. Furthermore, the training has resulted in buy-in from national governments to address NiE gaps in their countries and the development of concrete action plans that are now being taken forward in each context.

As a result of the capacity-building process, Indonesia has committed to the development of national guidance and standard operating procedures to guide the nutrition response in future emergencies, as well as to the streamlining of coordination mechanisms for nutrition between national and sub-national level and the strengthening of information management and standardisation of interventions packages. Capacity of local government and district-level staff is also being developed to implement these plans. Fiji and Kiribati are reviving their emergency food baskets to include healthier options and increase dietary diversity for children. They are also committed to building sub-national capacity for nutrition response. Across the region, UNICEF will continue to promote this nationally-led approach to NiE capacity development.

For more information, please contact Alexandra Rutishauser-Perera at [a.rutishauserperera@actionagainsthunger.org.uk](mailto:a.rutishauserperera@actionagainsthunger.org.uk)

<sup>5</sup> [www.who.int/nutrition/publications/guidelines/updates\\_management\\_SAM\\_infantandchildren/en/](http://www.who.int/nutrition/publications/guidelines/updates_management_SAM_infantandchildren/en/)

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## Guiding principles for sustainable healthy diets



Malnutrition and degradation of environmental and natural resources are major challenges to reaching the Sustainable Development Goals. Both challenges are affected by and in turn influence the food systems that enable availability, accessibility, affordability and acceptability of food. In response to this problem, the Food and Agriculture Organization (FAO) and the

World Health Organization (WHO) have released guiding principles for sustainable healthy diets. Sustainable healthy diets<sup>1</sup> are defined as “dietary patterns that promote all dimensions of individuals’ health and wellbeing; have low environmental pressure and impact; are accessible, affordable, safe and equitable; and are culturally acceptable.” The guiding principles are the result of a robust review of evidence and an

international consultation held in July 2019 at FAO headquarters in Rome. The document includes a set of principles on what constitutes diets that are both healthy and sustainable, and non-technical information and messaging that can be used in policy-making and communications. The principles are food-based and take account of nutrient recommendations, while considering environmental, social/cultural and economic sustainability. The ultimate aim is to support countries to transform food systems to nourish both people and the planet.

<sup>1</sup> FAO and WHO. 2019. Sustainable healthy diets – Guiding principles. Rome. [www.fao.org/3/ca6640en/ca6640en.pdf](http://www.fao.org/3/ca6640en/ca6640en.pdf)

## Global Technical Assistance Mechanism for Nutrition (GTAM) progress report



The Global Technical Assistance Mechanism for Nutrition (GTAM) is a common global mechanism endorsed by over 40 Global Nutrition Cluster (GNC) partners to provide systematic, predictable, timely and coordinated nutrition technical assistance in order to meet the nutrition rights and needs of people affected by emergencies. It is co-led by the United Nations Children’s Fund (UNICEF) and World Vision International (WVI), in collaboration with additional members of a core team (GTAM-CT), including Emergency Nutrition Network (ENN) as the knowledge management (KM) partner, the GNC and the Technical Rapid Response Team (Tech RRT).

During the period 1 August to 31 October 2019, the GTAM-CT continued to develop and document operational ways of working for the GTAM as part of the ‘build’ phase, further defining processes (particularly for the engagement of Global Technical Working Groups (GTWGs) in providing technical advice and consensus-driven guidance in gap areas).

The Nutrition Information Systems (NIS) GTWG and the Cash Reference Group were fully operationalised during this period. Membership and workplans were put in place and the development of specific guidance initiated (on “conducting nutrition analysis for Humanitarian Needs Overviews” by the NIS working group and “cash in emergencies for nutrition” by the Cash reference group). The Infant and Young Child Feeding in Emergencies (IYCF-E) GTWG (operated by the IFE Core Group) developed a costed workplan to deliver on priority gaps identified in the GTAM baseline technical needs assessment<sup>1</sup>, and several members contributed to a case study charting the experience and learning from their response to a request for technical advice which came through the GTAM.

The Inter-cluster Nutrition Working Group (ICNWG) took on the role of the nutrition-sensitive GTWG in June 2019 on a trial basis. During a meeting in Rome in August, the group discussed how best to support the GTAM. The acute malnutrition

GTWG is in the early stages of formation; a call for nominations for membership went out and World Vision and the GNC will take on the role of co-chairs on an interim basis while the process for allocating chairs is defined. A first meeting of the group is scheduled for the next quarter.

In terms of provision of technical expertise, 12 vetted consultants were added to the GTAM consultant roster. Six advisers were deployed (two assessment advisors to Central African Republic and Ethiopia; an IYCF-E adviser to Jordan; and a nutrition in emergencies adviser to Mexico, with two additional deployments underway to provide Community Management of Acute Malnutrition support in Ethiopia and Angola).

Download the full report from: [www.ennonline.net/gtamquarterlydigest3](http://www.ennonline.net/gtamquarterlydigest3)  
Read more about the GTAM at [www.ennonline.net/ourwork/knowledgemanagement/gtam](http://www.ennonline.net/ourwork/knowledgemanagement/gtam)

<sup>1</sup> [www.ennonline.net/fex/61/baselinetechnicalneeds](http://www.ennonline.net/fex/61/baselinetechnicalneeds)

## Demographic and Health Survey update core questionnaires

In October 2019, the Demographic and Health Survey (DHS)<sup>1</sup> programme released updated DHS model questionnaires, which will be used during phase 8 of the global survey programme (2019-2023). Countries conducting DHS in phase 8 will collect significantly more data related to nutrition programmes and policies. This is a key achievement for the global nutrition community, given that DHS surveys are conducted in

over 90 countries and DHS is one of the most commonly accessed and used sources of nutrition data in the world. Data for Decisions to Expand Nutrition Transformation (DataDENT), an initiative funded by the Bill & Melinda Gates Foundation, provided essential leadership to nutrition stakeholders in encouraging updates to the DHS nutrition content. This involved the development and submission of 11 nutrition recommendations

for consideration, which engendered a high level of engagement from the global nutrition community. As a result, changes have been made to questions in DHS questionnaires relating to breastfeeding counselling, food and cash support for pregnant women, infant and young child feeding counselling, growth monitoring and malnutrition screening, diets of women and young children, and food fortification and iron supplementation. A DataDENT brief<sup>2</sup> explains the process in full, changes made and potential impact on the nutrition community.

<sup>1</sup> <https://dhsprogram.com/>  
<sup>2</sup> DataDENT (2019) Expanded nutrition content in the Demographic and Health Survey (DHS)-8 core questionnaires. [https://datadent.org/wp-content/uploads/2019/10/DataDENT-DHS-8-outcome-brief\\_print\\_FINAL.pdf](https://datadent.org/wp-content/uploads/2019/10/DataDENT-DHS-8-outcome-brief_print_FINAL.pdf)

## Call for papers on prevention of non-communicable disease in humanitarian settings

**B**MJ Global Health, in collaboration with the International Rescue Committee, the Conflict and Health Research Group at King's College London and the College of Health at Lehigh University, have announced a call for papers on *Non-Communicable Disease (NCD) Prevention in Humanitarian Settings*. Today's conflict-affected countries have some of the highest prevalence of NCDs globally. The World Health Organization (WHO) estimates that diabetes, for example, affects 12% of adults in Syria, 13.7% of adults in Libya and 7.7% of adults in Yemen. Many refugee camps and settlements have been home to displaced people for three or four decades, such as Kakuma and Dadaab in Kenya and Mae La in Thailand. In those settings, NCDs are the leading cause of death and must be addressed. In addition

to the four main risk factors – unhealthy diet, physical inactivity, smoking and alcohol – WHO recently added a fifth leading NCD risk factor: air pollution. Notably, poor air quality could be responsible for up to a quarter of strokes and heart disease, a third of lung cancers and almost half of chronic obstructive pulmonary disease cases.

Despite these challenges, preventing NCDs through aggressive monitoring and policy interventions is still not prioritised in these countries and settings. Primary prevention is not a priority during acute emergency and conflict situations, but secondary prevention measures are important in such scenarios. Patients with existing diagnoses of NCDs require continuity of care to prevent acute exacerbations and complications of their disease,

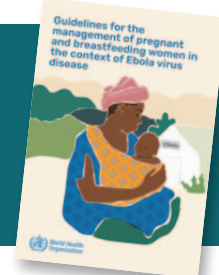
and ultimately prevent premature deaths. Conversely, in long-standing and more stable contexts, such as refugee camps, primary prevention initiatives are possible. A 2015 systematic review highlighted the dire lack of research on NCDs in humanitarian contexts and ELRHA (Enhancing Learning and Research for Humanitarian Assistance)<sup>1</sup> has listed NCDs as a priority research area.

BMJ Global Health invites submissions for a special issue on this subject, including case studies, qualitative research, evaluations of interventions, quantitative analysis and prevalence studies, papers on commercial determinants of NCDs, and systematic reviews. Abstracts of one to two paragraphs must be submitted by 17 April 2020 to [info.bmjgh@bmj.com](mailto:info.bmjgh@bmj.com)

For more information please see: <https://blogs.bmj.com/bmjgh/2020/02/13/call-for-papers-ncd-prevention-in-humanitarian-settings>

<sup>1</sup> [www.elrha.org](http://www.elrha.org)

## Guidelines for the management of pregnant and breastfeeding women in the context of Ebola virus disease



**T**he Democratic Republic of Congo (DRC) is currently experiencing the second-largest Ebola outbreak in history, following a 2014-2016 outbreak in western Africa that had an estimated 28,000 cases. Investigational treatment and vaccination trials are ongoing, but data in the context of pregnancy and breastfeeding are limited. There is a paucity of scientific evidence on how best to treat pregnant or breastfeeding women with suspected or confirmed Ebola virus disease (EVD). Historical reports suggest that, among women who acquire EVD during pregnancy, there is increased mortality and morbidity, and a near 100% rate of adverse pregnancy outcomes. To save the lives of mothers and their babies, mitigate complications and limit the spread of disease, it is critical that recommendations are made on the prevention, treatment, and surveillance of women who are exposed to EVD, acquire EVD during pregnancy or breastfeeding, or survive EVD with ongoing pregnancies.

In response, the World Health Organization (WHO) recently released guidelines for the management of pregnant and breastfeeding women in the context of EVD.<sup>1</sup> These guidelines are the first to provide such recommendations. They also cover the surveillance and management of ongoing pregnancies and adverse pregnancy-related events, the handling

of bodily and pregnancy-related fluids during acute maternal infection and following recovery, and the management of subsequent pregnancies in Ebola survivors. These guidelines will be of interest to health policy makers, emergency preparedness and response teams, and healthcare providers who work with pregnant or breastfeeding women in the context of Ebola.

Specific recommendations cover six topics: (i) the management of acute EVD in pregnant women; (ii) the management of pregnancies in women who develop EVD during pregnancy and those who survive EVD with an ongoing pregnancy; (iii) infection prevention and control (IPC) measures for pregnant women with acute EVD or who have recovered from EVD with ongoing pregnancies (with conception prior to EVD); (iv) IPC for women who become pregnant after recovering from EVD (with conception after EVD); (v) breastfeeding women with acute EVD or who have recovered from EVD (see Table 1); and (vi) vaccination recommendations for pregnant women who are at risk of acquiring EVD.

Download the full guidelines from: <https://apps.who.int/iris/handle/10665/330851>

<sup>1</sup> Guidelines for the management of pregnant and breastfeeding women in the context of Ebola virus disease. Geneva: World Health Organization; 2020.

**Table 1** Breastfeeding recommendations – extract from the WHO guidelines for the management of pregnant and breastfeeding women in the context of Ebola virus disease (2020)

**Recommendation #9:** Breastfeeding should be stopped if acute EVD is suspected or confirmed in a lactating woman or in a breastfeeding child. The child should be separated from the breastfeeding woman and provided a breastmilk substitute as needed.

Recommendation strength: strong. Very low quality evidence.

**Recommendation #10:** Children without confirmed EBOV infection who are exposed to the breastmilk of women with confirmed EVD should be considered contacts. The child should stop breastfeeding and should undergo close monitoring for signs and symptoms of EVD for 21 days. The child should be given a breastmilk substitute as needed. Post-exposure prophylaxis for EVD can be considered for children exposed to the breastmilk of EBOV-infected women on a case-by-case basis and in accordance with existing research protocols.

Recommendation strength: strong. Very low quality evidence.

**Recommendation #11:** If a lactating woman and her breastfeeding child are both diagnosed with EVD, breastfeeding should be discontinued, the pair should be separated, and appropriate breastmilk substitutes should be provided. However, if the child is under six months of age and does not have safe and appropriate breastmilk substitutes, or the child cannot be adequately cared for, then the option to not separate and continue breastfeeding can be considered.

Recommendation strength: strong. Very low quality evidence.

**Recommendation #12:** A woman who has recovered from EVD, cleared viremia, and wants to continue breastfeeding should wait until she has had two negative RT-PCR breastmilk tests for EBOV, separated by 24 hours. During this time, the child should be given a breastmilk substitute.

Recommendation strength: strong. Very low quality evidence.





## What's new at ENN?

### Field Exchange

#### Special issue on wasting in South Asia

Asia is home to half of the world's wasted children (25.9 million) and severely wasted children (8.6 million) and 40% of the world's stunted children (58.7 million).<sup>1</sup> Over 80% of the estimated regional burden of wasting is concentrated in India alone. Uniquely, the prevalence and incidence of wasting in South Asia is often highest at birth and in the first months of life, then declines with age. The majority of wasting after the first year of life occurs among children who experienced wasting in early life. The wasting agenda is inadequately reflected in national health strategies and plans of South Asian countries and financial investments in the wasting agenda are insufficient to deliver services at scale.

There is a need to capture, collate and appraise learning and evidence from programming and research in South Asia to help build the evidence base to inform advocacy, priority actions and research agendas. As a contribution to this effort, Emergency Nutrition Network (ENN) and the United Nations Children's Fund (UNICEF) Regional Office for South Asia (ROSA) have partnered to develop a special issue of *Field Exchange* on wasting in South Asia, to be published in September 2020.

The objective of this special issue is to increase understanding of the huge prevalence and burden of wasting in South Asia and document the current status, gaps, innovative approaches and opportunities in the policy and programme response. Priority content areas include: epidemiology of wasting in South Asia; implementation of models and packages in South Asia; interventions to reduce low birth weight; management of 'at-risk' mothers and infants under six months of age; integration of wasting programmes into health systems and health systems strengthening; experiences of implementing a continuum of care for wasted children; linking humanitarian and development programming to treat wasting; and implications of climate change on the burden of wasting in South Asia.

We are issuing an open call for content with a deadline for submission of 30 April 2020. Please send a short abstract (maximum 400 words) of your proposed article that explains how it will address a priority theme and key learning points to Chloe Angood at [chloe@enonline.net](mailto:chloe@enonline.net)

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ENN supported the Scaling Up Nutrition (SUN) Movement<sup>2</sup> Secretariat at the Global Gathering (GG)<sup>3</sup> in November 2019 in Nepal, attended by 1,200 participants from over 100 countries. ENN conducted knowledge capture of the key outcomes of the 25 workshops that ran throughout the three-day gathering, feeding into both the SUN Global Gathering Report and a special SUN GG edition of ENN's publication *Nutrition Exchange* described below.



ENN also published five briefing papers in time for the SUN GG 2019 to distil emerging themes of articles published in *Field Exchange* and *Nutrition Exchange* over the last five years. The syntheses of ENN learning examined over 150 relevant field-level articles and explored the key topics of:

1. Building an enabling environment
2. Utilising SUN mechanisms to catalyse scale-up
3. Scaling up nutrition-sensitive interventions
4. Scaling up nutrition-specific interventions
5. Working in fragile and conflict-affected states.

Download from [www.enonline.net/resources/sunscaleupnutsensitive](http://www.enonline.net/resources/sunscaleupnutsensitive)

ENN also developed two country case studies exploring sub-national, multi-sector nutrition programming in the Philippines and Zimbabwe. These accompany six other case studies conducted in Senegal, Niger, Ethiopia, Kenya, Nepal and Bangladesh exploring the same theme. ENN now has a rich body of learning on multi-sector nutrition programming and will publish these reports alongside a synthesis paper in March.

All of these materials can be downloaded from the SUN Knowledge Management section of ENN's website at [www.enonline.net/ourwork/knowledgemangement/sunkm](http://www.enonline.net/ourwork/knowledgemangement/sunkm)



### NUTRITION EXCHANGE

Look out for two *Nutrition Exchange* (NEX) publications coming out in 2020! End of March is the release date for *NEX13*, a special edition featuring country stories inspired by the SUN Movement 2019 Global Gathering. These articles capture key workshop themes from the conference, such as: innovative financing, data-driven decision-making, meeting the health and nutrition needs of adolescents, and how business and civil society can work together to improve nutrition – as told by the countries themselves.

In a second regional edition, *NEX South Asia* – to be released at the end of June – focuses on country efforts to improve young children's diets. Stories range from the use of evidence to design a national infant and young child feeding strategy in Pakistan to the Government of Nepal's experiences in implementing a social protection intervention ('Child Grant') and regional efforts to address increasing child overweight and obesity. New issues will be available on our website [www.enonline.net/nex](http://www.enonline.net/nex) or subscribe free of charge at [www.enonline.net/subscribe/nex](http://www.enonline.net/subscribe/nex)



*en-net* is a free and open resource to help field practitioners have access to prompt technical advice for operational challenges for which answers are not readily accessible. Join *en-net* at [www.en-net.org](http://www.en-net.org)

Over the past six months, 50 questions have been posted on *en-net*, generating 157 responses. The forum area for *Assessment and Surveillance* generated most discussions, followed by the *Prevention and management of severe acute malnutrition* and *Infant and young child feeding intervention* areas. Fifty-two vacancy notices and announcements have been posted and have accumulated 24,526 views on the website.

A question was raised in the *Assessment and Surveillance* area as to whether KoBo Toolbox<sup>4</sup> for mobile data collection can include a function for SMART survey teams to view a child's z-score immediately during data collection to facilitate prompt referral of cases of severe acute malnutrition. Various technical workarounds were proposed and the United Nations High Commission for Refugees (UNHCR) shared that it is currently developing an algorithm of z-score calculation for incorporation into KoBo/Open Data Kit tool for its Standardised Expanded Nutrition Survey (SENS) methodology.<sup>5</sup>

<sup>1</sup> UNICEF, WHO and World Bank Joint Malnutrition Estimates 2019 <https://data.unicef.org/resources/jme/>

<sup>2</sup> <https://scalingupnutrition.org/nutrition/>

<sup>3</sup> <https://scalingupnutrition.org/sungg2019/>

<sup>4</sup> [www.kobotoolbox.org](http://www.kobotoolbox.org)

<sup>5</sup> SENS is an approach rooted in SMART used by UNHCR in refugee populations.

A mobile app developed in the Philippines was shared,<sup>6</sup> the main purpose of which is reporting violations of the Code of Marketing of Breastmilk Substitutes,<sup>7</sup> although additional modules have been added, including one for growth monitoring. A growth monitoring chart intended for mothers to monitor their child's growth has proven useful for health workers to detect and monitor stunting and wasting in their communities. The growth monitoring module is a simple calculator that can compute the child's weight for height/length, weight for age and height/length for age. Users just enter the child's birth date, weight in kg and height/length in cm. The app can be used offline.

The discussion evolved to consider the use of flags in survey data collection and analysis. Flagged entries during data collection should alert the team to immediately repeat the measurements and verify the age data of the child in question. While flags are meant to highlight 'implausible' values, implausibility does not mean impossibility and there are many reported instances of flagged cases being valid. Excluding them automatically can bias results.

In large surveys, such as Multiple Indicator Cluster Surveys (MICS) or Demographic Health

Surveys (DHS), that collect data from many populations, each population may have different distributions of anthropometric indices and different prevalence of anthropometric indicators. In such cases the mean of the entire survey sample is unlikely to be a suitable reference mean and the assumed standard deviation (i.e.,  $SD = 1$ ) will usually be too narrow to set limits that define statistical outliers with the expected probabilities. This will lead to records being flagged incorrectly, likely leading to biased prevalence estimates.

It was proposed that it would be interesting to conduct an analysis of flagged data from multiple data sets and surveys to inform issues around the quality of evidence. The analysis could examine patterns in relation to the timing of measurements being taken, the survey team structure and composition or survey locale. Although participants in the discussion were aware that some analysis of these issues has been done, they were not aware of any systematic global studies.

To read more or join this discussion, go to [www.en-net.org/question/3841.aspx](http://www.en-net.org/question/3841.aspx)

*en-net* has seen greater uptake by French-speaking users over the past few months, with an

increasing number of posts from French-speaking countries in Africa. These include requests for the national protocol for the management of acute malnutrition in Cameroon (which was subsequently shared), discussion on Ebola virus disease, anthropometry and nutritional care in adults in the Democratic Republic of Congo ([www.en-net.org/question/3846.aspx](http://www.en-net.org/question/3846.aspx)) and a question on thresholds for infant and young child feeding indicators from Cameroon ([www.en-net.org/question/3873.aspx](http://www.en-net.org/question/3873.aspx))

To join any discussion on en-net, share your experience or post a question, visit [www.en-net.org.uk](http://www.en-net.org.uk) or [www.fr.en-net.org](http://www.fr.en-net.org)

To feed back on the site, please write to [post@en-net.org](mailto:post@en-net.org)

#### Contributions

*Anon, Kristine Atienza, Dr Kouakou Egnon, Ernest Guevarra, Heqian K, Bill Kinsey, Mark Myatt, Mija Ververs, Kemgweu Tiemo Willie*

<sup>6</sup> <https://apps.apple.com/us/app/mbf-ph/id1260502250>  
<https://play.google.com/store/apps/details?id=org.mtherbabyfriendlyphilippines.android>  
<https://play.google.com/store/apps/details?id=com.mtherbabyfriendlyphilippines.eopt>

<sup>7</sup> [www.who.int/nutrition/publications/code\\_english.pdf](http://www.who.int/nutrition/publications/code_english.pdf)

## Guidance for nutrition in emergencies practitioners on COVID-19

The Global Technical Assistance Mechanism for Nutrition (GTAM) has released a technical brief for Nutrition in Emergencies (NiE) practitioners on COVID-19,<sup>1</sup> in response to requests from country-level teams. The brief provides an overview of available guidance and tools to inform the integration of COVID-19 preparedness and response into humanitarian nutrition responses. Guidance and capacity-building resources are listed with online links in the following areas: preparedness; health and nutrition facility and systems management; management of wasting; nutritional support for patients with COVID-19; infant and young child feeding; workplace precautions and research.

Key considerations for emergency settings are summarised where applicable guidance is currently available. The brief emphasises the need for preparedness actions to ensure comprehensive medical, nutritional and psychosocial care for those with COVID-19. In terms of health systems management, The World Health Organization (WHO) recommends that facilities and nutrition centres apply standard precautions (such as respiratory and hand hygiene measures) for all patients and additional precautions (contact, droplet and airborne) for suspected COVID-19 cases. Administrative controls and policies are also recommended for the prevention and control of transmission of the virus and recommendations

are made on the rational use of personal protective equipment in light of expected global supply chain disruptions.

In terms of the management of wasting, it is recognised that, during an influenza pandemic, levels of malnutrition may increase. To prevent malnutrition, key family practices and treatment of common illness should be encouraged and the health and food security sectors closely linked. Programmes may need to be adjusted (for example, to avoid mass gatherings and decrease frequency of follow-up visits at health facilities). Existing community-based management of acute malnutrition (CMAM) programmes should continue if possible, but new CMAM programmes are not recommended during an influenza pandemic. Supplementary feeding programmes should continue if possible, as should inpatient therapeutic feeding programmes, with separate isolation areas for patients with suspected influenza.

There is currently no guidance for the nutritional support of COVID-19 patients. However, Centers for Disease Control (CDC), United Nations Children's Fund (UNICEF), WHO and other agencies have issued clear statements about COVID-19 and breastfeeding. Based on the known benefits of breastfeeding and limited evidence that the COVID-19 virus is not present in breastmilk, continuation of breastfeeding is advised, regardless

of COVID-19 status. The main risk of transmission between a caregiver and their child is through close contact (respiratory air droplets). For caregivers with suspected or confirmed COVID-19 infection, precautions to prevent transmission, such as frequent handwashing, are recommended when feeding infants and young children. Breastfeeding mothers should not be separated from their newborns, although breastfeeding mothers with suspected or confirmed COVID-19 infection can consider asking someone who is well to feed the infant; for example with expressed breastmilk from a spoon or cup. Breastfed children of patients who are too unwell to breastfeed or who have died may require replacement feeding with a nutritionally adequate diet; for example, donor human milk through wet nursing or with a breastmilk substitute. With regard to feeding children expressed breastmilk, as per the Operational Guidance on Infant and Young Child Feeding in Emergencies (OG-IFE),<sup>2</sup> the use of breast pumps should only be considered when their use is vital and where it is possible to clean them adequately, such as in clinical settings. The use of feeding bottles and teats is discouraged due to high risk of contamination and difficulty in cleaning. The use of cups without spouts should be supported from birth. General guidance on IYCF in the context of infectious disease outbreaks can be found in the OG-IFE.

Given the rapidly evolving situation, this brief will be updated every two weeks until further notice. Visit the GNC website to view the latest version at <http://nutritioncluster.net>

<sup>1</sup> <http://nutritioncluster.net/resources/gtam-covid19-nutrition-technical-brief-20200313-final/>

<sup>2</sup> [www.enonline.net/operationalguidance-v3-2017](http://www.enonline.net/operationalguidance-v3-2017)



# Management of At-risk Mothers and Infants under six months (MAMI): Update and direction

Summary of meeting report<sup>1</sup>

A two-day meeting of the MAMI Special Interest Group (SIG)<sup>2</sup> was held on 12–13 December 2019, organised by Emergency Nutrition Network (ENN), co-chaired by ENN and London School of Hygiene and Tropical Medicine (LSHTM) and hosted by Médecins Sans Frontières (MSF) Operational Centre Brussels. It was attended by 45 delegates from a range of specialities and disciplines, including nutrition, maternal health, early childhood development (ECD), paediatrics and neonatology, working in relevant policy, research and programming at global, regional and country level.

The meeting objectives were to identify clear directions of travel on:

- A common vision and terminology for MAMI;
- Indicators to help identify at-risk infants;
- The collection of standardised MAMI programme data.

Day 1 focused on sharing MAMI approaches and implementation experiences, culminating in discussions around a shared MAMI vision, terminology and urgent technical questions. Day 2 examined cross-sector opportunities for MAMI in three priority areas (maternal and neonatal health, ECD, and maternal mental health) and action and evidence needed to improve identification of at-risk infants under six months old.

The introductory session revisited the MAMI Vision, articulated in 2017: **Every infant less than six months of age, at every community and health-service contact, is nutritionally assessed and appropriately supported to survive and thrive.** The MAMI approach links prevention and treatment, aiming for healthier infants while acknowledging the need to look after the mother and link with other services to do so. Anthropometry is part of the diagnostic process, but there are many causes of low anthropometry and clear markers of risk are needed to help identify infants who need support.

Country perspectives were shared on MAMI approaches and challenges from India, Ethiopia and Malawi.<sup>3</sup> In all settings, there is a recognised need for earlier intervention before very sick infants present at hospital. The development of standard treatment guidelines for infants has moved things forward, but clear, evidence-based global guidance is needed for countries to effect the necessary institutional, policy and system development required to advance case identification and management. Another major challenge is how to accommodate care of sick mothers when infants present to paediatric care (and vice versa where a sick mother has a young infant). All countries are exploring entry points to integrate the mother-infant dyad, recognising

the need to leverage what exists and to link with child development and mental health services.

A panel discussion among programmers explored MAMI programme needs and shared experiences of field realities.<sup>4</sup> Save the Children, Partners in Health and MSF have piloted the C-MAMI tool<sup>5</sup> in Bangladesh, Rwanda and Iraq respectively. It has proved a valuable resource to catalyse case management. A common need in all contexts was to develop shorter, simpler field materials to support implementation, resulting in local adaptations of the tool. A common challenge is poor referral services for maternal mental health. A Bangladesh study found that the C-MAMI tool had greater success in identifying at-risk infants and achieving successful discharge, compared with villages where only inpatient care was offered.<sup>6</sup> The need for a good package of post-discharge community care following inpatient care was also highlighted.

Presentations on 'Building bridges across sectors' explored MAMI opportunities to connect with maternal and neonatal health (LSHTM), ECD (Jimma University) and maternal mental health (WHO). Key considerations were raised around a 'global epidemic' in caesarean section rates that negatively impacts on breastfeeding, and physical barriers to breastfeeding in health facilities (e.g. mothers and infants not kept together). The nurturing care aspect of ECD supports caregivers of infants. Findings from a project were shared on a scalable, low-intensity psychosocial intervention with mothers to alleviate symptoms of pre- and postnatal depression.<sup>7</sup>

An update from WHO on relevant policy-guidance development concluded that more evidence from across continents, especially South Asia, is needed to inform update/development of global guidance on growth failure in infants under six months old. Recent studies suggest that it is important to know whether an infant is appropriate weight for gestational age, as this may define their needs. Important leverage/entry points for MAMI include the integrated management of childhood illness update currently underway and the universal health coverage agenda.

A summary of recent studies on anthropometric indicators (KEMRI Wellcome Trust, Kenya) was followed by experiences on their practical application in MAMI programming (GOAL). Reflecting the importance of non-anthropometric criteria to identify at-risk infants, Action Against Hunger presented on a systematic review of breastfeeding assessment tools<sup>8</sup> and an evaluation of a baby-friendly space which found improvements in breastfeeding and maternal mental health out-

comes after two months. The study called for more evaluation and operational data to inform the evidence base around approaches and tools to support programming.

Over the two days, participants explored and debated the priority themes of the meeting. Modifications were proposed to the MAMI Vision and terminology, while urgent technical questions were prioritised around identification and treatment of low birth weight and pre-term infants, and issues in determining acute weight loss compared to small-for-age infants. Directions of travel were also determined regarding identification of at-risk infants and minimum programme data.

The meeting concluded with agreement to convene small working groups to take the identified steps forward and a list of seven overall priority actions for the MAMI SIG in 2020. To make the most of the current opportunities and momentum, this dynamic group identified an urgent need to scale up its way of working.

For more information, contact: Marie McGrath, ENN. [marie@enonline.net](mailto:marie@enonline.net)

The meeting report is available at: [www.enonline.net/ourwork/research/mami](http://www.enonline.net/ourwork/research/mami)

<sup>1</sup> Management of At-risk Mothers and Infants under six months (MAMI): A hope and a future. Meeting of the MAMI Special Interest Group, 12 and 13 December 2019. Meeting Report. ENN.

<sup>2</sup> The MAMI SIG is an established and growing community of practice of programmers, researchers and policy-makers, coordinated by ENN and co-chaired by ENN and LSHTM. [www.enonline.net/ourwork/research/mami](http://www.enonline.net/ourwork/research/mami)

<sup>3</sup> Contributions from: Dr Ajay Khera, Public Health Specialist and Deputy Commissioner (In-charge) Child and Adolescent Health, Ministry of Health and Family Welfare, based in Delhi; with support from Abner Daniel, Nutrition Specialist at UNICEF India. Experiences from Ethiopia and Malawi comprised an informal question-and-answer discussion with Professor Tsinuel Girma, Department of Pediatrics and Child Health, Jimma University, Ethiopia and Dr Emma Cartmell, Malawi.

<sup>4</sup> Panel comprised: Save Bangladesh, Partners in Health, Rwanda; KEMRI Wellcome Trust, Kenya; MSF Yemen/Iraq.

<sup>5</sup> The C-MAMI tool provides a health worker with a format to assess, identify/classify and manage at-risk mothers and infants under six months old in the community who are nutritionally vulnerable, putting the latest WHO technical guidance into practice. It was developed as a first step to fill a gap in programming guidance and catalyse case management. [www.enonline.net/c-mami](http://www.enonline.net/c-mami)

<sup>6</sup> Islam MM, Arafat, Connell N, Mothabbir G, McGrath M, Berkley JA, Ahmed T and Kerac M. (2018). Severe malnutrition in infants <6 months – Outcomes and risk factors in Bangladesh: A prospective cohort study. *Maternal Child Nutrition*. 2018:e12642 <https://doi.org/10.1111/mcn.12642>

<sup>7</sup> [www.who.int/mental\\_health/maternal-child/thinking\\_healthy/en/](http://www.who.int/mental_health/maternal-child/thinking_healthy/en/)

<sup>8</sup> Breastfeeding assessment tools for nutritionally at-risk infants aged under 6 months old: a systematic review. C. Brugaletta, K. Le Roch, J. Saxton, C. Bizouerne, M. McGrath, A. Seal, M. Kerac. Pending peer review publication.

## Concerns that *The Lancet* double-burden series may undermine moderate wasting treatment

By Mark Manary, Donna Wegner, D Taylor Hendrixson, Rebecca Roediger, Meghan Callaghan



Mark Manary is one of the world's foremost experts in childhood malnutrition. He is a paediatrician with over 34 years of experience researching and treating acute malnutrition in Africa and has conducted extensive research in Malawi, Ghana, Sierra Leone, and Ethiopia.



Donna Wegner is a senior grant specialist and project manager for Mark Manary in Pediatric Emergency Medicine at Washington University School of Medicine in St. Louis. She has over 15 years' experience in financial and programme management for non-profits and clinical research.



D. Taylor Hendrixson is a pediatrician and fellow in Pediatric Infectious Diseases and Newborn Medicine at Washington University School of Medicine in St. Louis. He has worked on acute and chronic malnutrition in Sierra Leone since 2016.



Rebecca Roediger is a gastroenterology fellow at Washington University in St. Louis, with clinical training in digestive diseases and physiology of the gastrointestinal track. She works on large clinical trials for optimal feeding for children with moderate acute malnutrition.



Meghan Callaghan Gillespie is a clinical researcher under Mark Manary in the Pediatric Emergency Medicine at Washington University School of Medicine in St. Louis. She works on the design, conduct, data analysis, and reporting of research on acute malnutrition.

In *The Lancet* series on the double burden of malnutrition (summarised in this issue), the paper by Hawkes highlights the burden of the modern epidemic of obesity and recommends double-duty actions aimed to combat malnutrition in all its forms (Hawkes *et al*, 2020). The authors understand that this is an imperative global priority for achieving the Sustainable Development Goals (SDGs). However, the paper simplistically raises a villain in “high fat, nutrient-dense foods”, urging considerable caution in their use. In particular, this piece raises concern that the supplementary feeding of children with moderate acute malnutrition (MAM) increases the risk of overweight/obesity in adulthood, which is not substantiated by evidence and therefore misleading.

Hawkes raise four concerns about potential long-term consequences of food supplements designed to treat and prevent acute malnutrition, but fail to present the immediate and sometimes fatal consequences of MAM. Children with MAM are at three times greater risk of death (Chang *et al*, 2013) and MAM accounts for 6% of the disability-adjusted life years (DALYs) lost. Children with MAM are at increased risk of infectious disease, slower recovery from illness, and delayed cognitive and physical development. If left untreated, the one-year risk of death for MAM is 3.6% and progression to severe acute malnutrition (SAM) is 8.1% (Isanaka *et al*, 2019). These are unacceptably high risks, given that the possibility of developing obesity later in life has never been demonstrated.

The first concern raised about supplementary feeding for MAM is that rapid weight gain during early childhood might lead to metabolic syndrome later in life. The assumption is that the rapid weight gain seen in MAM recovery is primarily fat. However, data show the weight gained in supplementary feeding is predominantly lean mass (Fabiansen *et al*, 2017) and recovery from childhood malnutrition does not lead to increased non-communicable diseases (NCD) later in life (Adair *et al*, 2013). A study in Burkina Faso found that 93.5% of the weight gained during supplementary feeding was lean tissue when children under two years old with MAM were fed a lipid nutrient supplement (LNS) or corn-soy blend (CSB), and LNS produced more fat-free mass (FFM) when compared to CSB (Fabiansen *et al*, 2017). Similarly, a longitudinal study in Malawian children who received inpatient SAM treatment found no differences in metabolic outcomes of those children when compared with siblings and age-matched controls. They had similar lean body mass when com-

pared to their siblings and there was no difference in cholesterol, glucose tolerance test, cortisol level, Hgb A1c between cases and controls (Lelijveld *et al*, 2016).

Data from a birth cohort study in five low-or middle-income countries (LMICs) not specifically treating children for MAM but often referenced in the argument against supplementary feeding found that birth weight and rate of weight gain in the first two years of life were associated with increased FFM in adulthood (Kuzawa *et al*, 2012). Most studies focus on the correlation between the effect of childhood weight gain on adult body mass index (BMI), which does not separate lean body mass from fat mass, but this study found that infant weight gain did correlate with a higher adult BMI, primarily via the effect on lean body mass. Data from the same cohort was used in another analysis that found that higher weight gain by age two was associated with a decreased risk of short stature and not completing secondary school and no correlation with hyperglycemia (Adair *et al*, 2013). Taken together, these studies found that more weight gain by age two correlated with more education, less risk of short stature, more lean body mass and no effect on glycemic control.

The second concern Hawkes raise is that the intake of supplements could alter the gut microbiome of the recipient and influence taste preferences, leading to higher sugary food consumption later in life. The references cited to support this concern include a commentary on perceived life-course implications of ready-to-use therapeutic food (RUTF) and a study from children in European countries. While there are studies that show that supplementary food does affect the microbiome, these findings show that it returns the microbiome to a healthier, less dysbiotic state than the microbiota profile seen in malnutrition (Smith *et al*, 2013). Another study looked directly at the effects of supplementary feeding on the faecal microbiome in infants age six to eight months fed LNS and found that microbiome diversity at 18 months was higher in the LNS group compared to control children who did not receive supplementation (Kamng'ona *et al*, 2020). The concern that supplementary food products would alter the taste preferences of children, thereby increasing sugary food consumption later in life, is supported by a study in five European countries that used food diaries of children at seven time points between one and eight years old and found a correlation between unhealthy diets at one and two years with unhealthy



diets at eight years (Luque *et al*, 2018). In addition to the limited generalisability of this study to children in LMICs, especially in rural settings (given that these children are from high-income countries with a greater variety and availability of processed food), it is also plausible that the results reflect the food preferences and nutritional knowledge of the caregivers who are purchasing the foods, rather than a true test of taste preferences. In contrast, a 2019 study in Ghana looked at a cohort of children who received LNS at six months and found that, at four to six years old, there was no difference in the consumption of or preference for sweet foods between children who received LNS and the controls (Okronipa *et al*, 2019).

The third concern raised by Hawkes is that supplements may be mistargeted or diverted from beneficiary child, resulting in inappropriate intake and weight gain in others, citing a study of maternal gestational weight gain and risk of childhood obesity among women in North Carolina, USA (Sridhar *et al*, 2014). If the concern is excessive maternal intake of supplements targeted to the child, this is undue. Many women in LMICs have inadequate weight gain during pregnancy based on Institute of Medicine standards, despite receiving additional protein-energy supplementation; therefore, if they were to consume these supplements, the result is unlikely to be excessive gestational weight gain (Callaghan-Gillespie *et al*, 2017; Hambidge *et al*, 2009). The concern around the mistargeting of supplements due to errors in detection and sharing at a household level is erroneous as, if it were to occur, it is unlikely to lead to detrimental effects among children receiving the supplementary food. It is widely known that undernutrition and wasting

disproportionately affect the poor, uneducated and rural populations of LMICs. Sharing of foods among household members can be difficult to evaluate, as bias can be introduced through many of the evaluation methods; however, sharing of supplementary foods, especially ready-to-use supplementary foods (RUSF), may be less common than the authors of the series think (Flax *et al*, 2010 and Wang *et al*, 2013). Overweight becomes a major problem as national income increases; however, the poorest individuals in poor countries remain at heightened risk of underweight (Reyes *et al*, 2019). Errors in the detection and diagnosis of acute malnutrition may occur, although these are not common occurrences and should not contribute to the development of overweight individuals. Identification of acute malnutrition in communities can be successfully achieved through standard protocols. Mid-upper arm circumference (MUAC) tapes are widely used in programmes to identify children with acute malnutrition and have been shown to be accurately used to identify wasted children by both community health workers and mothers (Blackwell *et al*, 2015 and Ale *et al*, 2016).

The final concern raised by Hawke is that supplementary feeding programmes may result in the displacement of counselling and optimal feeding practices. Nutrition counselling and supplementary feeding go hand-in-hand. Although counselling interventions may be successful if adherence is good, real-world conditions must be considered and motivation for attendance of counselling-only sessions may be diminished. Evidence suggests, however, that the provision of supplements may improve adherence to counselling programmes (Nikiema *et al*, 2014). Al-

though further data is needed to fully elucidate the risks of a counselling-only programme for MAM and studies are ongoing (Lelijveld *et al*, 2019), a Burkina Faso study demonstrated significantly lower recovery rates among children receiving counselling alone compared to treatment with fortified blended flour or RUSF (57.8% vs 74.5% or 74.2%, respectively) (Nikiema *et al*, 2014) and a recent meta-analysis demonstrated higher recovery rates in children receiving nutritional supplementation when compared to counselling (Lelijveld *et al*, 2020).

Finally, in contrast with the concern of Hawkes about the provision of supplementary foods and sub-optimal complementary feeding practices, studies have demonstrated that the provision of LNS increased or preserved breastfeeding frequency with no decrease in dietary diversification (Arimond *et al*, 2017 and Cambell *et al*, 2016).

In conclusion, the concerns raised by Hawke and the potential risks associated with MAM treatment presented in this section of their paper are not well evidenced. Given that the long-term risks of supplementary feeding of MAM cases are evidently low, the mortality and long-term morbidity for children with untreated MAM are critical and must not be ignored. All children suffering from wasting, be it due to food insecurity or excessive inflammation, deserve to be given one of life's simple necessities – enough to eat.

For more information, please contact Mark Manary at [manary@kids.wustl.edu](mailto:manary@kids.wustl.edu)

For more on this topic see Research Snapshot on page 53 and at <https://www.enonline.net/fex/62/thelancetseriesonthedoubleburdenofmalnutrition>

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# Reflections on the United Nations draft Global Action Plan on wasting

By Steve Collins



Steve Collins is a medical doctor with a doctorate in nutrition. He started working in humanitarian relief in Sudan in 1985, allocating and monitoring general ration distributions in West Darfur. Staying in villages that had been afflicted by famine, he gained first-hand insight into how impoverished communities with high levels of acute malnutrition interact with humanitarian relief.

He spent the 1990s setting up emergency-nutrition interventions in most of the African famines and wars, and researching how to make these programmes more effective. Initially focused on severe adult starvation, his work redefined the limits of human adaptation to starvation, established adult mid-upper arm circumference (MUAC) as a key diagnostic and prognostic tool, and provided the first field evidence of the efficacy of lower-protein rehabilitation diets in the initial phase of treatment of severe acute malnutrition (SAM). He was awarded an MBE in the UK for his work to help secure services to treat adult starvation as a standard element of famine-relief interventions.

Towards the end of the 1990s frustrated by the poor impact, low coverage and social disruption of the therapeutic feeding model for SAM and disillusioned by non-governmental organisation attempts to prevent him publishing data on the negative impact of a therapeutic feeding centre (TFC) intervention he had set up (Field Exchange, 2001), he started Valid International Ltd. Valid provided a platform to develop community-based therapeutic care (CTC) (Collins and Khara, 2004). Valid Nutrition was also created as a not-for-profit, social business to manufacture specialised nutritional products using locally grown ingredients in the countries where they are needed. From 2002, he led a collaboration between Valid International and Concern Worldwide that generated data on over 25,000 cases of SAM treated using the new model that was ultimately instrumental in the United Nations adoption of community-based management of acute malnutrition (CMAM) in 2007.

Subsequently, Steve has led Valid International to work with Brixton Health to develop spatial surveying methods such as SQUEAC, RAM and S3M – tools that can better target resources, assess programme coverage and improve accountability. He also led Valid Nutrition's work to develop and test more efficacious, much lower-cost, plant-based ready-to-use therapeutic food (RUTF) (Bahwere *et al*, 2017).

His current interests are still focused on improving service delivery at the community-level and developing lower-cost, more effective, plant-based nutritional products. He is working on introducing performance-based incentivisation to improve the effectiveness of community health workers, the use of near-field communication to improve monitoring and accountability, and extending the range of plant-based nutritional products to include different crops and to develop a low cost, plant-based ready-to-use food (RUF) for the treatment of both moderate and severe acute malnutrition.

21 month old Amani at a Supplementary Feeding Programme distribution point in Al Udayn district, Yemen



*In July 2019, ENN produced a special edition of Field Exchange (issue 60)<sup>1</sup> on the continuum of care for acute malnutrition. Our editorial identified areas of action we felt were needed to address significant shortcomings that were hampering programming, related to United Nations (UN) institutional arrangements regarding management, supply-chain management of ready-to-use products, and normative guidance.<sup>2</sup> Since then, we have engaged with different stakeholders at multiple levels to highlight these issues and try, as many others are doing, to catalyse progress. A key target has been the eagerly anticipated Global Action Plan (GAP) on Wasting developed by five UN agencies (United Nations Children's Fund (UNICEF), World Food Programme (WFP), the World Health Organization (WHO), the Food and Agriculture Organization (FAO) and the United Nations High Commission for Refugees (UNHCR)). In February 2020, the draft GAP on wasting was shared for public consultation. As we post this article online/go to print, the final GAP on wasting: a framework for action<sup>3</sup> has been released, and a more targeted Roadmap for Action will follow. Discussions to identify commitments and actions by governments and other key stakeholders will continue throughout 2020, with the aim to release the comprehensive global plan at the Tokyo Nutrition for Growth (N4G) Summit, to be held in December 2020.*

*Many acted quickly to provide feedback on the GAP on wasting within the very short window for input. Having contributed to several collective initiatives and been party to many, we felt it was important to capture some of these reflections and share them with our readership. Given that 2020 marks 20 years since the birth of community-based management of acute malnutrition (community-based therapeutic care), we felt it most fitting to share GAP reflections from Steve Collins, who conceptualised and then realised the community-based approach that is at the heart of case management of wasting today. An extended biography below is included to contextualise his opinion. Never one to shy away from challenging the status quo, Steve's reflections provide rich food for thought and debate – your reactions are welcome as letters to the editor (Eds).*

For over 30 years, efforts to address wasting have focused predominantly on treatment. During that time, however, we have failed to address wasting at a global scale and the coverage of interventions remains extremely low. I agree with the premise behind the UN GAP on wasting that radical change is necessary.

The conclusion that the draft GAP draws from this failure is that we need to change strategy and put prevention at the core of what we do, rather than treatment. To this end, three of the four pathways to impact in this GAP are preventative.

I do not believe that the evidence supports this conclusion. The fact that our interventions have failed to attain an acceptable level of coverage is not, *per se*, evidence of a flawed strategy. It is merely an observation that we have failed. In my opinion, our collective failure to address

<sup>1</sup> <https://www.enonline.net/fex/60/en>

<sup>2</sup> <https://www.enonline.net/fex/60/extendededitorial>

<sup>3</sup> Global action plan on child wasting: a framework for action to accelerate progress in preventing and managing child wasting and the achievement of the Sustainable Development Goals. 9 March 2020. <https://www.who.int/internal-publications-detail/global-action-plan-on-child-wasting-a-framework-for-action>



wasting at scale is not primarily a strategic issue, but rather a failure to execute the existing strategy effectively, and it is a severe indictment of the system charged with doing this. This is an *implementational failure*, wherein donors, national government and the Scaling Up Nutrition (SUN) Movement under-prioritise wasting – and the models, markets, products, funding mechanisms and actors that we use to deliver treatment to wasted children are not fit for purpose and have evolved little in decades. They are wasteful, too expensive, poorly targeted, supply-side orientated and, critically, do not engage the capacity of the private sector at any meaningful scale.

Over the past 20 years, outpatient therapeutic programmes (OTPs) that treat severe acute malnutrition (SAM) as outpatients may have replaced the therapeutic feeding centres (TFCs) that treated them as inpatients, but beyond these (supply-side) tweaks, the core demand-side principles of the original community-based therapeutic care (CTC) model have not been adopted. Current interventions remain overly supply-side driven and fail to overcome the barriers to access and participation that CTC was designed to address. We still engage too little (if at all) with affected communities to ensure that interventions are understandable, acceptable and appropriate for them. The market for nutritional products targeting wasting remains non-transparent and dysfunctional, dominated by a single supplier and single customer that is also the *de facto* market regulator. For almost 25 years, product development has been minimal, stifled by a UN product specification that, subjected to a strong lobby from those with vested interests in the status quo, has failed to evolve. As a consequence, we still do not produce nutritional products made from locally grown ingredients in the countries where they are needed, thereby missing important opportunities to link prevention to treatment by using ingredient purchase to drive agricultural diversity and improve small-holder incomes.

Prevention is vital; a critical part of any effective model to manage wasting. However, the change to put prevention at the core of the strategy proposed by this draft GAP will not, in my opinion, address the main barriers that have been blocking impact at the global scale we all want to see.

## Pathways to delivery and outcomes

The pathways and outcomes identified in the plan are all highly desirable and beneficial. It is clear that multiple technical experts from multiple sectors, each with their own area of expertise and focus, have inputted to the plan. This combination results in a comprehensive list of what we would like to happen, in an ideal world, to end wasting. The key question, however, is whether combining all these individual priority actions into one plan is 'doable'. Is 'focusing' resources on several billion people who require clean water, better sanitation, universal healthcare, improved food systems and more appropriate nutritional behaviours a cost-effective way to

help more than 50 million children affected by wasting each year? I do not think it is and I believe that, by casting the net so widely while ignoring key structural issues that undermine implementation, the plan inevitably turns into an unrealistic wish list.

I agree that the prevention of wasting, as well as its treatment, is critical and that there should be a continuum of intervention between SAM, moderate acute malnutrition (MAM) and the prevention of undernutrition in general. However, to maximally impact on wasting in the most cost-effective way possible, I believe that these preventative interventions should be tightly targeted to communities and individuals at the highest risk of wasting, rather than spread homogeneously across the developing world, as this plan appears to suggest. We currently reach less than 25% of children with SAM, calculated by prevalence. In reality, this is probably less than 15% if wasting numbers are calculated using incidence, a more appropriate measure for a predominantly acute condition. If we only reach such a small proportion with targeted, nutrition-specific interventions, how can we possibly hope to impact meaningfully on billions of people with the hugely diverse range of interventions included in this plan?

## Operational priorities and commitments

The plan is, in my opinion, predicated on an unrealistic assessment of the capacity of the existing public-sector system to intervene. It is not realistic for a 'Global Action Plan to Address Wasting' to expect the current system to cover such a broad and diverse range of nutrition-sensitive and nutrition-specific interventions – from strengthening national food systems worldwide to improving water provision and sanitation for billions of people, improving road infrastructure and social protection system (and there's more) that together target billions of people, plus providing wasting treatment for all who need it. Although all are important, taken together and without the mechanisms to target communities at the highest risk of wasting, they merely represent a wish list, rather than a plan to address wasting. A plan that includes everything for everybody ceases to be an action plan for wasting. How would a plan to address stunting, or even a global plan to address excess child mortality and morbidity, differ? By trying to do everything across such wide-ranging populations, we risk throwing the baby out with the bathwater and ultimately failing to implement even relatively focused actions specifically targeting wasted children themselves, effectively.

Instead of fundamentally changing the strategy and massively broadening the range of interventions, I believe that we should focus on fixing what is manifestly wrong with the way we intervene, the coalitions of stakeholders with whom we engage and the products we use. For example, this means:

- Improving the targeting of interventions so that a greater proportion of the limited

resources that are available reach those at highest risk of wasting.

- Improving the impact and cost-effectiveness of existing community-based intervention by increasing the focus on improving access and demand, ensuring that treatment and preventative action are integrated and developing performance-based, last-mile delivery solutions.
- Creating mechanisms whereby the private sector can engage at scale in the treatment and prevention of wasting in a way that ensures that commercial interests are aligned with the interests of low-income consumers and maximises the comparative advantages of public and private sector actors.
- Shaping the market for nutritional products to treat and prevent wasting by facilitating true competition and transparent standards and regulation.
- Ensuring that guidelines and specifications for nutritional products serve to maximise competition and value for money and do not arbitrarily restrict innovation.
- Better connect treatment with food security and resilience by truly facilitating the production of nutritional products at scale in developing countries, using locally grown ingredients selected to help drive agricultural diversity and resilience to changing climates.
- Providing low-income consumers with the choice of effective, attractive and affordable nutritional products that provide essential nutrients through retail channels, and supporting this by using the core competencies of the public-sector system to help such people make informed choices, ensure appropriate marketing and transfer subsidies to those who cannot afford them.

## Research agenda

I find much of the research agenda in the GAP abstract overly academic; as such, I believe that it will not be effective in focusing research resources on the main issues limiting coverage, impact and cost-effectiveness. Its focus is on the aetiology, measurement and pathophysiology of wasting and on further refining clinical management; they are not the research questions that will deliver maximum 'bang for our buck' in improving the delivery and impact of intervention. By contrast, there are far fewer research questions concerned with service delivery and critical practical issues are omitted.

Some of the research ideas also appear to contradict the premises underlying the GAP. For example, the premise of GAP pathway 1 is that "It is crucial that intervention policies, strategies and programmes focus on the prevention of malnutrition in women and adolescent girls before, during and after pregnancy." However, the first two specific research questions imply that we do not yet know the main pre-pregnancy and maternal factors that predispose a child to wasting. If this is the case, then surely it is premature to include addressing these issues as a core element in the GAP? If, on the other hand, this pathway is understood well enough to

warrant being included as a key impact pathway, why is further research in this area a priority and how will that help with the radical transformation of the system that is required?

Although the draft GAP identifies the fact that the global system achieves only very low coverage, the research agenda fails to focus on this critical factor limiting impact. When the vast majority of wasted children receive no treatment at all, research into improving the clinical efficacy of treatment regimens that already offer ‘per protocol’ recovery rates in excess of 90%, or further refining the relative sensitivity and specificity of anthropometric assessment, are missing the point. The research agenda must acknowledge that extremely low coverage is the main factor limiting impact and answer the question: “How do we deliver support to the greatest numbers of children in the most cost-effective manner possible?” For example:

- How can we identify and target clustered phenomena such as wasting more cost-efficiently through wide-area and small-area spatial surveying tools?
- How can we incentivise community-based workers to case-find, treat and follow up causes of wasting to increase coverage and reduce diversion and non-compliance, and how do we sustain these incentive systems over the longer term?
- How do we move away from treatment programmes largely financed and implemented by short-term humanitarian donors and implementing partners, especially in fragile protracted-crisis contexts?
- How do we combine the ability of the public sector to target wasting and transfer entitlements to those affected with the ability of the private sector to manufacture, move and deliver products and services at scale,

in a way that maximises the competitive advantages of each and ensures that the poorest and most vulnerable are not excluded and are protected from commercial exploitation?

### The underlying challenge

I believe that our failure to address wasting is symptomatic of a profound misconception at the heart of the aid and development industry. We misconceive our industry as something primarily benevolent; the ‘charity sector’ supplying ‘aid’ to ‘beneficiaries’ and we fund it by selling this misconception to the public and hence to politicians. The facts are, however, very different. Those suffering from wasting have rights enshrined in international law that we have a duty to fulfil. They are not passive recipients of our benevolence but active clients who must juggle multiple priorities, constraints and opportunities.

This misconception is profoundly damaging, because it focuses our attention on ourselves, our motives and our strategies, rather than the needs, rights and realities of our clients. It cements a supply-side, central-planning mentality at the industry’s core. It perpetuates remuneration systems related to process and control of resources rather than to outcomes and impact, wherein those at the centre receive large, often tax-free salaries, while those who actually deliver products and services to our clients receive very little – and are often even expected to work as volunteers. It incentivises excessive investment in agency profile that discourages transparency and undermines innovation. It also sees profit as distasteful, precluding meaningful engagement with the private sector.<sup>4</sup>

To change this requires radically different ways of working. In particular, it requires profound collaboration between government, the

public sector and the private sector, where each plays to their respective strengths and does not engage in activities for which they are ill suited, even if this means forgoing control of resources and profile. In almost all other walks of life, it is the private sector that delivers goods and services to people, and we must leverage its scale, capability and capacity to do this along the entire chain of service delivery, up to and including last-mile delivery to those suffering from wasting. The public sector should focus on ensuring that the services delivered meet the needs of those affected by wasting by improving targeting, transferring entitlements to ensure equitable coverage, with nobody left behind, and imposing ethical standards to prevent exploitation. The research agenda must inform us on how best to achieve this collaboration.

Enacting this change will not be easy. There are vested interests perpetuating the status quo and threats posed by increased private-sector involvement, given its history of promoting poor nutrition and exploitation. However, with sufficient will, I am sure that these vested interests can be challenged and the threats addressed. The bottom line is that, after more than 30 years of failing to reach the vast majority of those affected by wasting, we really have no choice but to fundamentally change how we go about things.

### Conclusion

History has shown that the aid and development industry, working with government, is not able to deliver effective services to wasted children at scale. Our response to this failure should be to fundamentally change how services are delivered to ensure that those who need them, receive them. The GAP represents an important opportunity to kickstart the profound changes needed and to set an ambitious research agenda to inform and guide the change process. However, by ignoring the massive implementation failures at the heart of the system and instead focusing on shifting the strategy towards more generalised prevention, the draft GAP fails to grasp this opportunity.

<sup>4</sup> This is reflected in the draft GAP where, out of 34 desired outcomes, the private sector is confined to just two which represent a niche involvement in standards for specialised nutritious products or abstract aspirations to improve food value chains. No research question is included that looks at how better to engage the massive resources, capabilities and capacities that the private sector has to offer.

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Mothers have their children measured to assess their nutritional condition at a Supplementary Feeding distribution point in Borno state, Nigeria





WFP/Sahar/Mojumder

Woman and children in a settlement in Cox's Bazar, Bangladesh, 2017

## Coordination of the Nutrition Sector response for forcibly displaced Myanmar nationals in Cox's Bazar, Bangladesh

By Abigael Naliaka Nyukuri



Abigael Naliaka Nyukuri worked for United Nations Children's Fund (UNICEF) Bangladesh as the National Nutrition Cluster Coordinator between 2017 and 2019 and is currently working for UNICEF Nigeria as Nutrition Specialist in the Northeast Humanitarian

Response. She has over 10 years of experience working as a nutrition specialist in complex humanitarian contexts in Kenya, South Sudan, Somalia, Bangladesh, Philippines, Mozambique and Nigeria.

The author would like to acknowledge the considerable input and support given in the writing of this article by Ingo Neu, former Cox's Bazar Nutrition Sector Coordinator, UNICEF, Henry Sebuliba, former Cox's Bazar Nutrition Sector Coordinator and Community-based Management of Acute Malnutrition (CMAM) Specialist, UNICEF and Caroline Wilkinson, Senior Nutrition Officer, United Nations High Commission for Refugees (UNHCR).

This article complements a second article that examines programming experiences around continuity of care for acute malnutrition management in more detail, soon to appear in Field Exchange online ([www.enonline.net/fex](http://www.enonline.net/fex))

Location: *Bangladesh*

**What we know:** Bangladesh is highly vulnerable to recurrent natural disasters. A national preparedness cluster system exists to support government response to slow and sudden-onset emergencies.

**What this article adds:** In August 2017, 800,000 forcibly displaced Myanmar nationals (FDMNs) arrived in Cox's Bazar (CXB) district in Bangladesh. The speed, scale and nature of the humanitarian crisis exceeded national capacity and a hybrid coordination system was adopted to coordinate the FDMN response. This was initially supported by the existing National Nutrition Cluster (NNC) until a dedicated Nutrition Sector Coordinator was recruited for CXB. Successful technical coordination included negotiated continued use of therapeutic foods for the treatment of acute malnutrition in the FDMN response. Complexities that fragmented the nutrition response included a lack of clarity over the United Nations coordination mandates, given the unique FDMN context, a challenging operational environment, overwhelming urgent demand, lack of nutrition capacity in health services, and low investment in and accountability for inter-sector coordination. The existence of robust disaster management regulatory and policy framework for Disaster Risk Reduction (DRR) at country level is instrumental in informing and coordinating governments' efforts in humanitarian response. Response coordination models for challenging scenarios should be examined and appropriate global guidance/coordination mechanisms developed, with necessary inter-United Nations memoranda of understanding formalised at regional and country levels. Preparedness measures and technical, operational and managerial capacity-building initiatives require institutionalisation at multiple levels.

### Background

Bangladesh has a population of approximately 165 million people, with a dense coastal population and a geography dominated by flood plains. The country is highly vulnerable to a range of recurrent natural disasters and is ranked fifth globally on climate vulnerability.<sup>1</sup> Although there has been significant progress in tackling undernutrition in recent years, an estimated 31% of children below five years of age remain stunted, 8% are wasted and 22% are underweight.<sup>2</sup> Cox's Bazar district, which has a population of 2.7 million people (39.7% of whom are children), is one of the worst performing districts in almost all child-related and gender inequality indicators and one of the most vulnerable to disasters and climate change in Bangladesh.

Access to adequate nutrition as a basic human right is enshrined in the Constitution of the Government of Bangladesh (GoB). The National Nutrition Policy (NNP), endorsed in October 2015, provides direction for the implementation and strengthening of strate-

gies and actions to improve the nutritional status of the population. The National Plan of Action for Nutrition (NPAN2) details priority strategic actions to put this policy into practice for the 2016-2025 period. It includes a strong social behaviour change communication (SBCC) agenda, research and capacity-building. The NPAN2 aims to reduce wasting prevalence to 8% and stunting prevalence to 25% by 2025 through a multi-sector approach and by treating wasting at scale through health facilities and within the community.

### National and sub-national coordination mechanisms for disaster risk reduction in Bangladesh

The GoB has a strong disaster management regulatory framework<sup>3</sup> due to the country's vulnerability to climate change. The GoB has formulated and enacted disaster management acts,

<sup>1</sup> World Risk Index 2016 [www.irdrinternational.org/2016/03/01/word-risk-index/](http://www.irdrinternational.org/2016/03/01/word-risk-index/)

<sup>2</sup> Bangladesh Demographic Health Survey 2017

<sup>3</sup> <https://prezi.com/xylldpghsp0w/bangladesh-disaster-management-regulatory-framework/>

policies, plans, standing orders and an appropriate institutional framework for implementation. Detailed roles, responsibilities and actions of committees, ministries and partner organisations required for implementing Bangladesh's disaster management model are clearly outlined, with the aim of reducing the vulnerability of people, especially the poor, to the effects of natural, environmental and human-induced hazards to a manageable and acceptable humanitarian level. The GoB, United Nations (UN) agencies, the World Bank and international and local non-governmental organisations (NGOs)

have worked for decades to prepare for disasters and mitigate the effects of climate change.

There are three national-level government disaster response coordination forums that sit under the Ministry of Disaster Management and Relief (MoDMR), as shown in Figure 1. The National Disaster Management Council (NDMC) is responsible for strategic decisions for disaster management; the Inter-Ministerial Disaster Management Committee (IMDMC) is responsible for coordination across ministries; and the National Disaster Management Advisory Committee (NDMAC) is responsible for policy de-

velopment and advice. The NDMC is the highest-level decision-making body for disaster management in Bangladesh. At sub-national levels, Disaster Management Committees (DMCs) have been constituted for the smallest geographical area (upazila) to lead regional-level disaster risk reduction efforts. The Cyclone Preparedness Plan (CPP) Implementation Board, headed by the Secretary of the Ministry of Food and Disaster Management, provides implementation and administrative support to strengthen collective preparedness and response for cyclones in prone districts.

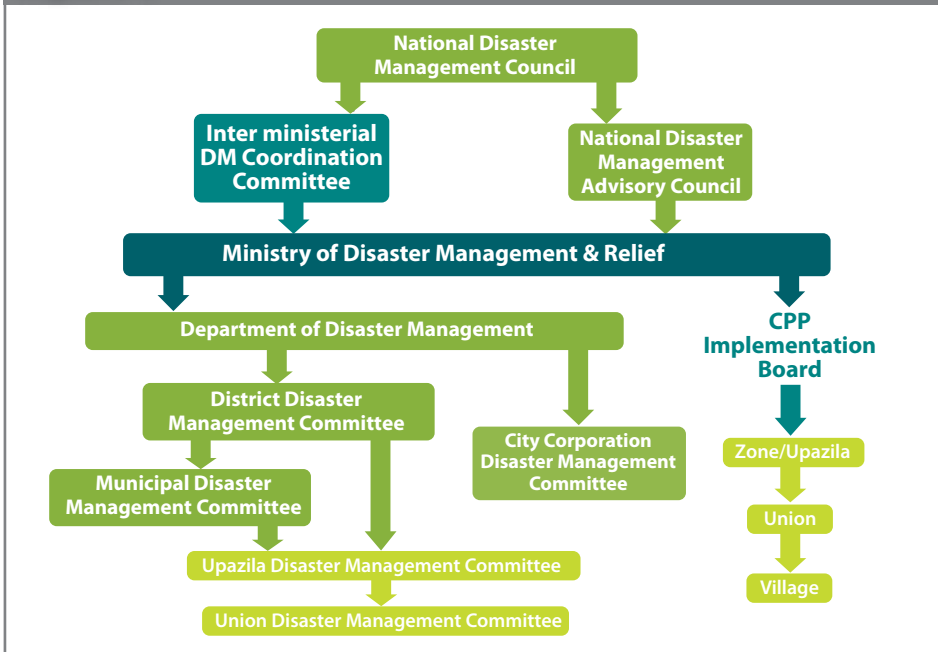
Following lessons learned from the emergency response to Cyclone Sidr in 2007, which claimed over 3,000 lives in the southwest coast region of the country, in 2012 the GoB Local Consultative Group on Disaster and Emergency Response (LCG DER) under the MoDMR endorsed the rollout of a modified national cluster system<sup>4</sup> (i.e., not mandated by the Inter-Agency Standing Committee (IASC)) and creation of a Humanitarian Coordination Task Team (HCTT) (see Box 1). This modified cluster system was developed to enable a more coherent, coordinated and effective multi-agency, multi-sector humanitarian response to both slow and sudden-onset crises. The HCTT, which sits under the LCG DER, is a coordination platform to strengthen the collective capacity of government, national and international actors to ensure effective humanitarian preparedness for, response to, and recovery from disasters in Bangladesh.

The HCTT acts as an advisory group to the DER, providing advice, implementing agreed actions and feeding back to the wider LCG DER group. The team also acts as a coordination platform for nine government-mandated thematic clusters in Bangladesh (nutrition; health, food security; water, sanitation and hygiene (WASH); education; logistics; child protection; shelter and early recovery) under the overall coordination responsibility of the MoDMR, with joint needs assessments and planning (Figure 2). The development and functions of the National Nutrition Cluster (NNC) are described in Box 1.

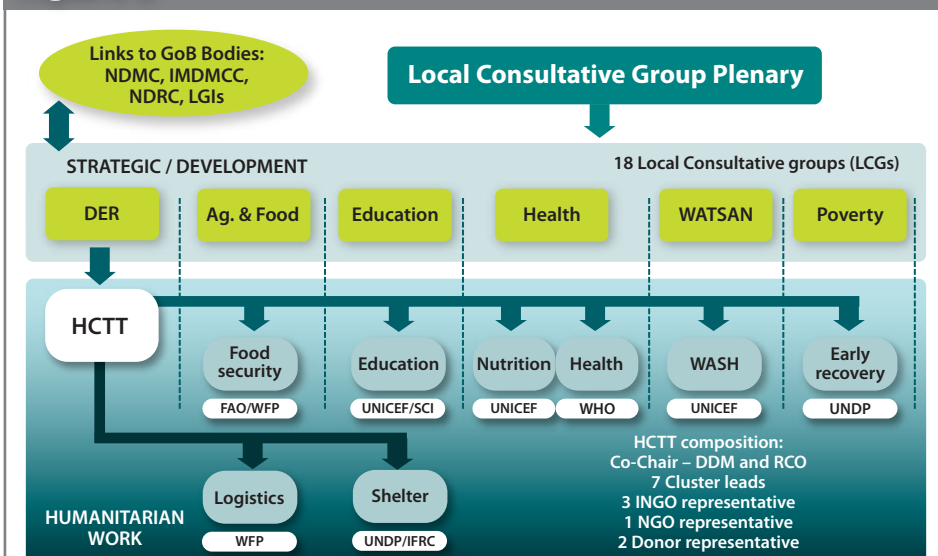
### History of the displacement of Rohingya people

The Rohingya people have experienced decades of discrimination, statelessness and targeted violence in Rakhine State, Myanmar. This has forced thousands of Rohingya people over the border from Myanmar into Bangladesh since the early 1970s. Two official refugee camps, Kutupalong and Nayapara, were in existence prior to 2016 and home to around 30,000 Rohingyas with official refugee status. Many more unregistered Rohingya people lived in Kutupalong and Leda makeshift camps/sites. The end of 2016 and early 2017 saw an influx of around 70,000 Rohingyas, initially referred to as Undocumented Myanmar Nationals (UMNs). This group received humanitarian assistance from the GoB, UN agencies (including UNHCR) and NGOs under the overall coordination of the

**Figure 1** National and sub-national coordination mechanisms for disaster risk reduction in Bangladesh



**Figure 2** National Cluster architecture in Bangladesh



NDMC = National Disaster Management Council; IMDMCC = Inter-ministerial Disaster Management Coordination Committee; NDRC = National Disaster Response Coordination Group; LGIs = Local Government Institutions; DER = Disaster and Emergency Response; WATSAN = Water, Sanitation and Hygiene; HCTT = Humanitarian Coordination Task Team; FAO = Food and Agriculture Organization; WFP = World Food Programme; UNICEF = United Nations Children's Fund; SCI = Save the Children International; WHO = World Health Organization; UNDP = United Nations Development Programme; IFRC = International Federation of the Red Cross; DDM = Department of Disaster Management; RCO = Resident Coordinator's Office; INGO = international non-governmental organisation; NGO = non-governmental organisation

<sup>4</sup> [www.humanitarianresponse.info/en/operations/bangladesh/nutrition](http://www.humanitarianresponse.info/en/operations/bangladesh/nutrition)



GoB and the International Organization for Migration (IOM).<sup>5</sup> In August 2017, attacks on police posts and the subsequent backlash in northern Rakhine resulted in a sudden mass influx of approximately 800,000 Rohingya people (over half of whom were children), known by this time as Forcibly Displaced Myanmar Nationals (FDMNs),<sup>6</sup> into Cox's Bazar (CXB), tripling the number of displaced people in that district in just over two weeks. This resulted in one of the largest displaced settlements in the world. Arriving FDMNs spontaneously settled in makeshift camps as each family/household established a shelter wherever it could (see Figure

3). The entire infrastructure and basic services for the Rohingya population had to be established quickly to provide much-needed life-saving interventions. This was made all the more complex by the fact that a large section of the settlement area had a hilly terrain and was heavily forested.

### Coordination surge to Rohingya crisis in 2017

Despite having strong preparedness mechanisms in-country, the GoB's capacity to effectively respond to the huge influx of FDMNs in 2017 was exceeded due to the speed, scale and nature of

the crisis. Due to the pre-existence of an emergency coordination mechanism, a hybrid system was adopted to coordinate the FDNM response. The humanitarian response was and continues to be led and coordinated by the existing GoB National Task Force (NTF), which is chaired by the Ministry of Foreign Affairs and includes 29 ministries and entities. Following the population influx, the existing Refugee Relief and Repatriation Commissioner (RRRC), under the MoDMR (which was previously involved in supporting both registered refugees and non-registered Rohingyas in Kutupalong and Leda makeshift camps) was mandated to provide operational coordination for all refugees/FDMNs. At the request of the relevant government authority, international humanitarian responders acted to complement and support GoB efforts, creating a hybrid humanitarian coordination system.

Strategic guidance and national-level government engagement for humanitarian agencies is provided in this system by a Strategic Executive Group (SEG) in Dhaka (see Figure 3), co-chaired by the Resident Coordinator, the IOM and UNHCR. UNHCR and IOM were nominated for this role due to their large presence in CXB pre-crisis and experience in providing humanitarian assistance over many years for both the registered and unregistered Rohingya populations. At district-level, the Senior Coordinator leads the Inter-Sector Coordination Group (ISCG), which is composed of thematic Sector and Working Group Coordinators who represent the humanitarian community, ensuring coordination with the RRRC and the District Commissioner (DC) (including Upazila Nirbah Officers (UNO) at the upazila (sub-district) level). Regular coordination meetings are held at upazila level to facilitate coordination, co-chaired by UNOs and the ISCG (see Figure 3).

### Nutrition coordination in the Rohingya response

#### Nutrition Sector coordination mechanism

As part of this hybrid system and as agreed under existing minimum preparedness actions (MPAs), the NNC established the Nutrition Sector as a dedicated coordination mechanism specifically for FDMNs in CXB in response to the crisis. In the initial phase, the UNICEF-employed NNC Coordinator also acted as Nutrition Sector Coordinator until someone could be appointed to this post. Once this post was recruited, the NNC Coordinator transitioned their role to the scale-up of UNICEF's programmatic response in CXB for three months until dedicated capacity was recruited, in addition to the NNC Coordinator function. This was challenging, given the vast coordination needs of the

## Box 1 National Nutrition Cluster in Bangladesh

In 2012 the Government of Bangladesh (GoB) Local Consultative Group on Disaster and Emergency Response (LCG DER) officially endorsed the establishment of a government-mandated (non-IASC) National Nutrition Cluster (NNC) in Bangladesh as part of the modified national cluster system. The NNC aims to strengthen the nutrition capacity of the government and LCG DER to prepare for and respond to slow and sudden-onset emergencies in Bangladesh, mainly focused on natural disasters. During non-emergency periods the NNC supports the development of contingency plans that include minimum preparedness actions (MPAs) (for risks profiled as having low and medium likelihood and impact) and advanced preparedness actions (for risks profiled as having high likelihood and impact). MPAs are to be undertaken by government (in the context of development programmes) and humanitarian actors to support a coordinated, timely and quality response to crises.

The NNC is co-chaired by the Institute of Public Health Nutrition (IPHN) under the Ministry of Health and Family Welfare (MoHFW) and the United Nations Children's Fund (UNICEF). Both actors share equal responsibilities and work together in partnership as co-leads, with the head of IPHN providing leadership within the government and UNICEF providing support for cluster leadership as per its global mandate, with support from the Global Nutrition Cluster (GNC). UNICEF also provides the NNC with a Nutrition Cluster Coordinator (NCC) and Information Management Officer (IMO).

The NNC, similar to the Inter-Agency Standing Committee (IASC)-mandated clusters, works to achieve six core functions: supporting service delivery; informing strategic decisions of the Humanitarian Coordinator (HC) and Humanitarian Coordination Task Team (HCTT); planning and implementing cluster strategies; monitoring and evaluating performance; building national capacity in preparedness and contingency planning; and advocacy and accountability to affected populations as a cross-cutting theme.

A separate Nutrition Working Group at national level focuses on developmental aspects of nutrition in Bangladesh. The common understanding is that, in the event of a level 3 emergency, where in-country capacities are exceeded, the NCC will transition to an activated IASC Cluster. Due to the unique nature legal status of FDMNs in Bangladesh, the NNC was not activated in response to the Rohingya crisis; however, the national preparedness plans and experiences were used to establish and inform sector coordination and response in Cox's Bazar.

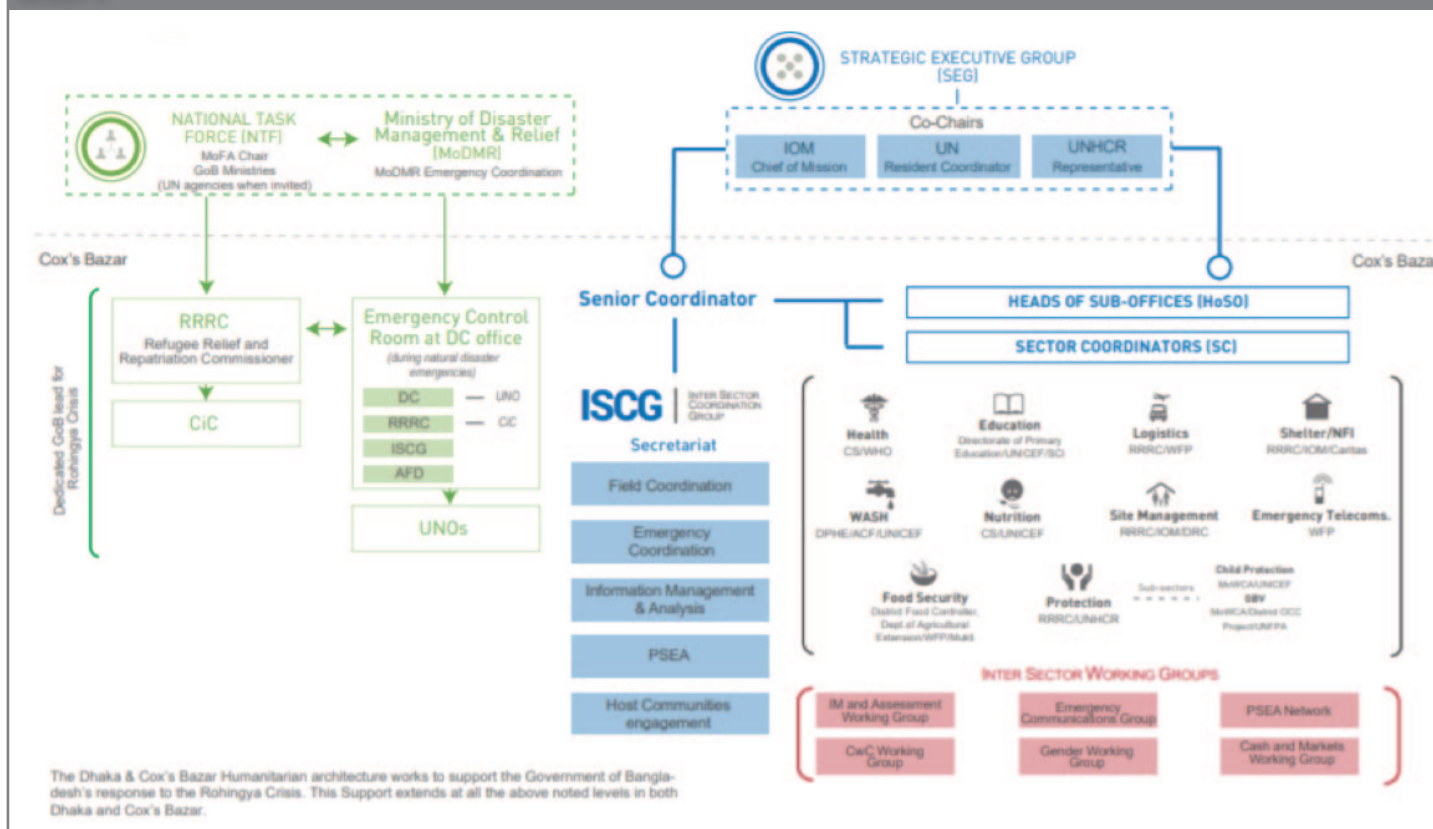


Refugee homes damaged by floods during the heavy Monsoon downpour in Cox's Bazar, Bangladesh

<sup>5</sup> Prior to the large influx, IOM Bangladesh was coordinating humanitarian assistance to some 200,000 UMNs living in makeshift settlements and host communities in Cox's Bazar. [www.iom.int/news/new-arrivals-bangladesh-myanmar-reach-313000-iom-seeks-usd-261-million-address-lifesaving-needs](http://www.iom.int/news/new-arrivals-bangladesh-myanmar-reach-313000-iom-seeks-usd-261-million-address-lifesaving-needs)

<sup>6</sup> Inter Sector Coordination Group (ISCG) Report, November 2018. Estimates are based on official data from the ISCG and UNHCR in Bangladesh.

**Box 1** National Nutrition Cluster in Bangladesh



FDMN response, as well as growing programming needs of the UNICEF response in addition to the needs of the NNC coordinator function. Even after a Nutrition Sector Coordinator (NSC) was recruited, high staff turnover in this role contributed to ongoing coordination challenges in the initial months of the crisis.

The Nutrition Sector response was guided by the 2017 Humanitarian Response Plan (HRP) and detailed Nutrition Sector response strategy, which was developed collectively by Nutrition Sector partners and endorsed by an ad hoc sector advisory group. A formalised Nutrition Sector Strategic Advisory Group (SAG) was finalised in late 2017.<sup>7</sup> The detailed Nutrition Sector response strategy provides operational and technical guidance for the response and is continually updated according to emerging evidence and current global guidance. In March 2018, the HRP transitioned to the Joint Response Plan (JRP) which provided strategic guidance for a coordinated response to address the immediate needs of the refugees, FDMNs and mitigate the impacts on affected surrounding host communities. The JRP incorporated funding and participation from the private sector.

In Kutupalong and Nayapara camps, where Myanmar nationals had received official refugee status, UNHCR continued to play a coordinating role and nutrition services were provided through a tripartite agreement between UNHCR, World Food Programme (WFP) and Action Contre La Faim (ACF). Outside these camps, WFP and ACF provided nutrition services.

**Office of the Civil Surgeon**

The Office of the Civil Surgeon (CS Office), under the MoHFW, is the government entity that oversees all health and nutrition activities in CXB district. The CS Office, together with UNICEF as the Nutrition Sector/Cluster lead agency, led the collective nutrition response and co-chaired Nutrition Sector meetings from the onset of the crisis. The CS Office works closely with the Institute of Public Health Nutrition (IPHN) (see below) to authorise and approve guidance, the Nutrition Sector response strategy and assessments and surveys planned and conducted by Nutrition Sector partners. Due to the massive scale of the health and nutrition response, the CS Office required additional human resources to lead and coordinate both the health and nutrition responses effectively. It proved challenging to recruit sufficiently qualified and dedicated personnel to be seconded to and stationed in the CS Office in CXB to support the SAG in strategic decision making, development of technical guidance for nutrition, and sector coordination. This was mainly due to the fact that IPHN, the technical nutrition department for MoHFW, is a centralised department, with no dedicated presence at district level.

**Institute of Public Health Nutrition (IPHN)**

The IPHN, located in Dhaka, is the national department responsible for providing technical guidance on nutrition and co-chairs the NNC with UNICEF. The IPHN, through the CS Office, provides technical and strategic guidance for the Rohingya response and supports linkages

between the NNC and Nutrition Sector. This ensures that the collective response is in line with GoB policies, guidelines and standards and that guidance for the response is informed by emerging evidence. For example, the IPHN led advocacy to high-level government offices for the continued use of ready-to-use therapeutic food (RUTF) and the use of ready-to-use supplementary food (RUSF) for the treatment of wasting as part of the ongoing Rohingya response. RUTF had been used in treatment of wasting in registered and unregistered refugees for several years (via UNHCR and several NGOs), but RUTF and RUSF are not routinely used in acute malnutrition management in Bangladesh. Advocacy was needed for the endorsement of their use as a continuing part of the Rohingya response, building on existing NGO-led prevention and treatment programmes, drawing on evidence generated by Nutrition Sector partners to do so.<sup>8</sup>

The IPHN also leads specific activities, such as the Nutrition Action Week (NAW) held in November 2017 when all children aged 6-59 months in registered refugee camps and makeshift settlements were screened for wasting

<sup>7</sup> The SAG is a decision-making body for the Nutrition Sector, comprised of Civil Surgeon (CS) Office, key UN agencies and national and international NGO representatives, elected by Nutrition Sector partners.

<sup>8</sup> Several studies/pilots on CMAM programming had generated evidence for use of RUTF/RUSF prior to the influx but there had been no policy change. CXB-specific evidence was instrumental in influencing the acceptance of continued use of RUTF and use of RUSF for FDMNs.

<sup>9</sup> HoSO is a decision-making body for the FDMN response comprised of heads of UN agencies and NGO representatives.



Tree planting at one of the reforestation sites in Cox's Bazar, Bangladesh



WFP/Saikhat Mojumder

(and identified cases referred for treatment) and provided with deworming and vitamin A supplementation. In the later part of the response, a liaison officer, a former IPHN senior staff member, was recruited by UNICEF and seconded to the CS Office as part of the Nutrition Sector Coordination team. This further strengthened links between the CS and IPHN as well as between the Nutrition Cluster and Nutrition Sector.

### Contextualised guidance

The rapid scale-up of community-based management of acute malnutrition (CMAM) services for FDMNs in the response was greatly helped by the pre-existence of contextualised guidelines for CMAM used in the official camps in the Rohingya response pre-August 2017 (using RUTF, with mid-upper arm circumference (MUAC) as an independent criterion and both community and facility-based management of severe acute malnutrition (SAM)). Pre-existing SAM treatment services run by ACF and Médecins Sans Frontières (MSF) in the registered and makeshift camps absorbed many of the severely malnourished children in the first weeks of the crisis, before the large scale-up of services to a wider geographical area. Authorisation from IPHN/MoH for the use of RUTF and RUSF specifically for the Rohingya population residing in the makeshift camps was facilitated by agreements that already existed through the RRRC and MoDMR. The wider use of RUTF and RUSF was advocated for by UNICEF, WFP, the IPHN and NNC, justified by poor access to adequate and nutritionally diverse foods in the makeshift camps. Eventually, sections of the national guidelines were contextualised to suit the Rohingya context, with the approval of the CS Office and IPHN. In addition, anthropometric admission criteria were officially expanded to include MUAC in addition to weight-for-height z-score to reflect practice on the ground.

### Multi-sector coordination

At national level, integration points between key sectors (Nutrition; Water, Sanitation and Hygiene (WASH); Food Security and Health) had

been agreed and were reflected in national multi-cluster contingency plans/MPAs, coordinated by the HCCT. Consensus was reached on an integration strategy between the Nutrition, WASH and Food Security Sectors in CXB at the outset of the response and were endorsed at a meeting of the Heads of Sub Office (HoSO).<sup>10</sup> However, effective uptake of the strategy was constrained for several reasons. Limited funding for inter-sector activities meant each sector could only prioritise sector-specific activities, while high staff turnover and lack of dedicated 'inter-sector' personnel meant there was limited technical capacity to support integration efforts. Other challenges included space constraints and population movement in the makeshift settlements, which made the integration of activities difficult to implement in practice.

Progress was made on coordination between the Food Security Sector (FSS) and Nutrition Sector following initial challenges and weak programme alignment. The blanket supplementary feeding programme (BSFP) was managed under the FSS for the first six months of the response, while the targeted supplementary feeding programme (TSFP) was managed under the Nutrition Sector. Children aged 6-59 months received similar services and the same product (CSB++) under both TSFP and BSFP, making it difficult to distinguish between beneficiaries of the two interventions. In practice, most children were reported under the BSFP, which meant coverage of the TSFP was underestimated. At the same time, a few partners reported BSFP recipients to the Nutrition Sector, which added to the confusion. To address this, the BSFP was relocated under the Nutrition Sector and, after a period of transition, referral mechanisms between TSFPs and BSFP were strengthened through both community outreach and facility-based growth monitoring platforms. Discussions on the food basket for the general food distribution programme (GFD) between the FSS and Nutrition Sector partners also led to development of a more nutritionally diverse food basket that provided adequate calories. Despite the GFD

having very good coverage, access to adequate and appropriate complementary food for children aged 6-24 months was a challenge at the beginning of the response. This was somewhat improved by the transitioning of the GFD to a food voucher programme one year after the onset of the response.

### Reflections on lessons learned

The FDMN response was dynamic from the outset, given the unique context of a hybrid coordination mechanism grounded in emergency preparedness. The response provides a strong example of government-led coordination and leadership in close collaboration with humanitarian stakeholders with an IASC Cluster model adapted to suit the specific context. It reflects strong government commitment to preparedness, including heavy investment in devolved (sub-national/district) coordination mechanisms. Considerable structures and frameworks were already in place pre-crisis, with agreed MPAs and Advanced Preparedness Actions (APAs). However, given previous country experiences, the preparedness system was primarily centred on natural disaster response. This meant the *modus operandi* did not necessarily suit a mass population influx and 'real time' innovation was required to provide suitable coordination. This experience provides rich learning for Bangladesh and other similar contexts. With this in mind, some further reflections are shared here.

### UN institutional arrangements

The 'triple-hatting' of the NNC Coordinator during the establishing of the Nutrition Sector coordination mechanism was feasible in the preparedness phase, but proved impossible to sustain following the huge surge in demand for nutrition services, necessitating a dedicated coordinator for CXB. An overstretched NNC Coordinator and high staff turnover in the early days; significant complexities regarding UN coordination arrangements, whereby UNHCR did not have the same overall authority that it does in 'usual' refugee contexts; a difficult operational environment (camp congestion and limited space); lack of nutrition capacity within the health system (most Health Sector partners do not provide any nutrition services); and prioritisation of life-saving/immediate needs in the early response resulted in a fragmented nutrition response. Nutrition services were established in line with respective UN agency mandates and were poorly aligned. This resulted in poor continuum of care between malnutrition treatment services for SAM (UNICEF-led) and moderate acute malnutrition (MAM) (WFP-led) and weak linkages with nutrition services, specifically BSFP (WFP-led).<sup>10</sup>

Prior to and after the crisis, District Disaster Management Committees (DDMCs) were responsible for district-wide emergency planning and response. However, nutrition was often deprioritised in discussions and resource allocation.

<sup>10</sup> Challenges specific to continuity of care for acute malnutrition treatment will feature in an upcoming online article. [www.ennonline.net/fex](http://www.ennonline.net/fex)



tion, despite DDMCs members having received nutrition in emergency trainings. A liaison officer seconded to the CS Office proved a valuable addition to support coordination; however, there were practical challenges in securing this position, including the lengthy process of identifying and endorsing a suitable person by the IPHN due to the need for the person to be based in CXB (which most candidates were reluctant to accept), have good experience and a command of GoB health and nutrition policies, guidance and standards.

### Humanitarian-development nexus

This response provides practical examples of how to connect humanitarian and development actions in terms of programming and guidance. For example, through its development programme, UNICEF procured and pre-positioned supplies in government Central Medical Stores for treatment of 10,000 children with SAM during the emergency response. The NNC also supported the further development of national guidelines and standards, drawing on pre-existing protocols for the use of RUTF for treatment of SAM and MUAC as an admission and discharge criteria within CMAM programming, and development of operational guidelines for infant and young child feeding in emergencies (IYCF-E). The national CMAM guideline and respective training manuals were reviewed and translated through the NNC with an emergency lens and approved by the relevant government authority.

The existence of relevant national nutrition in emergencies guidelines endorsed by government prior to the onset of an emergency was instrumental to the response. Guidelines require timely update in light of the latest global guidance and emerging evidence. The Nutrition Sector helped secure continued use of RUTF and RUSF for treatment of wasting in the makeshift settlements, which was critical in enabling effective malnutrition programming. A systematic Advocacy Strategic Framework for identified areas of concern affecting the response was instrumental in streamlining collective advocacy efforts and providing an enabling environment for the nutrition response. It was important that this included agreed channels for identification and communication of advocacy concerns, identification of key advocacy actors, a collectively developed advocacy implementation strategy, and means of monitoring gains and milestones achieved.

### Multi-sector coordination

Pre-existing strategic ambitions for the integration of multi-sector services were largely not realised in the Rohingya response. Standalone nutrition services were developed for the emergency response under the Nutrition Sector and health services were delivered through primary health facilities under the Health Sector. This approach was fuelled by acute and high demand for services, which limited time to negotiate different ways of working together; hence, the treatment of acute malnutrition was not integrated within health structures or systems from the design phase.

Agreed national guidelines existed in Bangladesh on the use of multi-purpose cash grants during emergency response; however, this approach was restricted among the FDMN for reasons beyond the control of the Nutrition Sector. This was a missed opportunity, given the likely benefit of social protection schemes in helping to protect the nutrition status of affected households, while cash-based interventions would have facilitated uptake of recommended IYCF practices.

Since there was no agreed monitoring and evaluation framework for the integration strategy in the HRP at the onset of the response, or dedicated capacity to support this, there was no mechanism to hold to account its failure to deliver in this regard.

### Conclusions

The existence of robust disaster management regulatory and policy frameworks for disaster risk reduction at country-level was instrumental in informing and coordinating governments efforts to respond to the crisis. However, the experience of the CXB FDMN response demonstrates that coordination models for complex situations such as this must be re-examined and appropriate global guidance/coordination mechanisms developed to cater for atypical and sometimes unpredictable coordination needs.

Cognisant of the central role of government in humanitarian crises, Memoranda of Understanding (MoUs) among the key UN agencies working in nutrition, in line with each agency's global mandate, should be developed and formalised at regional and country levels, based on a comprehensive analysis of current and likely future scenarios and should be fully adopted in times of crisis. This would ensure better coordination for large-scale humanitarian crises that

exceed government capacity to effectively respond. MoUs should take into full account existing national and sub-national/district coordination mechanisms, capacity and challenges and should be shared, discussed and agreed with relevant government authorities at all of the right levels.

Strengthening collective preparedness measures for anticipated nutrition emergencies at country-level is instrumental in ensuring a timely, coordinated and quality nutrition response. Preparedness/contingency plans to be activated during emergencies should be developed and endorsed by each relevant authority. These plans should detail nutrition response coordination and information management roles and responsibilities, vulnerability criteria for nutrition, the minimum comprehensive package of nutrition services and should outline linkages between curative and preventive services to be adopted from the onset of a crisis. Technical, operational and managerial capacity-building initiatives for nutrition in emergency interventions should be institutionalised at multiple levels as part of the MPAs prior to onset of emergencies. A comprehensive mapping of the anticipated required nutrition supplies, human resources and technical guidance needed to implement a quality nutrition response should be undertaken, strengthened and pre-positioned in strategic locations during the pre-crisis period.

The operationalisation of inter-sector collaboration requires dedicated resource and capacity and accountability mechanisms. Timely collaboration and engagement with relevant government authorities at multiple levels from the onset of the emergency are needed to enable joint response planning and implementation, which is key to a fast, appropriate and aligned response.

A mother of seven children with her one day old baby boy in her tent in Kutuplaong, Ukhiya, Cox's Bazar, May 2018



WFP/Saiket Mojumder





A counsellor takes the infant's temperature as part of the MAMI assessment, Kule refugee camp, Gambella, Ethiopia, 2019

Alice Burrell, GOAL

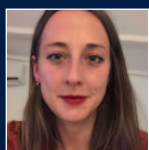
Location: *Ethiopia*

**What we know:** Management of 'at risk' mothers and infants under six months old (MAMI) is an increasing priority for programmers; there are gaps in evidence in how to identify and manage cases in different contexts.

**What this article adds:** In 2014, GOAL integrated the MAMI approach into its nutrition programme in two refugee camps in Gambella, Ethiopia, using a locally adapted version of the C-MAMI tool. Enrolment and discharge criteria include anthropometric, clinical, feeding and maternal factors. Community screening is undertaken by community outreach agents using simple referral criteria and thorough monthly screening by counsellors at the nutrition centre. A reversible MAMI mid-upper arm circumference (MUAC) tape has been designed by GOAL to support easy identification of at-risk infants under six months old and is being used to trial MUAC thresholds to identify infants in this age group. Defaulter rate was high due to population mobility; among those who remained in the camp, cure rate was 71%. Qualitative feedback from community members, beneficiary mothers and staff reveals that the programme is highly valued; staff suggested that simplification of the C-MAMI tool would aid implementation. Planned programme innovations by GOAL include the use of educational breastfeeding videos in counselling and digital data gathering and analytics. In line with global thinking on the MAMI approach, the programme also plans to transition from an admission/discharge model to enrolment/de-escalated follow-up to six months, recognising the ongoing vulnerability of infants identified as 'at risk'.

# GOAL's experiences of management of at-risk mothers and infants under six months (MAMI) in Ethiopia

By Alice Burrell and Hatty Barthorp



Alice Burrell has been working in humanitarian nutrition for the past five years, with experience across Asia, Africa, the Middle East and Europe, mostly in refugee or internal-displacement contexts. Alice has worked with GOAL, Action Against Hunger and Save the Children UK and is currently an Emergency Nutrition Advisor – MAMI at Save the Children US.



Hatty Barthorp is a Global Nutrition Advisor at GOAL's headquarters. She has been working on emergency, transitional and development programmes for 18 years.

The authors would like to thank the DropBox Foundation for funding the progressive innovations during 2019 in collaboration with the Bureau of Population, Refugee and Migration (BPRM) – United States Department of State, the United Nations High Commission for Refugees (UNHCR) and the United Nations Children's Fund (UNICEF).

## Background

The GOAL programme in Ethiopia spans the child protection; health; nutrition; water, sanitation and hygiene (WASH) and livelihoods sectors. GOAL first became operational in Ethiopia in 1984, following the period of famine, and was registered as a non-governmental Organisation (NGO) in 1991. It has played a significant role in the response to the refugee influx into Ethiopia since 2011, when it began supporting Somali refugees in Dollo Ado camp. Today, GOAL Ethiopia provides nutrition services for refugees in a number of contexts in the country, including South Sudanese refugees in two camps in Gambella (Terkidi and Kule). Here, GOAL runs a nutrition programme that includes community-based management of acute malnutrition (CMAM) and infant and young child feeding (IYCF). In response to the high number of vulnerable mothers and infants in Terkidi and Kule camps<sup>1</sup>, in 2014 GOAL integrated the management of 'at-risk' mothers and infants under six months of age (MAMI) approach into its nutrition programmes. Originally, MAMI was seen by the GOAL team as an adjunct to community-based management of acute malnutrition model (CMAM) programmes; however, it is now recognised as both a preventative and curative approach.

<sup>1</sup> Current estimated populations of 61,918 and 43,426 persons and 624 and 571 infants under six months of age respectively (UNHCR, 2019).

## Experiences of implementing the MAMI approach

The MAMI programme in Gambella uses the C-MAMI V2.0 tool as a key resource to guide programming (see Box 1). The tool's programme cards have been adapted and a MEAL (monitoring, evaluation, accountability and learning) toolkit has been developed to suit the specific context. This includes an electronic database with digital data entry for enrolment and management, a screening register, enrolment register, beneficiary monitoring cards and 'ration' cards. Figure 1 shows the flow of the programme and the monitoring and evaluation tools that are

### Box 1 The C-MAMI tool

The C-MAMI tool is a resource that provides a health worker with a pathway and supporting content to assess, identify/classify and manage at-risk mothers and infants under six months old who are nutritionally vulnerable in the community. It was developed as a first step to help fill a gap in programming guidance on community case management of uncomplicated cases. The tool draws on and complements existing national and international guidance and protocols and is modelled on the integrated management of childhood illness (IMCI) approach.

[www.enonline.net/c-mami](http://www.enonline.net/c-mami)

used at each stage of the programme. Figure 2 shows how MAMI services are located within the wider GOAL nutrition programme in Gambella. MAMI services are offered within the IYCF space, with close links to the blanket supplementary feeding programme (BSFP) and the stabilisation centre (SC) when complications are identified.

**Identifying at-risk mothers and infants**

**Enrolment criteria**

When the programme first began, at-risk infants were identified using only anthropometric criteria. However, anthropometry for this age group has limitations and infant feeding and maternal factors are also essential in identifying risk in the age group. Therefore, in line with the updated version (V2.0) of the C-MAMI tool, enrolment and discharge criteria used in the GOAL Gambella programme were expanded in June 2019 and now encompass a broader set of clinical, feeding and maternal factors (see Boxes 1 and 2).

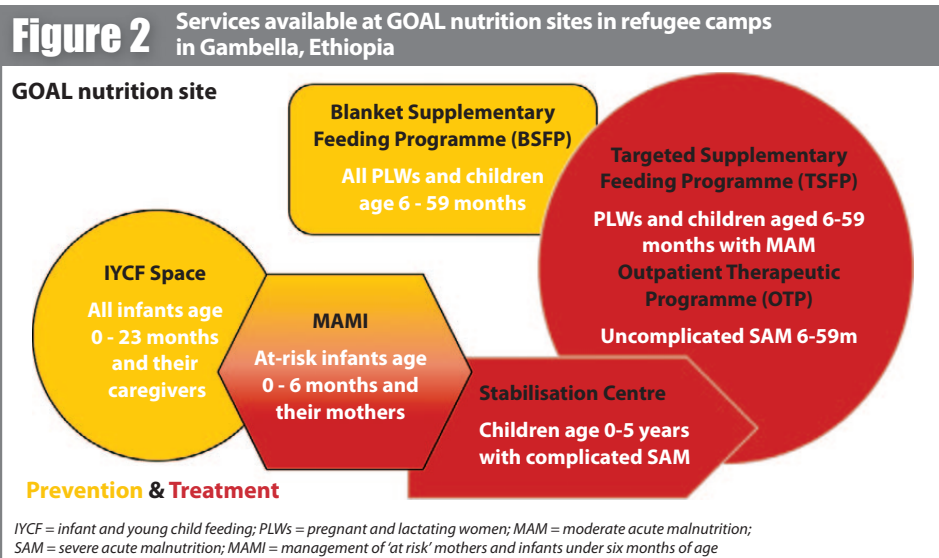
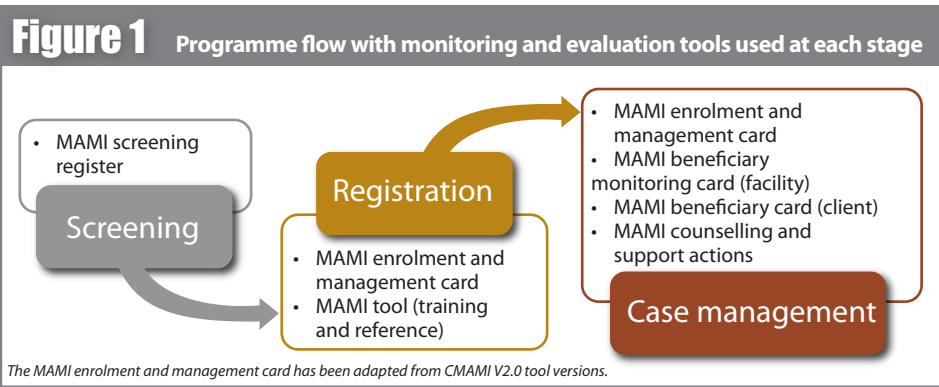
Monthly screenings as per enrolment criteria are currently conducted for all mothers and their infants under six months of age at each nutrition site. Finding that, in practice, some health workers were applying a more thorough assessment of admission criteria than others, simple screening registers were developed that clearly list each criterion to ensure that they are all systematically reviewed. This maximises case identification. In December 2019, to improve case identification and geographical reach further, GOAL trained community outreach agents (COAs) on MAMI community screening and referral to equip them to make referrals for assessment. The training followed an 'A, B, C, D' format, checking Anthropometry (mid-upper arm circumference (MUAC) and oedema); Breastfeeding status and challenges; Clinical illness of infant and mother; and Depression, anxiety or stress of the mother.

**MAMI-MUAC**

International validated thresholds for MUAC to identify at-risk infants under six months have not yet been agreed. As a result, this age group has not been included in community-level nutrition screenings that rely on MUAC (Lelijveld *et al*, 2017). Given this and the significant limitations of using weight-for-length in this age group and operational setting, GOAL Ethiopia is currently trialing the use of two MUAC thresholds to identify nutritional risk in infants under six months and has designed a reversible MAMI-MUAC tape to support easy identification. One side of the tape is used to identify older children (6-59 months of age) and mothers with nutritional risk using standard international cut-offs, and the reverse is used to identify infants under six months with nutritional risk. Thresholds for infants were selected based on existing evidence by Mwangome (2017), as follows:

- <110mm for infants aged 0 to 6 weeks of age.
- <115mm for infants aged >6 weeks to 5 completed months of age.

Age groups for thresholds were selected to coincide with first vaccinations at six weeks, which



**Box 1** Enrolment criteria for the GOAL MAMI programme in Gambella from June 2019

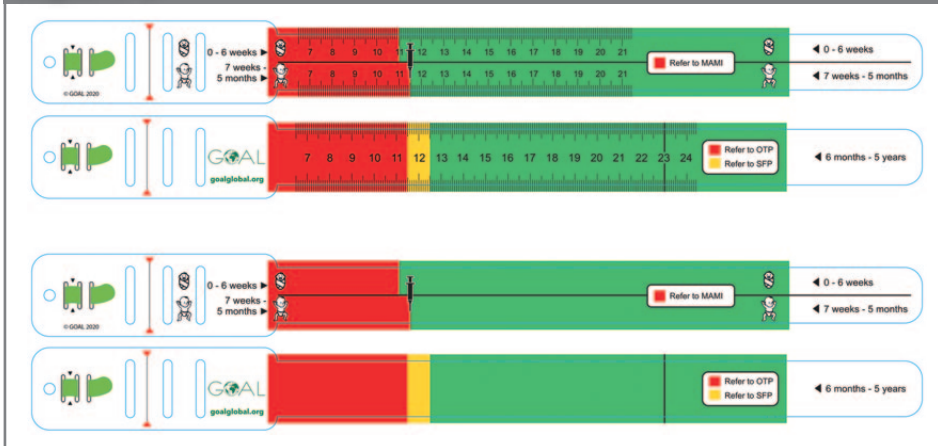
| ENROLMENT CRITERIA  |   |
|---|---|
| TICK ALL BOXES THAT ARE RELEVANT TO THE INFANT-MOTHER PAIR: |   |
| <input type="checkbox"/>                                    | Multiple births / low birth weight (LBW) / Premature / Orphan / Mother sick & unable to care for infant   |
| <input type="checkbox"/>                                    | Infant with anthropometric criteria 'at risk' (mid-upper arm circumference (MUAC) <11cm in first 6 weeks / 11.5cm >6week - 5months (pilot thresholds) / or weight-for-age (WAZ) <-2 for 0-5months). |
| <input type="checkbox"/>                                    | Infant with recent moderate weight loss, failure to gain weight, or visible moderate wasting  |
| <input type="checkbox"/>                                    | Infant with feeding problems (not well attached or poor sucking, <8 feeds/24hrs, or mixed feeding)  |
| <input type="checkbox"/>                                    | Mother with feeding concerns or breast conditions   |
| <input type="checkbox"/>                                    | Not breastfed infant without an acceptable, feasible, affordable, sustainable and safe (AFASS) source of breast milk substitute (BMS)   |
| <input type="checkbox"/>                                    | Mother with moderate anxiety, depression or stress impacting daily life   |
| <input type="checkbox"/>                                    | Mother with MUAC 19 cm - <23 cm   |
| <input type="checkbox"/>                                    | Infant referred from inpatient care should be provided ongoing MAMI support   |
| IF ANY BOXES CHECKED → YELLOW → ENROL                       |   |
| IF NO BOX CHECKED → GREEN → DON'T ENROL                     |   |

**Box 2** Discharge criteria for the GOAL MAMI programme in Gambella from June 2019

| DISCHARGE CRITERIA  |   |
|---|---|
| ALL CRITERIA MUST BE MET FOR DISCHARGE FROM THE PROGRAMME |   |
| <b>Breastfed Infant:</b>                                  |   |
| <input type="checkbox"/>                                  | Infant exclusively breastfeeding well OR Infant not breastfeeding but has appropriate quantity of AFASS BMS |
| <input type="checkbox"/>                                  | Infant does not consume any water, other liquids or foods   |
| <input type="checkbox"/>                                  | Infant clinically well and alert  |
| <input type="checkbox"/>                                  | Infant demonstrates adequate weight gain / positive growth curve / thriving                                 |
| <input type="checkbox"/>                                  | Mother confident with infant condition and breastfeeding  |
| <input type="checkbox"/>                                  | Mother adequately nourished (MUAC > 21cm)   |
| <input type="checkbox"/>                                  | Mother clinically well enough to care for infant  |
| <input type="checkbox"/>                                  | Mother has no psychological problems  |



**Figure 3** MAMI-MUAC tape design: Enumerated (top) for use with trained health workers and non-enumerated (bottom) for use in the community



provides a good marker for families and reinforces vaccine schedules. MAMI-MUAC tapes were designed with community input and testing.

Figure 3 shows the final MAMI-MUAC tape designs. Features include:

- A broad 25mm tape that reduces the effect of over-tensioning.
- A three-slot 'buckle' that reduces measurement error (Grant *et al*, 2018).
- A reversible tape to include infants age 0 to 5 months, infants age 6 to 59 months and a marker for maternal risk at 23cm.
- An enumerated version for health workers and a non-enumerated version for community screening.

### Programme outcomes

From May 2019 to January 2020, the programme enrolled 114 infants, 110 of whom were with their mothers and four of whom were orphaned and with a caregiver. Figure 4 shows the enrolment criteria that were met for these MAMI enrolments. Criteria are not mutually exclusive and numerous criteria can be met for one mother-infant dyad. Figure 5 shows the age in months and the sex of the 114 infants enrolled, revealing that the most common age at enrolment is 0 months (newborn), followed by the younger age groups.

The average length of stay in the MAMI programme is 44 days. This ranges from 33 days in Terkidi site 1 to 58 days in Kule site 2. The average weight gain is 0.73 kg/g/day and average MUAC gain during programme enrolment is 1.1 mm (Table 1).

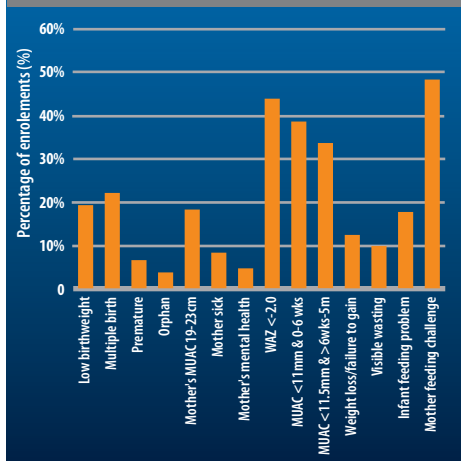
Figure 6 shows the outcomes of the 80 mother-infant dyads discharged from the MAMI programme in the study period (i.e. cure, default, transfer to stabilisation centre, transfer to CMAM programme, death). No baseline data on outcomes without treatment is available. Recorded cure rate (50%) was affected by a high default rate (30%), experienced across all GOAL nutrition programmes due to the considerable fluidity of the camp population as families cross the border to and from South Sudan, as well as between the camp and host communities where many have relatives. Among the 56 who remained in the camp until discharge, cure rate was 71.0%.

### Perceptions and experiences of the MAMI programme

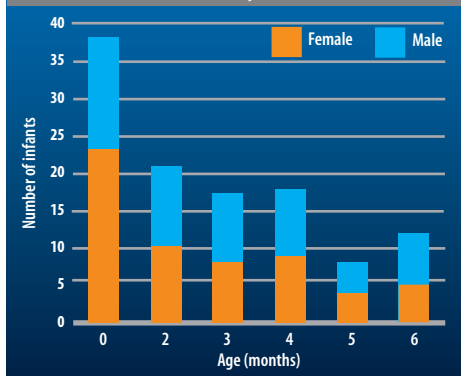
In October 2019, GOAL conducted a qualitative survey on the utility and acceptability of the MAMI programme among Gambella refugees. The survey included focus groups with community members and interviews with MAMI programme staff. Results show that the purpose of the service is well understood by both health workers and MAMI beneficiaries. Both groups cited improved learning as the main focus of the programme (including in breastfeeding and care practices for the infant and mother), as well as to both prevent and treat malnutrition. Health workers and beneficiaries had a very positive perception of the programme, with both groups describing the benefits of the service as improved health and nutritional status (recognised as weight gain) and improved breastfeeding and care practices. There was, however, an incorrect perception that 'food provision' was part of the service. This can be explained by the fact that MAMI support, in this context, is a nested activity within the wider CMAM and BSFP programmes, where beneficiaries do receive food commodities (such as Plumpy'Nut and basic medicines in the case of CMAM, and fortified blended flours and micronutrients in the BSFP). The most significant motivator conveyed by both groups was the perceived value of support provided by the programme that resulted in improved knowledge and practices, and demonstrated in the positive impact they witnessed on the health and wellbeing of their babies. A smaller proportion of those interviewed in both groups liked being able to see the growth of infants by plotting progress against growth curves.

In terms of barriers and challenges, almost all MAMI beneficiaries noted that workload of the caregiver made it problematic to attend the programme. Participation in the MAMI programme requires weekly visits to the nutrition centre, where mothers attend MAMI follow-up and the BSFP and, if they or their older children are enrolled, they may also attend a targeted supplementary feeding programme (TSFP) and/or OTP. This may take anything from one hour up to half a day, depending on caseloads

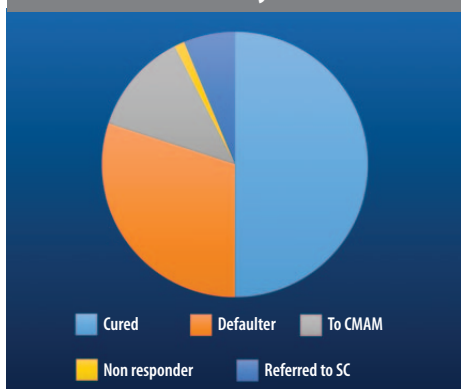
**Figure 4** Enrolment profile of the GOAL MAMI programme in Gambella (114 infants and 110 mothers)



**Figure 5** Age and sex of the enrolments to the MAMI programme, May 2019 to January 2020



**Figure 6** Outcomes at discharge of 83 discharged mother-infant dyads



**Table 1** MAMI programme outcomes at discharge by nutrition site

| Site         | Average MUAC gain (mm) | Average weight gain (g/kg/day) | Average length of stay (days) |
|--------------|------------------------|--------------------------------|-------------------------------|
| Terkidi 1    | 1.4                    | 0.82                           | 33.8                          |
| Terkidi 2    | 0.8                    | 0.81                           | 36.7                          |
| Kule 1       | 1.0                    | 0.53                           | 50.9                          |
| Kule 2       | 1.6                    | 0.84                           | 58.3                          |
| <b>Total</b> | <b>1.1</b>             | <b>0.73</b>                    | <b>44.3</b>                   |



A group of mothers with infants under 6 months gather to be part of a focus group discussion for the qualitative survey, Terkidi refugee camp, Gambella, Ethiopia, 2019

and the number of services the family is enrolled in. The four nutrition sites are spread between the two camps to optimise access, with a maximum walk time of 30 minutes each way. Comparing this to a non-camp, rural setting, many households outside the immediate catchment of a health facility would walk for a number of hours to access services, which requires a greater perceived 'cost'. Multiple commodity revisions of the general food ration in the last few years have required families to access income and/or food from other sources as a supplement, creating an extra time-burden. The lack of tangible assets or goods received in the MAMI programme (such as soap, jerry cans, kitchen utensils and bed nets) was also flagged by the beneficiary group as being a negative element of the service. But, given that this is a largely aid-dependent population, their desire and/or expectation for physical assets are likely to be greater than would be encountered in other contexts.

Staff were interviewed about the utility of the C-MAMI tool. Results showed that most staff were not using the tool directly for assessment but rather as a reference guide, due to its length. Staff were instead using either the enrolment and management card or the GOAL digital data tool (which exactly mirrors the enrolment and management card) as a form of screening, as well as enrolment. Staff did report, however, using the counselling support actions and/or accompanying counselling cards as intended. Staff requested that the C-MAMI tool be simplified and shortened to enable its use in contexts where time for assessment and enrolment is limited.

## MAMI innovations through programming

Several innovations have been made by the programme in delivering the MAMI approach.

### *Breastfeeding educational videos as a counselling tool*

The breastfeeding educational videos for mothers developed by Global Health Media (GHM) Project<sup>2</sup> have been translated to Nuer language for use in the MAMI (and IYCF) programmes. The videos will be downloaded onto tablets and used by health workers with the aim of improving beneficiary engagement and behaviour change. The videos will be trialled in Gambella in early 2020 and a study will be conducted alongside to measure the impact of their use on breastfeeding knowledge and behaviours compared to traditional methods of didactic counselling and education.

### *Digital data gathering*

In May 2019, GOAL switched to digital data gathering in the MAMI programme. Forms directly reflecting the paper-based versions were created on CommCare and downloaded to handheld tablets for health workers to directly enter enrolment and follow-up data. This supports more timely data collection and improves data quality, using skip logic to reduce missing, invalid or inaccurate data entries, auto calculate for certain data such as age and weight gain, and adding limitations to the values entered. This method also allows for easy tracking of individuals over time with case management functions.

Additional data values have also been added, including: maternal age, maternal height, moderate maternal mental health issues, recent moderate weight loss/failure to gain weight of infant, visible moderate wasting of infant, and an expanded feeding section, including mixed feeding, identification of breast conditions, attachment and suckling status, inadequate milk/other feeding issues. These will be used to assess potential risk factors for infant malnutrition. From July 2019, GOAL began to collect longitudinal data at 1, 2,

6 and 12 months post-discharge to enable assessment of future risk of relapse with associated causes, risk of death, at what age, how long post-discharge and anthropometric outcomes.

### *Analytics dashboard*

GOAL has been using PowerBI to develop automated dashboards to compile project data and perform real-time analytics for project staff and to help identify quality issues which, in conjunction with real-time digital beneficiary feedback, supports adaptive programme management.

### *Next steps*

Research findings from the qualitative study will feed into an internal action plan to improve the acceptability and quality of the MAMI programme in Gambella. Actions to improve cure rates include having a dedicated person to improve technical capacity of staff in terms of counselling and programme flow, and case reviews of infants who remain in the programme for longer periods to understand barriers to management. Findings relevant to the ongoing development of the C-MAMI tool will be shared with the MAMI Special Interest Group (SIG)<sup>3</sup> and other relevant platforms. Digital data collection will continue and, once a sufficient sample size has been achieved, an analysis of programme data will be conducted to assess potential risk factors for infant malnutrition and impact of the MAMI programme, including the longitudinal outcomes of infants after discharge. Although currently the programme in Gambella uses a set of admission criteria and corresponding discharge criteria, GOAL recognises that this needs to be transitioned to enrolment with de-escalated follow-up to six months, rather than discharge on attaining anthropometric/non-anthropometric thresholds, due to the ongoing vulnerability of such small infants who have been identified as 'at risk'. This will be reflected in future iterations of this programme.

GOAL is committed to building the evidence base for MAMI programming, with practical operational experiences and learning feeding into the C-MAMI tool update<sup>4</sup> (now underway) and, more broadly, into development of the MAMI approach.

For more information, please contact Hatty Barthorp [hbarthorp@goal.ie](mailto:hbarthorp@goal.ie)

<sup>2</sup> <https://globalhealthmedia.org/videos/breastfeeding/>

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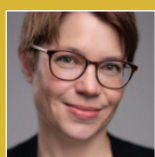




OTP records stored at facility, Nigeria, 2017

## Appraisal of the CMAM information system in Northern Nigeria using a 'toolbox' approach

By Cora Mezger, Veronica Tuffrey, Gloria Olisenekwu, Charles Umar, Simeon Nanama and Assaye Bulti



Cora Mezger currently leads the Oxford University Statistical Consulting Service. She was previously the Official Statistics team leader at Oxford Policy Management Ltd and holds a DPhil in Economics from the University of Sussex.



Veronica Tuffrey is a public health nutritionist with over 20 years' experience as a consultant in international nutrition and lecturer in research methods. She holds a master's degree and PhD from the London School of Hygiene and Tropical Medicine (LSHTM).



Gloria Olisenekwu is a Survey Coordinator with Oxford Policy Management Nigeria. She has led and been part of numerous data-collection exercises in West Africa.



Charles Umar currently manages the Child Health and Nutrition Project implemented by Nutrition International in Nigeria. He has over 15 years' experience as a public health professional.



Simeon Nanama is the Chief Nutrition for UNICEF Nigeria. He holds a PhD in International Nutrition from Cornell University and a Doctorate in Food Technology from the University of Ouagadougou, Burkina Faso.



Assaye Bulti manages routine nutrition programme data and surveys for UNICEF Nigeria. He holds an MSc in Epidemiology from LSHTM and has a public health background.

The authors gratefully acknowledge the support that all in-country partners gave to this assessment and the Children's Investment Fund Foundation for its financial and technical input.

### Location: Nigeria

**What we know:** Information systems for community-based management of acute malnutrition (CMAM) programmes often run parallel to government health information systems and are vulnerable to organisational and behavioural weaknesses.

**What this article adds:** A quality assessment of the government-led CMAM information system in Northern Nigeria was undertaken in 2017. A mixed-methods approach (primary data collection from multiple levels and secondary data analysis) was applied in a sample of nine health facilities in Sokoto state to assess the quality of data and data sources; data collection; management and analysis processes; organisational inputs (data entry, software and supervision); and behavioural (staff) inputs. Significant weaknesses in the system were identified, which were translated into concrete recommendations (reported elsewhere) and shared with stakeholders for action. Challenges encountered included loss of paper-based documentation and incomplete records at facility-level, and lack of buy-in from senior officials. The authors conclude that the 'toolbox' approach used provides a successful method of thoroughly assessing and identifying areas for improvement in information systems that could be replicated in other similar contexts.

### Background

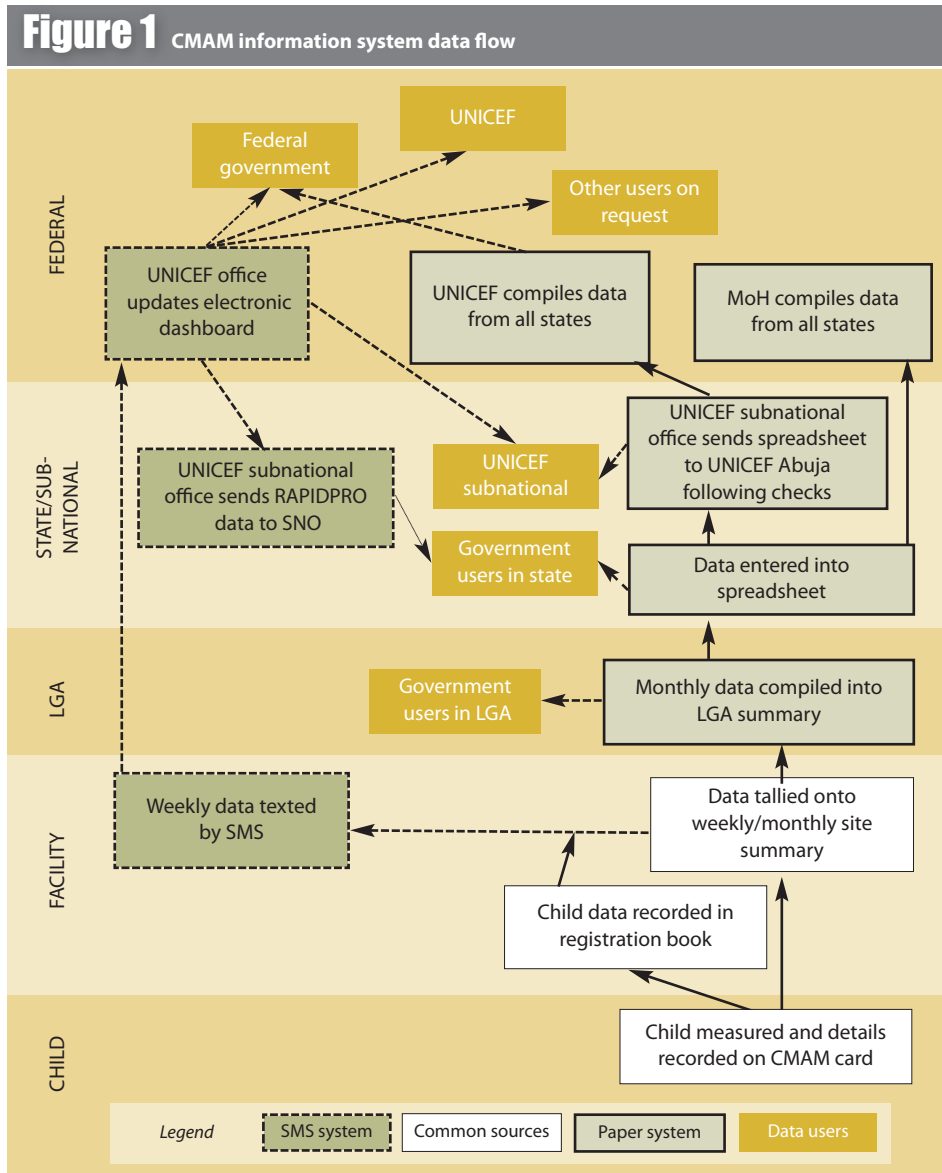
Nigeria has the second-highest burden of stunted children in the world, as well as poor rates of global acute malnutrition (GAM), with prevalences of 8.7% in the North-East zone and 8.3% in the North-West zones (NNHS, 2018). Community-based Management of Acute Malnutrition (CMAM) was introduced in Nigeria in 2009 and subsequently scaled up to cover 12 of the northern states. The programme is managed by the Government of Nigeria, with technical support from the United Nations Children's fund (UNICEF) and funding from various partners, including the Children's Investment Fund Foundation (CIFF). By 2014, an estimated 37% of severe acute malnutrition (SAM) cases were reached through the CMAM programme (Banda *et al*, 2014). According to data provided by UNICEF for 2017, approximately 95,000 children were in treatment in around 700 stabilisation centres and outpatient therapeutic programme (OTP) facilities in any given week.

Monitoring of the CMAM programme operates in parallel to the government Health Management Information System (HMIS), as is common practice globally. Initially, monitoring

was based on a predominantly paper-based system, but in 2017 this was partially upgraded to a digital system using smartphones to help standardise and speed up data collection and management. Underlying both systems is a set of paper forms filled in at facility level. In the digital system, weekly aggregates are texted by SMS from facility level directly to federal level. In the paper-based system, facility-level monthly aggregated data are transferred by hand to the local government authority (LGA)-level Nutrition Focal Person, from where they are transferred to the State Nutrition Officer to be entered into a spreadsheet. From here, data are transferred to other state-level government users and UNICEF.

In 2017, CIFF and UNICEF jointly requested a review of the quality of the data generated through the mixed paper-based and SMS-based system in the OTP component of CMAM, as well as an assessment of how the data is used. The primary aim was to generate learning to inform improvements to the existing information management system. Both the paper-based and digital systems were running in parallel at the time this study was imple-

**Figure 1** CMAM information system data flow



mented in November 2017, as shown in Figure 1; strengths and weaknesses of both were compared to assess the feasibility of gradually phasing out the paper-based system. This article describes and reviews the assessment process with a view to informing other similar studies. A summary of the study findings is available elsewhere.<sup>1</sup>

**Study design**

A mixed-methods approach was adopted, including fieldwork for primary data collection and a desk-based secondary data analysis and document review.

**Dimensions of quality considered**

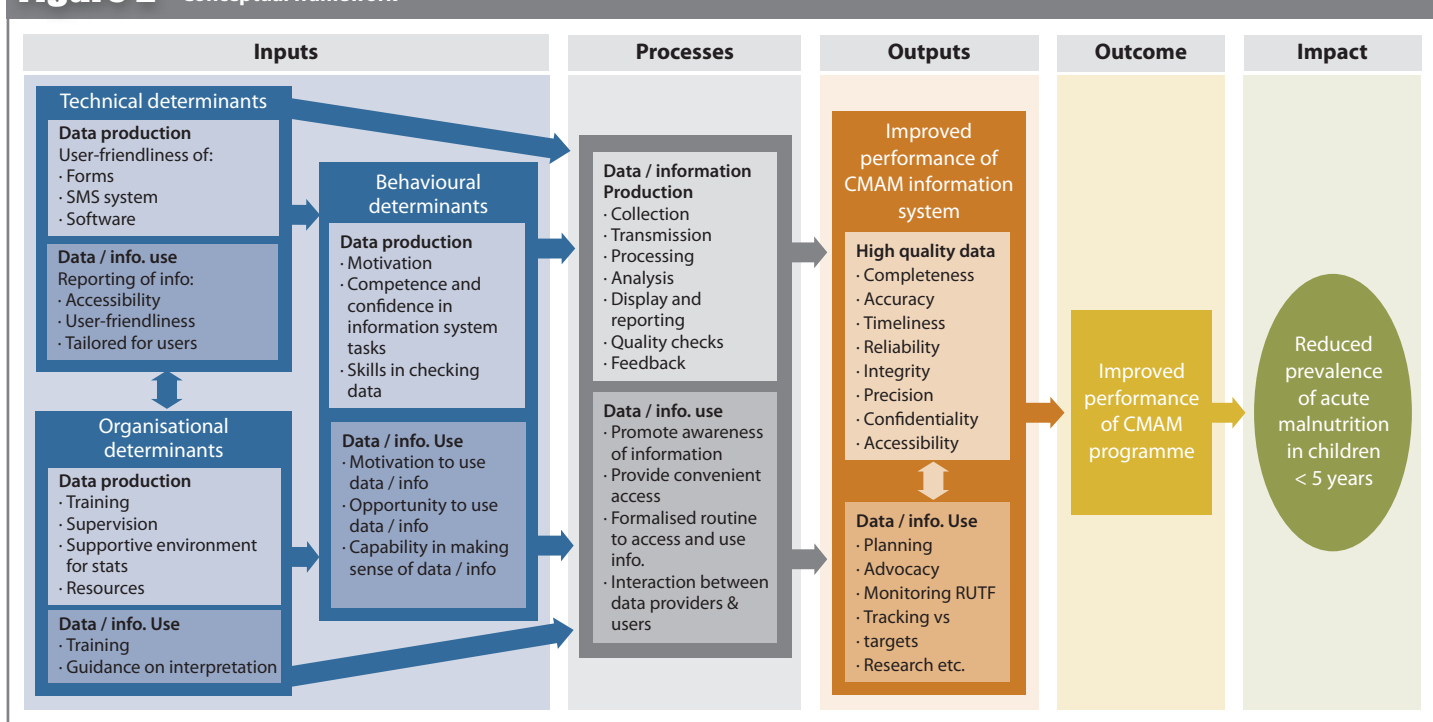
Most studies assessing public health information systems limit their analysis to just three dimensions: completeness, accuracy and timeliness of information produced (Chen *et al*, 2014). We chose to adopt a broader definition of data quality to assess not just the quality of the information itself, but also how relevant and accessible it is to users to enable its successful use. To this end, five additional dimensions were added to the study design: reliability, integrity, confidentiality, relevance and accessibility.

**Conceptual framework**

A conceptual framework was developed against which components of the system could be assessed (Figure 2). This was based on the Performance of Routine Information System Management (PRISM) framework, developed by Measure Evaluation Project, which was further developed to include all aspects (Belay and Lippeveld, 2013). The conceptual framework encompasses data and data sources; data col-

<sup>1</sup> Report of findings is available at: [www.opml.co.uk/files/Publications/a1468-nigeria-nutrition/ms2-opm-cmam-data-systems-final-report.pdf?noredirect=1](http://www.opml.co.uk/files/Publications/a1468-nigeria-nutrition/ms2-opm-cmam-data-systems-final-report.pdf?noredirect=1) Findings related to data quality aspects will also be published in a peer-reviewed journal.

**Figure 2** Conceptual framework





**Box 1** Toolbox of methods used to appraise the information system

**Primary methods of data collection:**

- **Semi-structured interviews** with actors involved in collecting, processing and analysing data and those involved in/responsible for quality assurance. These included the head nurse/CMAM-in-charge and health workers in facilities; the nutrition or monitoring and evaluation officers at LGA level; the State Nutrition Officer at state level; and UNICEF staff at sub-national and federal levels. Interviews covered inputs and processes described in the conceptual framework.
- **Semi-structured interviews** with current and potential users of CMAM data (beyond those also involved in the data generation).

- **Observations** of implementation of protocols at each level in the data flow using checklists.
- **Verification** of records at facility level by recounting source forms for a specified sample time period (mostly the month of July 2017) to produce quantitative results on accuracy (from OTP cards and ready-to-use therapeutic food (RUTF) stock cards).

**Secondary data analysis (desk-based activities):**

- Analysis of monthly facility-level data in terms of **source data characteristics**, as well as key performance indicators;
- **Review of documentation** (forms, guidelines, training material and CMAM protocols).

lection, management and analysis processes; organisational inputs (including data entry forms and software, staff training and supervision); and behavioural inputs (including staff confidence and motivation).

**Toolbox of assessment methods**

The study team developed a toolbox of methods that could be used to measure the quality of all components of the conceptual framework (Box 1). Table 1 demonstrates the application of these methods to each stage of the conceptual framework.

**Sample design**

The study initially considered using a random two-stage sample of 75 facilities so that results could provide statistical inference to a larger geography. However, it was decided that it would be more useful to carry out an in-depth analysis of a much smaller sample of just nine facilities across three LGAs in one state. The underlying assumption was that any weaknesses in the inputs and processes discovered would be linked to the way that the entire system was designed and implemented, and findings would therefore have system-wide implications. Budgetary considerations also played a role. Sokoto State, three LGAs and nine facilities were purposively selected to provide diverse geographical representation, balanced with logistics such as the day of the week on which the CMAM clinic was held.

**Study implementation**

The main fieldwork took place in November and December 2017. A team of three field workers coordinated closely with local UNICEF and Ministry of Health staff on logistics and approvals. The fieldworkers developed an in-depth knowledge of the study protocols by actively participating in the development of all tools, jointly reviewing and desk-testing all aspects, and participating in a pre-test and pilot. Health facilities were informed that they would be visited and informed of study objectives shortly beforehand. This helped to gain their cooperation and trust, while minimising the chances of deliberate changes to data collection and transmission processes or data. More information about the study was provided when obtaining consent for each of the activities.

For each health-facility assessment, the team arrived prior to the start of the clinic to first interview the CMAM in charge, count RUTF stock for the verification of RUTF consumption on the day of the visit, and retrieve OTP cards for clients not attending that day for verification. During the day, the team split up to cover both the OTP card recount component and to observe data capture during admission and treatment. After the clinic, the team conducted semi-structured interviews or focus group discussions with health workers, counted RUTF stock, finalised verification from OTP cards in use, took electronic scans of data collection forms and registers, and observed all end-of-day tallying and data-transfer activities. Fieldwork at LGA, state and federal levels also involved both semi-structured interviews and observation of data capture and transfer.

**Data analysis**

The desk-based analysis involved reviews of monthly, paper-based information and weekly SMS-based information provided by UNICEF. The data collected at facility and LGA levels were compared to both paper and digital datasets. Findings from observations and interviews were also compiled. Detailed results were presented and discussed for each of the inputs, processes and outputs depicted in the conceptual framework and subsequently consolidated into an overall finding and set of recommendations for each quality dimension. A three-level rating system was used throughout, as described in Table 2. Headline findings are presented in Table 3. Findings related to data quality aspects will be reported in full in a peer-reviewed journal.

**Challenges and lessons learned**

The in-depth approach applied to a small sample of purposively selected facilities proved to be an appropriate and informative design choice. The range of activities we undertook generated a wealth of information across the various components of the conceptual framework and levels of data production. Analysis of this information provided a clear picture of consistent strengths and weaknesses in the design and operation of the CMAM information system and in the use of data. It is unlikely that findings observed were due to chance. However, the approach did mean that quantitative results from the verification component were not statistically representative of all CMAM operations in Northern Nigeria. These results must therefore be reported with caution in future; for instance, with respect to a likely under-reporting of defaults and deaths.

A practical challenge encountered during fieldwork was the difficulty of accessing the OTP cards for data verification. This was due to inadequate space and systems for storage in the facilities and resulting risk of damage and loss of documents. These challenges were picked up in the assessment in the analysis of ‘processes’. Loss of source documents also directly influenced the verification of figures through recounts. Such problems can be minimised by choosing a recent reference period to reduce the likelihood of loss or damage by the time of assessment. Triangulation was performed between OTP cards and entries into the CMAM registration book to provide further information on the extent of loss of OTP cards.

A challenge to the verification of performance indicators was the inconsistent use of the ‘outcome’ field on OTP cards, the main source of data for discharge information (a key CMAM performance indicator for reporting against Sphere Standards). The outcome category was left blank on the OTP card in 64% of cases and could therefore not be recounted to the level of disaggregation required by the study protocols. To avoid having to rely on an aggregate analysis across all discharges, the team decided to use additional OTP card information (mid-upper arm circumference, weight and RUTF given) to determine the most ‘likely’ reason for discharge. Even after applying this method, it was still not possible to determine likely reason for discharge in 3% of cases. These cases were coded as a separate category (‘discharge reason unclear’) in the verification data.

**Table 1** Data collection tools used at each stage of the conceptual framework

| Factors to be assessed      | Primary verification | Observations | Data producer interviews | Data user interviews | Source data analysis | Document/tool review |
|-----------------------------|----------------------|--------------|--------------------------|----------------------|----------------------|----------------------|
| Outputs                     | ✓                    | ✓            | ✓                        | ✓                    | ✓                    | ✓                    |
| Processes                   |                      | ✓            | ✓                        | ✓                    |                      | ✓                    |
| Technical determinants      |                      | ✓            | ✓                        | ✓                    |                      | ✓                    |
| Organisational determinants |                      | ✓            | ✓                        | ✓                    |                      | ✓                    |
| Behavioural determinants    |                      | ✓            | ✓                        | ✓                    |                      |                      |

While findings on inputs, processes and outputs mostly built a consistent picture of the information system, consolidation of results into a single, easily understandable message for each quality dimension was sometimes challenging. For instance, completeness and timeliness of data analysed at the output level highlighted challenges with submission of data and resulting deficiencies in these quality dimensions. However, at the input level, observations and interviews showed that great emphasis is given to these quality dimensions as part of in-built data-quality assurance procedures.

A lesson learned from the fieldwork was the importance of working with a small, well trained team to prevent introduction of errors during the verification exercise. A small-scale pre-test and pilot of instruments was also crucial to ensure the correct application of methods. Fol-

lowing the pilot, adjustments were made to the sequence of field activities and the design of semi-structured and focus group discussion questions to improve the process.

While the topic of data use was well covered during interviews with staff also involved in data production (with a 100% response rate in this group), the response rate for other users and potential users of data was mixed. Interviews were successfully undertaken with two of the three non-governmental organisations contacted, but attempts to arrange interviews with three government officials at state and federal levels were unsuccessful. Given that “performance” of an information system comprises both the production of good-quality data and use of information for decision-making, it is essential that this area is well assessed. The lesson learned is to identify, connect with and brief key data

users about the study well ahead of fieldwork to ensure their buy-in to the process.

### Conclusions

Data-quality assessments in health and nutrition often use secondary data analysis, or sometimes large-sample verification approaches, to provide precise and statistically robust estimates of accuracy and completeness. However, other complementary approaches are needed to understand the reasons behind issues identified and assess additional important dimensions of data quality and use. Our study methods enabled the assessment of the entire data production and use process of the CMAM programme in Northern Nigeria, providing rich and contextualised information on the strengths and weaknesses of the whole system. Findings clearly indicate which elements of the system at which level/s need improvement and have been translated into concrete recommendations tailored to all stakeholders involved.<sup>2</sup> Given similarities in the way CMAM information systems and other health information systems are set up and operated in different countries, this study approach and lessons learned may prove useful to those implementing similar assessments of the drivers of data quality and use.

In the case of the CMAM information system in Nigeria, study recommendations led to several follow-up actions. In Sokoto, findings were shared with CMAM stakeholders, health workers were retrained and CMAM monthly meetings were strengthened to share best practices. The final report served as a background document for the assessment of the UNICEF emergency nutrition response in 2019. Findings were also factored into recommendations made to the Nutrition Sector in the northeast of the country; these are currently being translated into a sector strategic plan and triggered a larger verification exercise implemented by the Government (2018-2019) in all 12 states that built on the protocols developed for this study.

For more information, please contact Cora Mezger at [c.l.mezger@gmail.com](mailto:c.l.mezger@gmail.com)

<sup>2</sup> Recommendations are shared in the full report available at: [www.opml.co.uk/files/Publications/a1468-nigeria-nutrition/ms2-opm-cmam-data-systems-final-report.pdf?noredirect=1](http://www.opml.co.uk/files/Publications/a1468-nigeria-nutrition/ms2-opm-cmam-data-systems-final-report.pdf?noredirect=1)




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| Symbol   | Rating   |
|--|--|
|   | Positive: system generally working well  |
|   | Intermediate: Some improvements required to inputs, processes or outputs, based on observations, interviews or document/data review. Recounted data varied with reported data by 10-19%. |
|  | Negative: Urgent improvements required to inputs, processes or outputs. Recounted data varied with reported data by 20% or more.   |

|   |  |
|---|--|
|  | Accuracy: Verification suggests inaccuracies in data entered and tallied at facility level. There are discrepancies between recounts, weekly tallies, registers and SMS data that are particularly frequent and large for RUTF consumption and defaulters. Errors were mostly introduced at data capture, not data transfer (by paper or SMS) or analysis. Staff show low awareness of data-quality drivers.   |
|  | Completeness and timeliness: 7% of weekly reports were missing in SMS data, generally linked to problems with network coverage. CMAM teams struggle to meet the deadlines for submitting data through the SMS system, with more than half submitting late. Timeliness and completeness were the quality dimensions that had been tracked and addressed in supervision.   |
|  | Reliability: Quality assurance protocols need strengthening, alongside development of consistent protocols for data collection and tallying.   |
|  | Integrity and confidentiality of data are compromised by poor protection, protocols, practices and awareness, rather than evidence of manipulation.  |
|  | Relevance: Indicators reported are appropriate and have sufficient disaggregation. Additional indicators are to be considered after analysis of utility and additional burden on CMAM staff.   |
|  | Accessibility: There is limited access to consolidated data and analysis in particular at local government level and facility level. While UNICEF and the Ministry of Health at federal and state levels have routine access to data, access by other stakeholders is dependent on a small number of UNICEF staff. There is insufficient documentation specific to the CMAM information system that would help current and potential users to understand the data, as well as limitations to data quality. |
|  | Data are used primarily at federal and state levels to inform RUTF allocation and reporting against international standards (i.e. SPHERE indicators) staff at local government and facility levels generally lacked the access and capability for making use of the data.  |
|  | Readiness to phase out paper system: Monthly data transmission via the paper-based system remains necessary to ensure that state (and in particular local government) levels can access CMAM data. Errors mostly linked to design, use and storage of paper-based forms are common across both systems. Government capacity and resources insufficient to take on management of SMS system.  |



# Food aid for nutrition: A landscape review of current research and implications for future studies

By Maria Wrabel, Kristine Caiafa, Beatrice Lorge Rogers and Patrick Webb

All authors are affiliated with the Food Aid Quality Review (FAQR) project at the Friedman School of Nutrition Science and Policy at Tufts University.

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Location: *Global*

**What we know:** A large body of research exists that examines the formulation and effectiveness of food-aid products tailored to address nutrition problems, such as wasting and micronutrient deficiencies.

**What this article adds:** A review was undertaken to synthesise a sample of recent research on specialised nutritious foods (SNFs) used to impact nutrition to highlight themes and identify under-researched areas. A standardised search identified 142 manuscripts published between January 2011 and July 2018, and 33 clinical trials active as of July 2018. Study characteristics were collected to identify patterns and themes. Published and ongoing research has been narrowly focused on rural Africa and few studies have examined the use of SNFs in humanitarian crises. Most research has dealt with the absolute or comparative effectiveness of SNF products based on how they are formulated or programmed in addressing a narrow range of nutrition outcomes. More research is needed on SNF programming, particularly in emergency contexts and urban settings, prevention of rather than treatment of nutritional deficits, and poor outcomes. Research is also needed on the cost-effectiveness of alternative programme approaches (especially multi-sector interventions), the long-term nutrition and health impacts of SNFs, behavioural programming components, causes of relapse, and relevant but atypical outcome measures, such as body composition and cognitive outcomes.

## Introduction

Advancements in the formulation of specialised nutritious foods (SNFs), including ready-to-use therapeutic foods (RUTFs) and fortified blended foods (FBFs), have revolutionised food aid. This has both derived from and led to an expanding evidence base on these products. In 2011, a review of the United States Government's food-aid agenda undertaken by the Food Aid Quality Review (FAQR) on behalf of the United States Agency for International Development Office of Food for Peace (USAID/FFP) (Webb *et al*, 2011) called for new rigorous research activities to investigate the programming, cost-effectiveness and innovative formulations of SNFs in the context of wider food-assistance strategies. More recently, other entities, including the No Wasted Lives Coalition and the Scaling Up Nutrition movement (SUN), have unveiled research agendas calling for more evidence on key topics, from the role of specific nutrients in preventing and treating undernutrition to intergenerational undernutrition and alternative outcome measures (Webb *et al*, 2017; Caiafa *et al*, 2017; Walton *et al*, 2018). To support these demands for policy-relevant evidence, the current review synthesises published and ongoing research conducted from 2011 until July 2018 to identify common themes and map areas for further exploration.

## Methodology

A tailored search of PubMed and Web of Science conducted in August 2018 identified relevant publications from January 1 2011 to July 31 2018.<sup>1</sup> One author compiled and reviewed these, removing duplicates and those not meeting the inclusion criteria,<sup>2</sup> yielding 142 publications for analysis.<sup>3</sup> Ongoing studies were identified through REFINE (Research Engagement on Food Interventions for Nutritional Effectiveness; www.REFINEnutrition.org), a public platform that maps SNF research by routinely searching six international clinical trial registries (available at www.REFINEnutrition.org). REFINE was searched in July 2018, yielding 33 ongoing studies for analysis. Information was then extracted from each publication and clinical trial registry.<sup>4</sup> When multiple publications drew from a single research study, each publication was considered a discrete entry.

## Findings: The landscape of food-aid research since 2011

### Research context

Of the publications considered, over half (61%) took place in Africa and 39% in Asia.<sup>5</sup> More than half (60%) took place in rural contexts and one quarter in urban and semi-urban settings. Only nine published studies (6%) were conducted in an emergency context, such as

after a natural disaster or in a refugee camp. Ongoing trials at the time of review mirror these geographic foci: Africa (52%) and Asia (33%) (Figure 3). Of trial registration records that provided information about the proposed study context (n=12), six are based in rural contexts, four in urban or semi-urban contexts, and two in both rural and urban contexts.

### Research objectives and outcomes

Most publications assessed SNF effectiveness in addressing specific nutrition outcomes (75%). Almost half of these studies aimed to treat acute malnutrition (49%), with twice as many focusing on severe acute malnutrition (SAM) compared to moderate acute malnutrition (MAM) treatment (n=30 and n=17, respectively). Of ongoing studies, about half (45%) are effectiveness trials for treating acute malnutrition, among which eight (53%) study SAM treatment, five study MAM and four study both SAM and MAM.

Other common effectiveness study outcomes included linear growth and stunting (40%) and underweight (25%). Few studies assessed cognitive or birth outcomes (only 5% and 4%, respectively); none focused on body composition. This is mirrored in ongoing studies, which predominantly assessed linear growth (39%); birth outcomes (18%); and underweight (18%). A subset of published studies also assessed SNF acceptability (n=39; 27%) and household use (n=28; 20%), while one ongoing study is investigating acceptability of a novel SNF. Only 13 (9%) of publications calculated programme cost-effectiveness for nutrition-related outcomes. Ongoing trials also do not substantially address cost-effectiveness, implying that this evidence base will remain underdeveloped for the foreseeable future.

### Food aid products

Among publications dealing with product effectiveness (n=106), lipid-based nutrition supplements (LNS) was the most frequently studied SNF (Figure 4). About half examined new SNF formulations (42%). Just over one third com-

<sup>1</sup> See Table 1 in the online version of this article: <https://www.enonline.net/fex/62/foodaidfornutrition>

<sup>2</sup> See Table 2 in the online version of this article: <https://www.enonline.net/fex/62/foodaidfornutrition>

<sup>3</sup> See Figure 1 in the online version of this article: <https://www.enonline.net/fex/62/foodaidfornutrition>

<sup>4</sup> See Table 3 in the online version of this article: <https://www.enonline.net/fex/62/foodaidfornutrition>

<sup>5</sup> See Figure 2 in the online version of this article: <https://www.enonline.net/fex/62/foodaidfornutrition>

pared multiple SNFs (36%), while another assessed a single product's effectiveness (32%). Others compared SNFs to a micronutrient supplement (11%) or food (9%). Most studies assessed internationally produced SNFs (75%) and about one third (29%) assessed SNFs manufactured in a facility in the same country or region in which the study took place. Others (11%) compared the effectiveness of animal- and plant-source proteins. Among ongoing product effectiveness trials (n=32), LNS is also the most studied product (Figure 5). Half of these (53%) assess the effectiveness of innovative products: 11 compare a new SNF with an existing product and three compare multiple new SNFs. One trial studies animal- versus plant-source protein.

### Target populations

Children aged between 6-59 months were the most common target population in publications (85%), although there were many sub-groups (children aged 6-23 months, 12-59 months, etc.). Four studies targeted infants under six months of age and five targeted children aged 0-59 months. Some targeted pregnant women (8%) and one targeted both mothers and undernourished children. For ongoing studies, children aged 6-59 months are still the most common subjects (64%) and seven trials (21%) target pregnant women. Of these, three also provide interventions to children until their second birthday and one provides interventions to children until their fifth birthday.

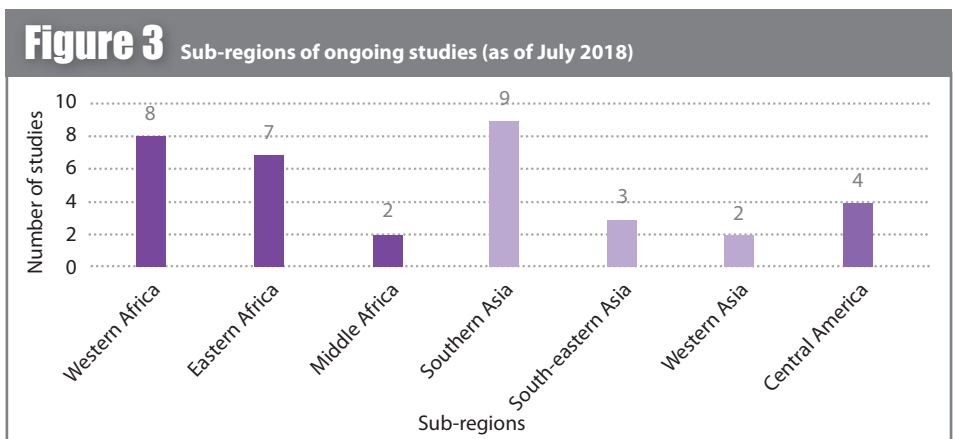
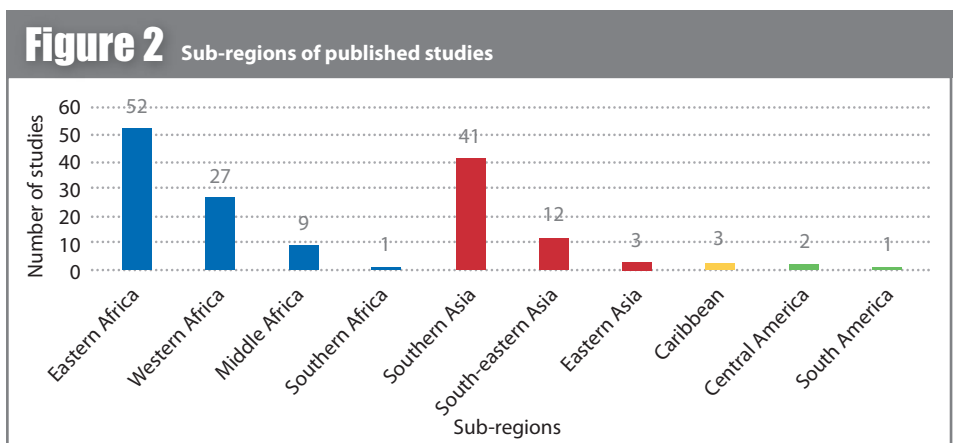
### Programme delivery

Interventions in publications were overwhelmingly provided through community-based programmes (85%), followed by facility-based/inpatient-based (7%) and school-based programmes (3%). One study transitioned all patients from inpatient to community-based care. Most ongoing studies also focus on community-based programming, with only one examining inpatient treatment.

One quarter of published effectiveness studies evaluated SNF delivery methods, including varied product dosages (n=4); distribution frequencies (n=4); providing food after recovery from acute malnutrition (n=2) or after infection (n=2); combining SNFs with general food rations (n=3); and delivering SNFs through existing health services (n=3). Of ongoing effectiveness studies, three vary SNF dosages and two vary treatment duration. Much is still to be understood about how, in what dosage and for how long SNF products should be delivered to optimise outcomes.

### Multi-sector programming

Sixteen per cent of published effectiveness studies explored complementary interventions alongside or compared to an SNF. Most were behaviour-change interventions, including nutrition education or counselling (n=10); child stimulation



(n=4); and child-centered counselling (n=2). Of ongoing effectiveness trials, six include a social and behavior-change communication (SBCC) component and two incorporate nutrition education or counselling. One study examined combining a food supplement with home- versus facility-based growth monitoring.

Despite growing interest in the linkages between water, sanitation, and hygiene (WASH), the microbiome and environmental enteric dysfunction (EED) and undernutrition (Cumming *et al*, 2016), only two published studies included a WASH component and few considered the microbiome. This is therefore a domain requiring further exploration.

### Funding and leadership

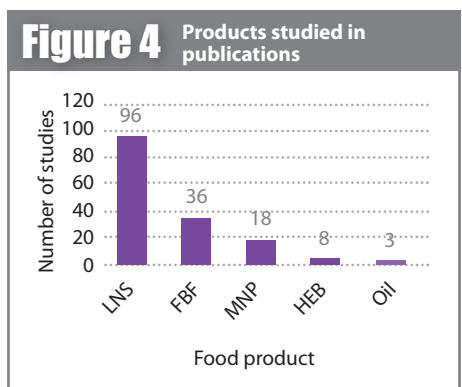
Published studies reported 76 different funding sources. Governments and private foundations

provided financial support for the most studies.<sup>6</sup> The main individual funders were USAID (n=14), the Bill and Melinda Gates Foundation (n=13), and Médecins Sans Frontières (n=8).<sup>7</sup>

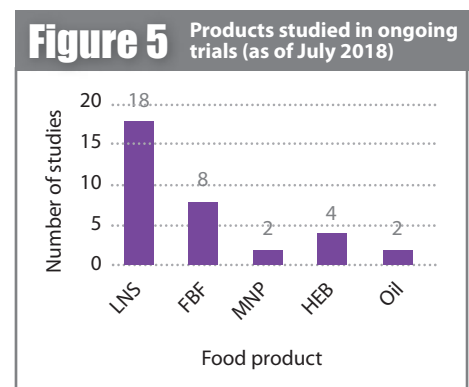
Academic institutions directed most published research (n=48), followed by non-governmental organisations (NGOs) (n=23) and research institutes (n=15). This highlights these organisations' relative capacity to undertake and publish this work and, notably, the significant role international organisations have played in steering the food-aid research agenda. Organisations based in the countries in which the study was conducted led a comparatively small number of published studies (n=26; 18%).

### Discussion: Gaps and next steps in food aid for nutrition research

Using SNFs to impact nutrition demands flexi-



LNS = lipid-based nutrient supplements; FBF = fortified-blended foods; MNP = micronutrient powder; HEB = High-energy biscuits



LNS = lipid-based nutrient supplements; FBF = fortified-blended foods; MNP = micronutrient powder; HEB = High-energy biscuits

<sup>6</sup> See Table 4 in the online version of this article.

<sup>7</sup> This excludes funders from studies registered on [clinicaltrials.gov](http://clinicaltrials.gov) as this clinical registry website does not distinguish between funders and lead institutions.





A child consuming a lipid-based supplement in Rukban settlement, Syria, 2019

WFP/Marwa Awrad

bility in product selection and programming. This review finds that the current research landscape does not offer an adequate empirical foundation to inform efforts to address the myriad causes and manifestations of undernutrition in diverse contexts. While additional studies have taken place since July 2018 and the research landscape may have evolved, the present review highlights a range of gaps and areas for future research that remain ripe for exploration.

Principally, the scope of research in this field has been narrowly focused in both context and objective. Most studies have taken place in stable communities in rural Africa and Asia, which does not necessarily reflect the reality of where SNFs are used: increasingly in semi-urban and urban contexts, emergencies and protracted crises. Assuming the results from studies conducted in stable contexts can be generalised to humanitarian settings implies that impacts of SNF programming, and perhaps composition, can be agnostic of the wider context. SNF research must be expanded to reflect the range of contexts in which SNFs are used.

Regarding study objectives, most studies focus on the SNF product's absolute or comparative effectiveness in addressing a narrow range of outcomes. More research is needed on alternative outcomes, such as relapse, cognitive outcomes and body composition. Also, prominent food-aid agencies, including the Inter-Agency Working Group for Specialized Nutritious Food Products (2018), are exploring a unified protocol for the entire spectrum of acute malnutrition treatment, instead of separate protocols for MAM and SAM. Yet, as of July 2018, just one publication and two ongoing studies address this, indicating a notable gap in the evidence base to inform this prospective policy shift.

Furthermore, cost-effectiveness information is a significant gap as more funders demand value for money and implementers strive to maximise outcomes with constrained budgets. Limited research in this area may reflect diffi-

culties in calculating cost-effectiveness, including diverse estimation methods and varied costs across contexts. There is therefore also room to develop unified methodologies for calculating and reporting cost-effectiveness.

Despite the relatively narrow focus of SNF research to date, this review shows that research objectives are expanding. Notably, there is a shift towards including interventions to address underlying causes of malnutrition, especially by integrating agricultural and WASH components and investigating the role of the microbiome and EED in nutritional outcomes.

While optimal nutrition during the first 1,000 days is widely acknowledged as critical (Stobaugh *et al*, 2019), recent research agendas include investigation into the impact of preconception and long-term programming. This review finds limited published research on the preventive, intergenerational effects of food aid. Ongoing trials, conversely, more frequently address nutrition throughout the 1,000 days and beyond, targeting pregnant and lactating women to reach their children, indicating an encouraging expansion of focus.

Research activities have prioritised simple height- and weight-based measures of nutritional health. This allows for more comparison of study results but provides limited information about other metrics of nutritional health, such as body composition or non-anthropometric outcomes. Using these outcome measures is relatively uncharted territory and will require the development of standardised definitions, cut-offs and measurement tools.

Other research gaps that came to light from this exercise include: addressing seasonal undernutrition through prevention; understanding and preventing relapse; alternative SNF formulations using locally available ingredients; plant-versus animal-source protein effectiveness; discerning optimal SBCC messaging to influence infant and young child feeding (LYCF); the com-

pared or comparative impact of cash and SNFs to inform the shift towards cash-based programming in humanitarian response; and the food-safety implications of local production and household preparation of SNFs. Little research explores the long-term effects of SNF consumption in early childhood on later development of overweight or non-communicable diseases (NCDs), an issue of particular concern as countries undergo the 'nutrition transition'.

Regarding research funding, resources outside academia, government and NGOs remain largely untapped. With nutrition central to several global initiatives, including the Decade of Action on Nutrition and the Sustainable Development Goals, the time is especially ripe for partnering with the private sector, food industries and local businesses and academic institutions. Exploring these relationships will require establishment of institutional structures to protect scientific credibility and integrity. Examples include pooled funding mechanisms, codes of conduct and frameworks for data sharing.

## Conclusion

Mapping the research landscape thematically can identify over- and under-studied areas and project what new knowledge may be on the horizon. Such periodic assessments, in tandem with focused efforts on research dissemination and uptake, will keep this field of study on course for delivering food-aid programmes that both maximise impact per dollar and meet the evolving needs of nutritionally vulnerable populations.

For more information, please contact Maria Wrabel at [maria.wrabel@gmail.com](mailto:maria.wrabel@gmail.com)

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# A review of research methods used to study specialised nutritious foods

By Kristine Caiafa, Maria Wrabel, Devika Suri, Ye Shen, Shelley Walton, Beatrice Lorge Rogers and Patrick Webb.

All authors are affiliated with the Food Aid Quality Review (FAQR) project at the Friedman School of Nutrition Science and Policy at Tufts University.

The authors are grateful to the U.S. Agency for International Development (USAID) and the USAID Office of Food for Peace (FFP) of the Bureau for Democracy, Conflict and Humanitarian Assistance (DCHA) (AID-OAA-C-16-00020) for funding this activity, and to Breanna Langlois for her invaluable contributions to the development of this manuscript.

Location: *Global*

**What we know:** Research on specialised nutritious foods (SNFs) has increased in the past two decades, but this has not resulted in commensurate advances in policies and practice.

**What this article adds:** The goal of this exercise was to identify key factors in SNF study methodologies that could be strengthened to develop a more rigorous evidence base. A search of the literature and clinical-trial registries was conducted to identify studies using SNFs to influence anthropometric outcomes, and information about the research methods used was collected. Among the 114 studies identified (89 published and 25 ongoing), impediments to a robust evidence base included research bias, heterogeneous study design and insufficiently reported study details. A list of specific actions was developed to be taken by global agencies, research funders, researchers and practitioners to build a higher-quality evidence base for translating research on SNFs into policy and practice. Supplemental tables are included in an online version of this article.

## Introduction

Specialised nutritious foods (SNFs), which include lipid-based nutrient supplements (LNSs), ready-to-use therapeutic foods (RUTFs), ready-to-use supplementary foods (RUSFs), fortified blended foods (FBFs), micronutrient powders (MNP) and locally produced analogs of these products, are food products specially formulated to treat, prevent or mitigate undernutrition. Scientific research on SNFs has expanded rapidly in the past two decades, driven by an intent to improve nutrition outcomes. While much has been learned, global practice standards for using SNFs as a class remain elusive. The challenges inherent in studying these products and a lack of aggregate emphasis on study quality has generated an evidence base considered in recent reviews to be of low or moderate quality (Webb, 2015; Lazzarini *et al*, 2013; Schoonees, 2013).

An excellent model for how to move forward can be found in the methods used to develop standards for the management of acute malnutrition (WHO, 2013; WHO, 2012). These global policies were made possible by corralling a *robust evidence base*, largely through the use of systematic reviews. Similar evidence synthesis for SNFs would require high-quality studies; i.e., using designs that are appropriate to the research question and which mitigate risk of bias and threats to validity, and that are collectively similar enough in study characteristics so that findings are comparable. Research generalisability, or applicability to larger populations from which a study sample is drawn, is also critical to this type of evidence synthesis.

The aims of this review are threefold: first, to identify common methods used in a sample of SNF research; second, to highlight the methods that influenced quality, comparability and generalisability; and third, to propose actions for a stronger evidence base.

## Methods

This review included studies based on two factors: 1) the study used an SNF in at least one intervention arm, and 2) the study specified at least one anthropometric outcome. Studies were not excluded based on characteristics of participants, comparisons or study design.<sup>1</sup> Studies published between January 1 2011 and April 1 2017 were identified through searches conducted in English of PubMed and Web of Science in April 2017. These were compiled and screened for inclusion by one analyst; first by title, then abstract, then content. A second analyst independently reviewed any studies in question, first by abstract and then by content. Eighty-nine publications were identified for this review.

Ongoing trials were identified in December 2017 using REFINE (Research Engagement on Food Interventions for Nutritional Effectiveness; [www.REFINEnutrition.org](http://www.REFINEnutrition.org)), a public platform that maps SNF research. Twenty-five ongoing studies were identified by one analyst, who recorded information from trial registrations and publicly available study protocols.

In preparing this manuscript, the authors followed the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) checklist (Higgins and Altman, 2008) to the extent applicable.

## Findings and discussion

### Description of studies

Overall, we reviewed 89 publications and 25 ongoing studies (114 studies total). Based on terminology used in each study, predominant outcomes of interest among studies treating acute malnutrition (n=60) were recovery (as defined by the study) and weight gain. Other studies included stunting as a categorical variable (61%; n=33); height/length-for-age (included in 72%; n=39); wasting as a categorical variable, defined by either mid-upper arm circumference (MUAC) or weight-for-height z-score (WHZ) (44%; n=24); weight-for-age (59%; n=32); underweight as a categorical variable (31%, n=17); linear growth (39%, n=15); birth outcomes (17%, n=9); and biomarkers of undernutrition (20%, n=11). Most studies (87%, n=99) targeted children under five years of age, with focus on multiple sub-groups in that age range.

### Research design

Eighty per cent (n=92) of studies were intervention studies, in which investigators assigned (randomly or not) participants to receive a specific intervention. Of these, most (92%, n=88) had multiple study arms. Twenty per cent (n=22) of studies were observational, in which investigators observed the outcomes of participants who had received an intervention not assigned by the investigators.

Studies typically explored one of three questions:

1. Is a given SNF effective at improving nutrition-related anthropometric measures?

<sup>1</sup> See Table 1 in the online version of this article: <https://www.enonline.net/fex/62/specialisednutritiousfoods>





A child consuming a lipid-based supplement in Rukban settlement, Syria, 2019

2. Which SNF is comparatively more effective than other SNF(s) at improving nutrition-related anthropometric measures?
3. Do complementary activities in addition to SNF improve nutrition-related anthropometric measures?

To effectively answer these questions, researchers must be transparent about research design limitations and interpret findings only in a way that the study is designed to answer. For example, single-armed research (which accounted for 18% of all studies) can offer valuable hypothesis-generating information, but is relatively limited in answering the above questions.

#### Avoidable bias

We assessed study methods against the forms of bias included in the Cochrane Collaboration's study quality evaluation protocol (Higgins and Altman, 2008; Ryan and Hill, 2016; Schünemann *et al*, 2013):

**Selection bias** – Among intervention studies (n=92), 42% (n=39) passively recruited participants (i.e., drew from community screenings or enrolled self-selecting individuals), 39% (n=36) actively recruited participants from a target community, and 8% (n=7) randomly sampled participants from communities. Although passive recruitment is convenient, it can introduce selection bias insofar as some segments of a target population may be unintentionally but systematically excluded due to exogenous characteristics, leading to baseline differences in the groups that are compared. Consequently, enrolled participants may also not be representative of the underlying population (which also impedes generalisability). Active recruitment, in which study investigators directly recruit participants, can reduce this bias.

**Performance and detection bias** – Of multi-armed studies, less than half (47%, n=41) used a form of blinding or blinded outcome assessors or data analysts (43%, n=38). Not blinding the treatment, enumerators or analysts can lead to awareness of the treatment group that might cause altered outcomes (due, for example, to more careful SNF preparation, adherence to feeding regimens or weight measurements). To

this point, differences in SNF packaging, appearance, taste, texture and preparation should be as discreet as possible, and participants, researchers and staff should be blinded to the treatment and non-treatment groups to the extent possible. At a minimum, data analysts should be blinded to intervention groupings.

Most multi-armed studies did not note whether or how intervention implementation differed between arms. To mitigate performance bias, or differences between study arms relating to how interventions are carried out, study arms should be implemented using the exact same methods, except for the elements designed to differ. For instance, SNFs should be distributed in the same time increments (e.g., monthly) and enumerators should be identically trained and supervised.

**Attrition bias** – To avoid bias, study attrition and differential rates of attrition between arms should be expected and accounted for in study planning and analysis. Most publications reported some degree of attrition (52 out of 68 publications reported baseline and endline sample sizes); however, only three explicitly reported differential attrition. Determining whether attrition rates differ based by age, sex, SNF or distance from treatment centre can inform whether there was any bias related to those who remained enrolled compared to those who did not.

**Reporting and publication bias** – Twenty-one per cent of all studies did not state pre-specified research outcomes, introducing potential bias regarding whether outcomes have been selectively reported to alter the conclusions drawn. Reports should: 1) state all pre-specified primary and secondary outcomes; 2) examine those outcomes; and 3) present all pre-specified outcome data, regardless of positive, negative or null results. Reporting and publication bias can be further mitigated by reporting every research activity to a trial registry. Keeping information updated upholds high standards of transparency and accountability to participants.

#### Comparability

Study comparability was impeded by inadequately detailed study design information, as well as

inconsistent parameters and definitions. A subset of studies on severe acute malnutrition (SAM) treatment illustrates the lack of comparability in this sample. Among these (n=28), there were six similar (but not identical) target age groups: “under 6 months,” “6-23 months,” “6-24 months,” “6-59 months,” “6-60 months,” and “6 months to 5 years.” A child treated from “6 months to 5 years” could mean that child receives the intervention from six months until their fifth birthday or until any timepoint within their fifth year; without more explicit cut-off information or commonly-agreed definitions, it is impossible to know. Outcome variables, while also generally aligned, were not equivalent. Although 57% (n=16) identified the primary outcome as “per cent of children recovered from SAM,” different definitions of “recovery” were used: seven studies based their determination of recovery on MUAC, compared with nine that used WHZ.

To enhance comparability, it would be useful for all studies to report on all relevant outcomes. Direct comparability is impossible; differing resource constraints, geography, infrastructure, political environments and social factors require (and even favour) flexibility in SNF programming choices. Nevertheless, research leaders are well positioned to establish a set of “reference cases” like those developed for economic evaluation of health technologies in low- and middle-income countries (Wilkinson *et al*, 2016). For instance, for studies considering the effect of an SNF on wasting recovery, there would be a standardised set of research designs with acceptable definition and indicators for “recovery”. The intention should be to reach a minimum level of research alignment for study comparability, while still enabling creative scientific inquiry.

#### Generalisability

Generalisability requires representative sampling of the population of interest. Sample size should always account for variability in the target population and be large enough to draw conclusions about that population with a specified level of confidence. Random selection and assignment of participants allows researchers to verify that observed effects are not a result of differential characteristics of the groups being studied. In this sample, random assignment was common: of intervention studies with multiple study arms (n=88), 92% (n=81) randomly assigned interventions to either clusters (42%, n=37) or individuals (51%, n=45).

Ideally, a study investigating the effects of an SNF on the incidence of moderate acute malnutrition (MAM) recovery in a specific country would randomly select children with MAM from across the country. In practice, however, such defined sampling frames do not exist and implementing an experimental intervention at the national level would not be feasible – and it would be impossible to monitor these programmes closely. Cluster randomisation, in which interventions are assigned to clusters rather than individuals, is an approach that allows clinic and community-centred feeding programmes to continue to operate with minimal disturbance. Par-

ticipants can be sampled in a way that is representative of the target study population in terms of demographic, geographic and other relevant community characteristics; blinding can be addressed; and the risk of treatment crossover is greatly reduced (Friis *et al*, 2015).

### Reporting

Reporting methods predetermine the quality and utility of an evidence base. In this sample, study methods were often not reported with the capacity for replicability, comparability and external assessment of quality. Twenty-five per cent (n=28) of publications did not provide SNF nutrient composition; 72% (n=82) of all studies did not specify SNF dosage; and 69% (n=79) did not state dose distribution frequency (e.g., weekly, monthly, etc.). Of published intervention studies, 94% (n=85) did not report study-arm sample sizes at both baseline and endline and 26% (n=66) of publications did not report statistical power calculations. As information about these important design elements is critical to assess bias and replicate studies, researchers should always use accepted checklists when preparing reports.<sup>2</sup>

Reporting also has implications for systematic reviews, which are widely used tools for decision-making. To be included in a systematic review, a study must first include the relevant search terms, then meet narrowly defined inclusion criteria assessed through reported study methodology. We observed inconsistent terminology for common potential search terms, like ready-to-use foods (RUF) and lipid-based nutrient supplements (LNS). To avoid study exclusion due to nominal differences, norm-setting bodies (such as the United Nations organisations, academic institutions, and prominent, consortium-based communities of practice such as the State of Acute Malnutrition and the Food Security and Nutrition Network) should standardise the language around SNFs and nutrition, beginning with product terminology.

<sup>2</sup> CONSORT 2010 checklist [www.consort-statement.org/media/default/downloads/consort\\_2010\\_checklist.pdf](http://www.consort-statement.org/media/default/downloads/consort_2010_checklist.pdf); STROBE checklist [www.strobe-statement.org/fileadmin/Strobe/uploads/checklists/STROBE\\_checklist\\_v4\\_combined.pdf](http://www.strobe-statement.org/fileadmin/Strobe/uploads/checklists/STROBE_checklist_v4_combined.pdf); MOOSE checklist [www.elsevier.com/\\_\\_\\_data/promis\\_misc/ISSM\\_MOOSE\\_Checklist.pdf](http://www.elsevier.com/___data/promis_misc/ISSM_MOOSE_Checklist.pdf) and SQUIRE [www.squire-statement.org/index.cfm?fuseaction=page.viewpage&pageid=471](http://www.squire-statement.org/index.cfm?fuseaction=page.viewpage&pageid=471)

### Conclusions

Despite the many challenges inherent to SNF research, there are opportunities to support a stronger research practice and evidence base. A global body responsible for coordinating SNF research would be ideally placed to develop and institutionalise specific guidance on SNF research methods, supporting both researchers and funders in their efforts to produce rigorous evidence. In

the absence of such a body, we suggest a list of actions as a starting point for discussion and revision (Box 1). We hope that this is a first step for decision-makers in this community to take this effort forward and own a more active role in coordinating SNF research to inform global policy.

For more information, please contact Maria Wrabel at [maria.wrabel@gmail.com](mailto:maria.wrabel@gmail.com)

## Box 1 Actions for SNF research

### Actions for normative agencies

1. Establish reference cases for commonly studied topics in food aid research to improve how studies are conducted and reported.
2. Establish standards for terminology and corresponding abbreviations.

### Actions for research funders

1. Require research awardees to identify all the components listed under Study reporting, below.
2. Require research awardees to follow relevant reporting checklists.
3. Require research awardees to register trials in a trial registry and keep the information up-to-date.

### Actions for researchers and research staff

#### Study design and analysis

1. When possible, actively recruit study subjects.
2. Always blind data analysts to the intervention group. To the extent possible, blind participants, researchers, intervention implementers and outcome assessors to the different interventions and intervention groups.
3. Anticipate attrition and account for it in the sample size calculation. Record attrition overall, across and within study arms, and investigate differential attrition rates by participant and intervention characteristics.
4. Identify all outcomes of interest at the outset of the study and investigate all of them.
5. Use the same intervention methods in all study arms.
6. Use random selection and assignment of study participants. When appropriate, consider randomised cluster-based sampling.

#### Study reporting

1. Register every trial with a trial registry. Keep the information up-to-date.
2. Follow accepted research-reporting checklists.
3. Describe the study with the intention for replicability, comparability and external assessment of quality. Include:
  - **Study details:** *year(s) trial took place; country in which trial took place; context (emergency/protracted emergency/development; rural/urban/semi-urban); target population; nutrition problems studied; all planned outcomes of interest; outcome indicators.*
  - **Study design:** *intervention (randomised controlled trial, cluster-randomised control trial, non-randomised study, etc.)/observational (cross-sectional, retrospective, prospective)/descriptive; inclusion of control group or comparator; all blinding used.*
  - **Participant selection and sampling strategy:** *inclusion criteria; exclusion criteria; active or passive recruitment; randomisation strategy (clustered, individual, non-randomised); total sample size; sample size per intervention arm; sample size and power calculations.*
  - **Intervention assignment:** *parallel; factorial; single group; crossover.*
  - **Intervention design:** *SNF studied; nutrient composition of SNF; dose provided; frequency of product distribution; total number of distributions over the course of the intervention; duration of intervention; implementation methods used to carry out study arms, noting differences; descriptions of how foods were prepared or how instructions were given to prepare foods.*
  - **Analysis:** *statistical methods used; assessment of baseline comparability across study arms; detectable effect sizes and an explicit comparison to actual sample size; desired and actual sample size; attrition rates overall, across and within study arms; possible explanations for attrition.*
  - **Outcomes:** *results for all pre-specified outcomes.*

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# Municipal budget allocation and utilisation for nutrition in Nepal

Dr. Kenda Cunningham

By **Shraddha Manandhar, Pramila Shrestha, Bishow Raman Neupane, Satya Narayan Acharya, Harendra Bahadur Chand and Pooja Pandey Rana**



Shraddha Manandhar is Data Analyst Manager for the Suaahara II programme at Helen Keller International in Nepal. She has a Master's degree in International Public Health, a postgraduate degree in Women's Studies and over six years of experience in mixed-methods research.



Pramila Shrestha was Programme Documentation Assistant for the Suaahara II programme. She has a Master's degree in Public Health and over four years of experience in project management and research in several areas mainly in nutrition.



Bishow Raman Neupane is Multi-sector Governance Director for the Suaahara II programme. He has more than 32 years of experience working as a teacher, project manager, training and development facilitator, advocate, motivational speaker and writer.



Satya Narayan Acharya is Monitoring, Evaluation and Research Senior Manager for the Suaahara II programme. He is a programme monitoring, evaluation and learning expert with over 17 years of public health experience.



Harendra Bahadur Chand is Governance Manager for the Suaahara II programme. He has over 20 years of hands-on experience from field-level extension supervisor to governance manager.



Pooja Pandey Rana is Deputy Chief of Party for the Suaahara II programme. She has a Master's degree in Public Health and has over 20 years of experience in public health and nutrition programming.

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## Location: Nepal

**What we know:** The new constitution of Nepal in 2015 facilitated the transfer of greater decision-making power and control over budgets to local government across the country.

**What this article adds:** A qualitative study was undertaken by Suaahara II (SII) to explore factors affecting the allocation and utilisation of local budgets, particularly those affecting investments for nutrition. The study was conducted in four districts of Nepal across seven municipalities, through stakeholder focus group discussions and in-depth interviews, non-participant observations and a document review. Clear process guidelines are in place for local-level budget allocation, and utilisation and findings show that external development partners (EDPs) such as Suaahara have helped sensitise local government on the importance of investing in nutrition. However, barriers to budget allocation and utilisation remain, including perceptions that existing federally and provincially funded nutrition programmes are enough, political tendency to only invest in programmes that show 'immediate effects', and limited plans proposed by lower levels, partly due to lack of knowledge on how to develop nutrition-related plans. Findings highlight the need to sensitise and orientate health stakeholders and municipal, ward and community levels to ensure that nutrition plans are demanded and to increase support to health stakeholders to understand local budgetary processes, analyse community nutrition needs and plan responses. Nutrition-sensitive planning must also be strengthened through coordination with other sectors. Timeliness in releasing authority for budget allocation and monitoring and supervision of budget utilisation are areas that also need to be improved. EDPs must support local-level budgetary processes to ensure long-term ownership and sustainability of local nutrition programmes.

## Introduction

### *Nepal's government structure*

The 2015 Constitution of Nepal specifies three tiers of government (federal, provincial and local (municipality and ward)) (Figure 1) and promotes social democracy at municipality and ward levels. Municipal governments have power to prepare and implement long-term and short-term periodic plans, including annual, strategic and sector-wide plans for local development, with direction from federal government towards meeting the Sustainable Development Goals.

There are 753 local government units in Nepal that govern municipalities in remote, rural locations (with populations of <25,000) through to urbanised, metropolitan areas (with populations of >300,000), under which are 6,743 wards. Budget is allocated by municipalities with support from wards to different sectors such as infrastructure, health and agriculture from total funds available from internal sources (taxes and service-user fees) and external sources (provincial and federal government and donor funding). Municipalities are led by locally elected representatives (ERs), namely chairs and vice-chairs, who lead a team of non-elected government staff. The major sector units under municipal governments are shown in Figure 1.

### *Nutrition situation in Nepal*

Nepal faces a triple burden of malnutrition: undernutrition, micronutrient deficiency and overnutrition. According to the 2016 Nepal Demographic Health Survey, 36% of children under five years of age are stunted, 10% are wasted and 27% are underweight. Eleven per cent of women aged 15-49 are short (less than 145 cm) and 17% are thin (body mass index (BMI) less than 18.5). Twenty-two per cent of women are overweight or obese (BMI greater than or equal to 25.0). Among men, 17% are thin and 17% are overweight or obese. The Government of Nepal (GoN) acknowledges the problem of malnutrition, particularly undernutrition, and the need for multi-sector efforts to improve the nutrition of its citizens.

The Nepal Multi-sectoral Nutrition Plan (MSNP) II for 2018-2022 takes a multi-sector approach to tackling malnutrition and sets out guidance for the integration of both nutrition-specific and nutrition-sensitive interventions. Several national nutrition programmes are implemented country-wide by the Ministry of Health (MoH), funded by conditional budget<sup>1</sup> allocated from federal and provincial levels, including programmes on ma-

<sup>1</sup> Conditional budget is the budget received for national programmes that cannot be spent on anything else.

ternal, infant and young child feeding; integrated management of acute malnutrition (IMAM); and adolescent iron and folic acid (IFA) supplementation. In addition, guided by the MSNP, the Partnership for Improved Nutrition ('Poshan Ko Laagi Haatemaal') project, which is government-owned and funded by the United Nations Children's Fund (UNICEF) and the European Union (EU), conducts nutrition-specific programmes through Nepal's MoH, and nutrition-sensitive programmes through the Ministry of Federal Affairs and General Administration (MoFAGA), in coordination with relevant ministries. This programme is currently implemented in 28 districts of Nepal, with a view to wider phased rollout across Nepal.

To tackle the problem of undernutrition in Nepal, it is crucial that local governments take ownership and mobilise existing budgets to complement national- and provincial-level nutrition efforts and those of external development partners (EDPs). The MSNP-II mandates that integrated nutrition<sup>2</sup> is included in local, provincial and federal government policies and plans, guided by Nutrition and Food Security Steering Committees (NFSSCs) that meet regularly at national, provincial and local government (municipality and ward) level. Municipal-level NFSSCs bring together nutrition stakeholders to advocate and lobby for needs-based nutrition activities with the community and local governments to encourage the allocation and proper utilisation of local budget for nutrition.

**Suaahara II – working with municipal governments for integrated nutrition**

Suaahara II (SII) (2016-2021) is a USAID-funded, multi-sector nutrition programme that works to improve the nutritional status of women and children through a multi-sector approach in all municipalities (389) and wards (3,353) of 42 of Nepal's 77 districts, in line with MSNP II. Led by Helen Keller International (HKI), SII is implemented by a consortium of seven organisations: HKI; Cooperative for Assistance and Relief Everywhere, Inc. (CARE); Family Health International 360 (FHI 360); Environmental and Public Health Organization (ENPHO); Digital Broadcast Initiative Equal Access (DBI EA); Nepali Technical Assistance Group (NTAG); and Vijaya Development Resource Center (VDRC). At the district level, SII partners with 40 local non-government organisations (NGOs) technically supported by SII district sub-offices. At the community level, SII activities are implemented through SII frontline workers in close coordination with government female community health volunteers (FCHVs), Nepal's cadre of community health workers, which is particularly active in maternal and child health.

The SII programme has four intermediate aims: 1) improved household nutrition and health behaviours; 2) increased use of quality nutrition and health services by women and children; 3) improved access to diverse and nutrient-rich foods by women and children; and 4) accelerated rollout of the multi-sector nutrition plan through strengthened local governance.

SII has several cross-cutting themes, including gender equality and social inclusion (GESI); social and behavior change communication (SBCC); public-private partnerships (PPP); monitoring, evaluation and research (MER); and disaster preparedness and emergency preparedness and response plan (EPRP). Under intermediate aim 4, the SII team coordinates with national and sub-national actors to create a favourable policy environment, increase investments in nutrition and support the formation and functioning of NFSSCs at all levels.

**Objectives of the study**

In 2018, internal monitoring data revealed that, across 30 SII districts,<sup>3</sup> although 173 out of 277 (62%) municipalities reported allocating USD 8.46 million to implement integrated nutrition activities for women and children, utilisation of budget was only USD 3.5 million; not even half (41%) of total allocated funds (SII, 2018). Suaahara is interested in ensuring that activities it has initiated in the communities are sustained by local governments to ensure continuous progress in nutrition, even after SII phases out. Therefore, SII planned a qualitative study to explore the factors affecting allocation and utilisation

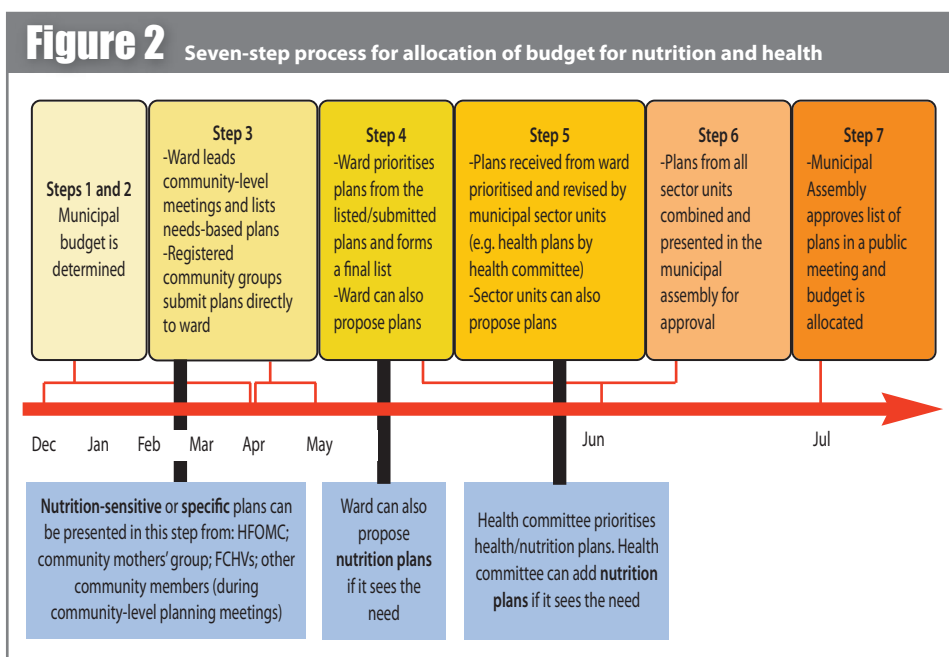
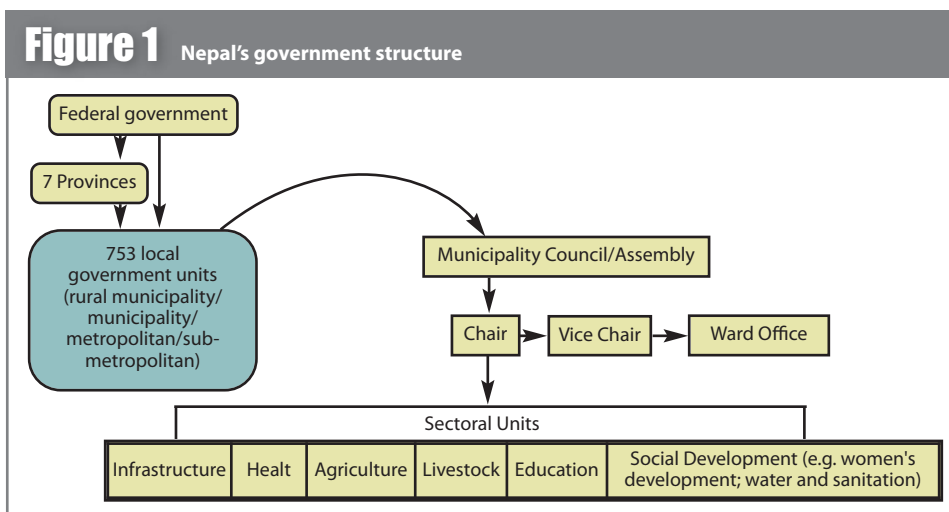
decisions of local budgets, particularly those which affect investments for nutrition, to gain insight for project improvements in future.

**Study methodology**

The study was carried out in four geographically diverse districts of Nepal: Achham (mountain), Dang (plain), Nuwakot (hill) and Sindhupalchowk (mountain). Seven municipalities (one in Nuwakot and two in each of the other three districts) and seven wards (one ward per municipality) were purposively selected. Seven focus group discussions (FGDs) and 46 in-depth interviews (IDIs) were undertaken with municipality and ward-level government stakeholders, community informants and EDP representatives working on nutrition at local level. In addition, 12 non-participant observations (NPOs) were undertaken of budget allocation and utilisation-related meet-

<sup>2</sup> According to the MSNP II, integrated nutrition comprises six sectors: health; education; women, children and social welfare; water supply, sanitation and hygiene; agricultural development; and livestock development.

<sup>3</sup> Data from 12 districts missing as some municipalities were reluctant to provide data on budget allocation and utilisation and others did not have an official budget document to submit on time.





ings that took place during the data collection period, and key documents related to budget allocation and utilisation were collated from municipality and ward levels and analysed. Audio-recordings of FGDs and IDIs were transcribed verbatim and observation notes from NPOs elaborated into detailed transcripts, which were later translated into English, coded in NVivo 12 and analysed using thematic analysis approach.

## Findings

### Budget allocation process

Nutrition plans can be proposed to municipalities either via community members during public community meetings; the Health Facility Operation Management Committee (HFOMC<sup>4</sup>), which can propose needs-based health (and nutrition) related plans directly to the ward or municipal health committee; or via wards or municipal sector committees, which can propose health or nutrition plans that they feel are important or needed. The GoN guideline is clear that all municipalities must follow a seven-step planning process for the allocation of budget (Figure 2), ending in approval by the municipal assembly if successful.<sup>5</sup>

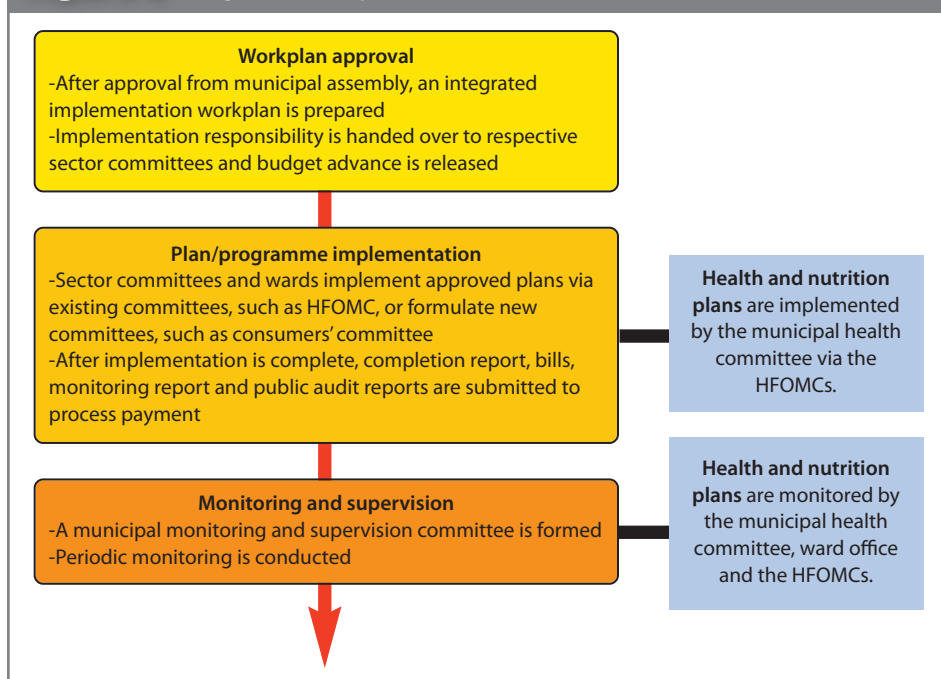
### Budget utilisation process

As per the GoN guideline, an integrated implementation plan is prepared by municipalities after approval by the municipal assembly. Regarding health and nutrition plans, municipal health sections formulate and implement programmes via HFOMCs. Required documentation, including a workplan, expenditure bills and programme-completion reports, are forwarded to the municipality for payment. Nutrition-specific activities are implemented by the health section, while nutrition sensitive-activities are implemented by the respective sections (e.g. distribution of vegetable seeds by agriculture section). Health plans are monitored periodically by municipalities and wards. This process is described in Figure 3.

### Facilitators of budget allocation and utilisation in nutrition

An important facilitator of budget allocation identified was good coordination within the municipality, between municipality and ward, and between municipality and international and national non-governmental organisations (NGOs), leading to integrated planning. Other important facilitators were a sense of responsibility among ERs towards their community; national/municipality guidelines and acts outlining the allocation and utilisation process; and awareness and participation among the community regarding the planning process. Facilitators of implementation/budget utilisation identified were capacity-enhancement trainings on budget utilisation, and adequate monitoring and supervision of plans during implementation. Facilitators of budget allocation and utilisation for nutrition specifically were awareness among municipality and ward leaders of the importance of health and nutrition, as well as involvement of Suaahara in advocacy and lobbying for allocation of budget to nutrition, technical support and joint monitoring with municipalities. A best-case scenario of budget allocation and utilisation for nutrition

**Figure 3** Budget utilisation process



was observed in Achham. Findings triangulated from FGDs, IDIs, NPO and document review showed that the strongest facilitator for Achham was the government-led MSNP (Poshan ko laagi haatemalo) programme (See Box 2)

### Barriers to budget allocation and utilisation for nutrition

Barriers to budget allocation and utilisation processes identified were: insufficient experience and skills of ERs in the new context of municipal planning; insufficient staff in municipality and ward offices; no or less involvement of sector committees; insufficient community awareness and participation; insufficient coordination between stakeholders (within government, such as ERs/government staff/thematic committees

or municipality/ward, and with EDPs); and unfair influence (corruption and nepotism). Insufficient budget allocated to plans and insufficient monitoring and supervision led to problems during utilisation.

Regarding barriers specific to nutrition, many participants mentioned lack of community awareness on nutrition, resulting in no nutrition demands, lack of awareness and priority of nutrition among ERs, and ERs prioritising visible plans with immediate outcomes, such as roads and bridges. Some also mentioned lack of skills of community, ward and municipality members to formulate nutrition-related plans as a barrier. A few participants cited perceptions among ERs that the conditional budget for nutrition (under health) is enough as another barrier. Speaking about specific barriers to utilisation in nutrition, some participants mentioned budget being allocated as a lump sum to health without segregation of line items, and insufficient skills among ERs/government staff to implement nutrition activities. This led to delayed or failed implementation, budget freezing, or transfer of nutrition budget to other headings.

Regarding barriers specific to nutrition, many participants mentioned lack of community awareness on nutrition, resulting in no nutrition demands, lack of awareness and priority of nutrition among ERs, and ERs prioritising visible plans with immediate outcomes, such as roads and bridges. Some also mentioned lack of skills of community, ward and municipality members to formulate nutrition-related plans as a barrier.

### Box 1 Quotes from study participants on facilitators of budget allocation and utilisation

*Government had opened forms for proposal and requested for demands for agricultural materials, vegetable blocks, etc. When we received this information from the municipality, we [SII] immediately informed them [community groups] and gave them instructions as well. At that time, only two groups were registered. I facilitated this process. I registered the groups myself and filled the grant form on the same day for one group. We received a grant amount of 19 lakhs (USD 19,000). I am very happy.*

Suaahara Field Supervisor, Nuwakot

*We 'launched' a programme named 'Flag in the house and eggs in the hands of pregnant women'. We launched the programme ... we conducted municipality-level orientation in the presence of all ERs, other stakeholders, different NGOs working in the field of nutrition like Suaahara."*

Municipality health staff, Nuwakot

<sup>4</sup> Each government health facility has an HFOMC consisting of health workers, community leaders and government leaders.

<sup>5</sup> Municipal assembly is the most powerful municipal body, consisting of all elected leaders from municipality and ward levels. The municipal assembly's decision on budget allocation is final.

**Box 2** Achham case study

In Achham, the government MSNP programme was being implemented jointly by the municipality and UNICEF/EU; as a result, nutrition budget allocation and utilisation was substantially better in the two sampled Achham municipalities. For example, in one of the municipalities in Achham, USD 3.1 million was allocated for MSNP activities where the budget was shared between the municipality (51%); EU/UNICEF (40%) and the federal/provincial government (9%). The government MSNP programme has specific activities for which this budget must be spent, including dissemination of nutrition information using media; conducting of municipal and ward NFSSC meetings; distribution of vegetable kits (pumpkin, carrot, beans, fenugreek, coriander, green leafy vegetables, etc.) to poor '1,000-day' families; demonstration of plastic-house vegetable production for non-seasonal vegetable production; orientation on water purification and distribution of filters to ultra-poor pregnant and post-partum families; men-women interaction programmes on topics including care of pregnant women, reducing gender-based violence, reducing women's workload and nutrition; and programmes where pregnant women/new mothers gather to celebrate this significant milestone in their lives and interact with one another. Additionally, in coordination with the government MSNP programme, SII also implements activities with its own budget in Achham district.

Most participants mentioned that EDPs and the municipality are working collaboratively to implement approved nutrition plans. For instance, EDPs provided technical support to sector units (e.g. health and agriculture) to formulate and implement workplans and, in some cases, EDPs conducted joint monitoring with municipalities. EDPs were also checking if municipalities were spending budget as per the allocated heading or not to reduce budget transfer to other activities and budget freezing.

**Facilitators:** Owing to the government-led MSNP programme, NFSSCs were established and functioning more actively compared to other districts. Municipal and ward-level participants were more aware not only of the importance of investing in nutrition, but the budget allocation and utilisation process as well. In addition to setting budget for nutrition, SII also supported in the functioning of NFSSCs. Monitoring and supervision of implementation/utilisation was more regular and was often conducted jointly by municipalities and EDPs, leading to successful implementation of approved plans.

**Barriers:** Compared to other districts, fewer barriers were noted in Achham. Reported barriers included: absence of ERs/staff (vacant positions) resulting in additional responsibilities for existing ERs/staff; inexperience and/or lack of awareness among ERs/staff as federalism is relatively new; lack of community awareness and participation; political influence; and insufficient coordination between stakeholders. While budget is allocated from government MSNP activities, like other districts, needs-based demands from community and ward levels were also lacking in Achham. Some participants in Achham explained how delayed conditional budget from EDP for the MSNP programme had impacted implementation of nutrition programmes, whereas others reported that budget was transferred from one heading to another due to political influence.

A few participants cited perceptions among ERs that the conditional budget for nutrition (under health) is enough as another barrier. Speaking about specific barriers to utilisation in nutrition, some participants mentioned budget being allocated as a lump sum to health without segregation of line items, and insufficient skills among ERs/government staff to implement nutrition activities. This led to delayed or failed implementation, budget freezing, or transfer of nutrition budget to other headings.

**Discussion**

There is a huge potential for Nepal to reduce undernutrition through the addition of municipality programmes to national to meet the specific needs of citizens in local contexts. Realising the significant roles that local governments could play, this study was conducted to explore how the newly assembled local governments are allocating and utilising budget in general and for nutrition in particular.

As reported by municipality and ward participants, EDPs such as Suaahara have helped sensitise local government on the importance of investing in nutrition. However, while awareness is there, other barriers to budget allocation and utilisation are present, such as the perception that conditional budgets are enough, political

motivations to invest only in programmes that show "immediate effects", and lack of plans proposed by lower levels, in part due to lack of knowledge on how to develop nutrition-related plans. In the light of these findings, we suggest that awareness activities continue, but with revised content to address identified barriers, covering general allocation and utilisation process, analysis of community nutrition needs, and the formulation of plans to address them.

For budget allocation in nutrition, one of the most critical findings is the need to sensitise/orient health stakeholders at municipal and lower levels (health coordinators, HFOMC members, health workers, FCHVs, and HMG members and the community in general), as the analysis shows that few nutrition plans are demanded. Although health stakeholders are expected to be the strongest advocates of nutrition for budget allocation and are in the right position to put forward nutrition demands, they are not currently doing so. Nutrition-sensitive planning also needs to be strengthened in agriculture, livestock and other related sectors; therefore coordinated efforts with all these sectors is important. Other recommendations are to ensure timeliness in releasing authority and budget for implementation, and adequate monitoring and supervision of budget utilisation.

**Box 3** Quotes from study participants on barriers to budget allocation and utilisation

*While running the local government, there is shortage of staff. At present, we have eight wards and there is not a single secretary in any of the eight wards. A health worker is doing the work of a secretary. You can imagine how effective the local level is. A staff [member] working in veterinary is doing the work of registration. How effective will his work be? So, the current local level is not in the situation to run fast, despite efforts.*

Municipality chief, Achham

*During plan collection, there is participation from active and interested members, as well as those from lower 'level', illiterate and from backward communities. They [people from backward communities] don't show interest and usually don't attend the community-level meeting and, even if they attend, they don't realize the importance of the meeting. They just attend and do not say anything.*

Ward Chairperson, Dang

*We are busy and we have many projects. We have altogether 52-54 projects; last year it was 94-95. Some plans are of 20,000 rupees [USD 200], while some are of 2 lakhs [USD 2,000]. To reimburse these amounts, we had to face many problems.*

Ward Secretary, Dang

**Box 4** Quote from study participant on barriers to budget allocation and utilisation for nutrition

*What community demands most are roads, bridge, water, electricity and community building, and graveling road, pitching road, boreholes and pump sets, grants for seeds. These are the issues raised at the community-level meetings, and health-related issues are raised less. The need is not felt ... If we invest in health, then it takes time for result. If a road is dug, then everyone can see it.*

Municipal staff, Dang

Suggestions or action points that EDPs could consider to support budget allocation and utilisation for nutrition include the provision of technical assistance to municipal and ward levels to formulate nutrition-sensitive, long-term strategies and plans; technical assistance for better and more accountable utilisation; development of strategies to increase the visibility of nutrition and advocate to ERs to invest in nutrition; and to formulate, test and recommend nutrition plans that government can replicate. Finally, EDPs such as Suaahara should gradually take a step back to increase accountability and ownership by municipalities.

Findings of this study have been circulated to all study districts. Our field teams are now targeting efforts towards health stakeholders at different levels and conducting sustainability workshops in all 389 SII municipalities where the study recommendations are being implemented.

For more information, please contact Shraddha Manandhar at [SManandhar@hki.org](mailto:SManandhar@hki.org)



# Review of experiences and direction on complementary feeding in emergencies

Research summary<sup>1</sup>

## Background

Between June and November 2019, Emergency Nutrition Network (ENN) with funding from the United States Agency for International Development's Office of Foreign Disaster Assistance (USAID/OFDA) conducted a detailed review of Complementary Feeding in Emergencies (CFE) experiences and practices to identify enablers and barriers to the implementation of the Operational Guidance on Infant Feeding in Emergencies (OG-IFE) provisions regarding CFE and to provide recommendations to address them. The review was conducted under the auspices of the IFE Core Group (see Box 1).

A total of 34 key informants (KIs) participated in the review. KIs were from Asia, Africa, North America, South America, the Middle East and Europe, and included representatives of donor agencies, United Nations (UN) agencies, non-governmental organisations (NGOs), one consultant and one government representative. KIs shared experiences from humanitarian emergencies they had responded to in Zimbabwe, Iraq, Nigeria, Cox's Bazar (Bangladesh), Chad, South Sudan, Syria (in-country and cross-border refugee situations), Venezuela, Haiti, Yemen and Ethiopia.

## Findings of the review

CFE programme experiences and activities implemented differed between agencies, depending on the context in which the emergency unfolded, level of funding, access to affected populations, access to markets and the security situation. Complementary feeding support provided included either one or a combination of the following: provision of education/awareness-raising sessions;

behaviour change/problem-solving skills; provision of multiple-micronutrient fortified foods to children aged 6-23 months; micronutrient supplementation; and nutrition-sensitive programmes.

The review identified the following main factors affecting CFE programme implementation:

- (1) Lack of coordination and leadership at agency, inter- and intra-agency/cluster and government/response levels, which led to late activation of a coordination mechanism. Once a coordination mechanism was activated, this was primarily focused on the promotion, protection and support of breastfeeding, dealing with breast-milk substitute (BMS) donations, and on treatment of severe acute malnutrition. This left a considerable gap in leadership and advocacy on CFE. On the ground, nutrition partners faced many challenges related to CFE in working with or leveraging other sectors, such as food security, cash programming and others.
- (2) At the start of a response, regardless of the type of emergency, there was a perceived lack of time and funding to conduct needs assessments to inform CFE interventions. A few KIs mentioned a lack of accessible CFE assessment tools.
- (3) Perceived lack of funding for implementing a holistic package of interventions to address CFE, including water, sanitation and hygiene (WASH); health; and food security, in addition to nutrition.
- (4) In settings where markets were functioning and foods were available and affordable, partners prioritised the promotion and use of locally available foods in their response. Availability of commodities and supplies to provide a diversified diet that meets the needs of children aged 6-23 months is very challenging, especially where World Food Programme receives in-kind donations, rather than funding for local purchase.
- (5) Lack of preparedness was flagged as a major gap and barrier to effective and efficient CFE response. From those experiences shared, there were no examples of CFE-specific preparedness plans; nor were specific actions for CFE included in plans for infant and young child feeding.
- (6) Partners' own perceived limitations for CFE programming included programmatic knowledge (partners felt they did not know what really constitutes an effective and efficient CFE intervention), limited funding and time, and lack of advocacy for CFE.

The review identified several perceived boosters and barriers to an appropriate CFE response. KIs felt that, while the OG-IFE provides guidance for the "what" (booster), it does not address the "how" (barrier). Other boosters identified include increased awareness among emergency-nutrition

practitioners that CFE is a neglected area that needs to be addressed; greater evidence of emerging leadership and commitment by different UN agencies, donors, and IFE partners to address CFE at global, regional and country levels (potential booster). However, boosters were outweighed by barriers that centre around programmatic issues, lack of preparedness and leadership, and insufficient scale (and lack of scale at times).

The review identified awareness and use of the OG-IFE at headquarter, regional and capital levels; however, dissemination to frontline health and nutrition workers (government and NGO staff, including national NGOs) is an important gap. The OG-IFE was largely consulted to inform breastfeeding interventions and management of BMS, rather than CFE. Again, gaps in "how to" guidance for CFE was raised as limiting application of OG-IFE recommendations.

The CFE Review concluded that the provisions of the OG-IFE regarding CFE are not being met. It identified no clear examples of strong CFE preparedness and response to draw on; most experiences described common shortfalls and challenges, from coordination and leadership to resourcing, supply chain, and poor inter-sector coordination and collaboration.

## Looking ahead

Multiple actions are needed at many levels, including preparedness, advocacy, policy, coordination, capacity-building and research to start meeting the needs for CFE. Specific recommendations for each of these are made in the full report. Although the list of needed actions may seem daunting, continued inaction, or poor action at limited scale, is not acceptable. Reflecting the United Nations Children's Fund (UNICEF) Core Commitments to Children in Emergencies, as Cluster Lead Agency and as reflected in the OG-IFE, UNICEF should play a lead role in taking these recommendations forward. Promisingly, leadership is being demonstrated by UNICEF through the development and launch of a Complementary Feeding Action Framework that offers a critical opportunity to strengthen complementary feeding, including CFE, at regional and country levels. The lead recommendation from this review is for UNICEF and partners to actively and systematically leverage this opportunity to strengthen CFE preparedness and response. Recommendations are also made for the IFE Core Group as a global collective committed to helping put the OG-IFE into practice.

At all levels there is a need for governments to take the lead on CFE and receive support to this end. Practically, this involves developing/updating and implementing policies; contingency and preparedness planning; budgeting; and capacity-building of staff to address CFE. UN agencies, partners and donors have a critical role to play and a responsibility to start closing the gap on CFE to uphold our commitments to meet the complementary feeding needs of children in humanitarian emergencies.

For more information, contact Linda Shaker-Barbari, IFE Core Group Facilitator [ife@ennonline.net](mailto:ife@ennonline.net)

Full report available at: [www.ennonline.net/ifecoregroup](http://www.ennonline.net/ifecoregroup)

<sup>1</sup> IFE Core Group (2020) Review of experiences and direction on complementary feeding in emergencies (CFE): Putting policy into practice, January 2020.

## Box 1

### The IFE Core Group and Operational Guidance on Infant Feeding in Emergencies (OG-IFE)

The IFE Core Group is an established interagency collaboration on infant and young child feeding in emergencies (IFE/IYCF-E) that connects practitioner experiences with policy and guidance development. Current members include UN agencies, NGOs, academics and donors, coordinated by ENN. The IFE Core Group produces and manages updates of the OG-IFE. [www.ennonline.net/ifecoregroup](http://www.ennonline.net/ifecoregroup)

The Operational Guidance on Infant Feeding in Emergencies (OG-IFE) is a policy document (last updated in 2017) that provides concise guidance to inform policy-makers, decision-makers and programmers on key actions to safeguard infant and young child feeding in emergencies. Endorsed by the World Health Assembly, it applies to emergency preparedness, response and recovery worldwide to minimise infant and young child morbidity and/or mortality risks associated with feeding practices, and to maximise child nutrition, health and development. Download in multiple languages here: [www.ennonline.net/operational-guidance-v3-2017](http://www.ennonline.net/operational-guidance-v3-2017)



## COVID-19 highlights the need for greater support for global health systems Research snapshot<sup>1</sup>

**H**igh-income countries with strong health systems have implemented public health responses to protect their populations from the outbreak of the COVID-19 coronavirus. Concern for

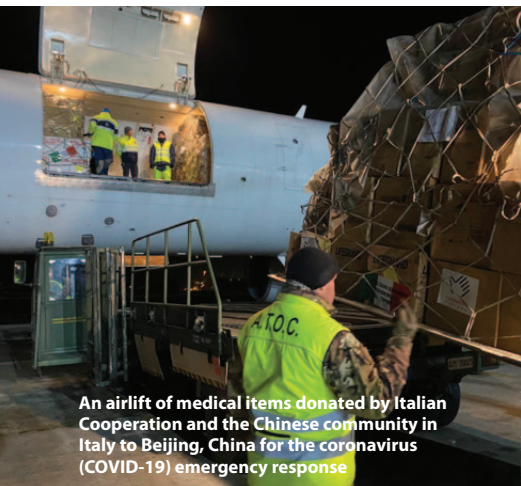
countries with weaker systems led the World Health Organization to declare this outbreak a public health emergency of international concern to try to limit the virus from spreading to densely populated countries with weaker health systems. Since the first case of COVID-19 in Africa was confirmed in Egypt, many people in African countries are asking how health systems will cope if COVID-19 affects them.

The author argues that the effectiveness of a health system is complex and goes beyond a country's financial resources. Although providing international funding and laboratory resources are essential, this will not immediately translate into an effective public health response. The global emergency response must equip those countries with weaker health systems with greater strategic guidance, which covers preparedness, implementation tools, and capacity-building in healthcare systems. Indonesia, for example, has to date not diagnosed any COVID-2019 infections, but commentators have questioned the

likelihood of there being none, given Indonesia's close proximity and travel connections to China. Indonesia's current diagnostic capability may not be sufficient for a large and geographically diverse island nation.

Low and middle-income settings with weaker healthcare systems will need more guidance. This applies to every level in the system. Other necessary measures include speeding up bureaucratic processes; increasing capacity of central hospitals with skilled responders; scaling up provision of personal protective equipment and education for healthcare staff so that they are prepared and have the resilience to act as immediate responders; and supporting access to, and best practice management and processing of, diagnostics, contact tracing, and quarantine capability. This outbreak marks a vital moment when countries with expertise need to work together and share information with countries that lack the means to respond effectively.

<sup>1</sup> Keerti Gedela. Covid-19 highlights the need for greater support for global health systems. The BMJ Opinion. Published online February 25, 2020. <https://blogs.bmj.com/bmj/2020/02/25/keerti-gedela-coronavirus-outbreak-highlights-need-greater-support-global-health-systems/>



An airlift of medical items donated by Italian Cooperation and the Chinese community in Italy to Beijing, China for the coronavirus (COVID-19) emergency response

WFPI/Photolibrary

## Looming threat of COVID-19 infection in Africa: act collectively, and fast Research snapshot<sup>1</sup>

**B**ecause of the high volume of air traffic and trade between China and Africa, Africa is at high risk of the introduction and spread of the novel coronavirus disease 2019 (COVID-19). With neither treatment nor vaccines and without pre-existing immunity, the effect could be devastating due to weak healthcare systems and the multiple health challenges the continent already faces. A report by Gilbert and colleagues (2019) in The Lancet identifies each African country's risk of importation of COVID-19 from China, using data on the volume of air travel from three airports in provinces in China to African countries. Looking at preparedness and vulnerability, the authors determine the capacity of countries to detect and respond to cases.

Using information from this report, the authors propose a framework of action to prepare the continent for any potential importation and spread of COVID-19. Actions include: 1) set up a unified, continent-wide strategy for preparedness and response, including scaling up diagnostic testing (as testing becomes more available, it is possible that more cases might be detected); 2) ensure com-

mitted political will to act fast and collectively (the potential social, economic and security devastation that COVID-19 could cause should be sufficient incentive for governments to invest immediately in preparedness for the worst-case scenario); 3) commit and release financial resources from partners and donors to anticipate demand and address supply-chain management, mapping and stockpiling of COVID-19 response needs (supplies of these items will be limited in Africa because of reduced manufacturing capacity); 4) cooperate and collaborate to optimise limited supplies; 5) develop and put in place proper quarantine and infection-control protocols, including procedures for implementing social distancing (mass gathering and potential closure of public facilities); and 6) intensify capacity-building training efforts (medical staff at major hospitals must be trained in the proper protocols of quarantining individuals who are at risk of COVID-19 infection, as well as isolation and safe treatment of patients who test positive). The window of opportunity to act is narrowing. Africa needs to be supported to act now, and needs to act fast.

Children participate in a coronavirus prevention campaign at Ansar-ud-deen mosque in Itire, Lagos State, Nigeria



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<sup>1</sup> John N Nkengasong and Wessam Mankoula. 2020. Looming threat of COVID-19 infection in Africa: act collectively, and fast. Comment. The Lancet. Published Online February 27, 2020. [https://doi.org/10.1016/S0140-6736\(20\)30464-5](https://doi.org/10.1016/S0140-6736(20)30464-5).

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## Nutritional care for patients with Ebola Virus Disease Research snapshot<sup>1</sup>

**D**uring the Ebola virus disease (EVD) outbreak between 2014 and 2016 in West Africa, practitioners faced challenges providing nutritional care for patients in Ebola treatment units (ETUs). A review of the literature on existing practices and research findings on nutritional care in ETUs was undertaken. Authors discovered a wealth of literature on clinical management and supportive care for EVD, but only 24 publications that in-

cluded nutritional care, which often lacked explicit descriptions of the actual nutritional care provided. Most clinical management papers delineated supportive care for dehydration and electrolytes through oral rehydration solutions (ORS) or intravenous fluid administration and did not refer to nutrition. The use of total parenteral nutrition (TPN) was only found in high-resource settings. One study concluded that vitamin A supplementation resulted in lower

mortality in ETUs. For paediatric patients, some studies recommended the prioritisation of therapeutic milks and ready-to-use therapeutic foods over local foods in the acute phase of the illness. Examples of feeding methods used in infants under six months of age to reduce mother-to-infant transmission were also described. One descriptive qualitative study of key informants analysed community perceptions of the nutrition-related response to the EVD outbreak in Guinea. A consistent theme across informants in this study was the lack of emphasis on nutrition by health professionals and community members.

Most studies reviewed were conducted before the 2014 World Health Organization/UNICEF/World Food Programme guidance was issued, which restricted the authors' ability to compare recommendations with actual practices. Overall, the nutritional care for EVD patients was poorly described; therefore the optimal composition and implementation of nutritional care remain unknown. The authors recommend that researchers and practitioners share specific and practical details of their experiences in providing nutritional support within ETUs to expand the knowledge base and ultimately improve nutritional care for an increasingly prevalent patient population, including in the current EVD outbreak in the Democratic Republic of the Congo.



A family affected by the Ebola crisis outbreak in North Kivu, Goma, Democratic Republic of Congo (DRC), 2019

WFP/Deborah Nguyen

<sup>1</sup> Mija Ververs, Magi Gabra. (2020) Nutritional Care for Patients with Ebola Virus Disease. *Emerging Infectious Diseases*. Vol. 26, No. 1, 21-25. [www.cdc.gov/eid](http://www.cdc.gov/eid)

## Ebola virus disease and breastfeeding Research snapshot<sup>1</sup>

### – comment

**T**he authors commend Mija Ververs and Akanksha Arya<sup>2</sup> for highlighting an urgent need for evidence-based breastfeeding guidance in the context of Ebola virus disease (EVD). In response to the ongoing Ebola outbreak, the World Health Organization (WHO) assembled an expert panel to create recommendations and implementation guidance on breastfeeding, as informed by a systematic review of evidence. On 10 February 2020, WHO published recommendations for the management of pregnant and breastfeeding women in the context of EVD.<sup>3</sup>

Ebola virus RNA has been detected in the breastmilk of women with acute infection, after recovery, and during asymptomatic presentation of the disease. Given the assessment and analysis of this evidence, WHO recommends that breastfeeding of a child should stop if Ebola virus infection is confirmed in a lactating woman or a breastfed child. The child should be separated from the breastfeeding woman and infants younger than six months of age should be

provided with a breastmilk substitute (BMS) that is acceptable, feasible, affordable, sustainable and safe (AFASS). Infants and young children between 6 months and 23 months of age should be provided with a ready-to-use infant formula or ultra-high temperature full-cream (or whole) cow's milk, along with complementary feeding (this food can be supplemented with micronutrient powders if the nutrient content is expected to be inadequate). Furthermore, the authors recommend that infants and children without EVD who are exposed to the breastmilk of women with ongoing Ebola virus infection should be considered contacts and undergo close monitoring while being provided with a BMS.

If a breastfeeding woman and her child are both confirmed to have an Ebola virus infection, we recommend stopping breastfeeding and switching to a BMS, given the hypothetical risk that the disease might worsen with additional exposure. However, if resources prevent an infant younger than six months of age from receiving a BMS that meets the conditions of

AFASS, or if the infant will not be adequately cared for if separated from its mother, then the option to continue breastfeeding can be considered with support from a healthcare worker.

Given the evidence that breastmilk can continue to contain virus after a woman has recovered from the disease, we recommend that women who have recovered and cleared the infection delay breastfeeding until the breastmilk contains no detectable Ebola virus RNA when tested in two rounds of RT-PCR separated by 24 hours. A BMS should be provided during this time.

The pressing need to prioritise research related to Ebola virus transmission and viral persistence in breastmilk is highlighted in the WHO guidelines. Considerations for other modifications in infant and young child feeding might be warranted.

<sup>1</sup> Thorson, A.E. *et al* (2020) Ebola virus disease and breastfeeding. *The Lancet*, Volume 395, Issue 10223, 491. [https://doi.org/10.1016/S0140-6736\(19\)32967-8](https://doi.org/10.1016/S0140-6736(19)32967-8)

<sup>2</sup> Ververs, M. and Arya, A. (2019) Ebola virus disease and breastfeeding: time for attention. Correspondence. *The Lancet*, published online: August 27, 2019 summarised in *Field Exchange* 61 [www.enonline.net/fex/61/ebolavirusdiseasebreastfeeding](http://www.enonline.net/fex/61/ebolavirusdiseasebreastfeeding)

<sup>3</sup> See news article in this issue "Guidelines for the management of pregnant and breastfeeding women in the context of Ebola virus disease".

## Review of the use of antenatal multiple micronutrient supplementation in low- and middle-income countries

Research snapshot<sup>1</sup>

Inadequate micronutrient intakes are relatively common in low- and middle-income countries (LMICs), especially among pregnant women, who have increased micronutrient requirements. This can lead to increased adverse pregnancy and birth outcomes. Supplementation with multiple micronutrient supplements (MMS) that include iron and folic acid (IFA) during pregnancy is practiced in some countries. The World Health Organization (WHO) antenatal care guidelines do not recommend that MMS replace IFA as routine standard of care, due to some evidence of risk and gaps in evidence, although the guidelines suggest that policymakers in populations with a high prevalence of nutritional deficiencies consider giving MMS that include IFA when the benefits outweigh the disadvantages. However, no further guidance is provided regarding the contexts where MMS may be warranted. A task force comprising 33 members from a variety of organisations was convened to reassess the evidence base for antenatal MMS to support policymakers in the implementation of the guidelines.

The task force identified new evidence that shows that, despite the variability in prevalence of micronutrient deficiencies among women of reproductive age and a general lack of data on

dietary intake and micronutrient status among pregnant women in most LMICs, there is clear and consistent evidence from trial data that MMS is beneficial where micronutrient deficiencies are relatively common and where it would reduce the risk for preterm birth, small for gestational age, and low birth weight, in comparison with IFA alone. An individual-participant data meta-analysis also revealed even greater benefits for anaemic and underweight women and female infants. The additional mor-

tality and birth outcome benefits associated with the more expensive multiple micronutrient tablets should result in favourable cost-effectiveness values when compared with other programmes aimed at reducing mortality and undesirable birth outcomes. The task force also identified little risk of exceeding the upper limit of micronutrients, even when combined with adequate dietary intake. The task force concludes that MMS is likely to lead to additional benefits compared to IFA supplementation alone and could be included as part of routine antenatal care to improve maternal micronutrient status.

<sup>1</sup> Bourassa, M.W. *et al* (2019) (2019) Review of the evidence regarding the use of antenatal multiple micronutrient supplementation in low- and middle-income countries. *Annals of the New York Academy of Sciences*, 1444 (1), pp. 6-21. ISSN 0077-8923 DOI: <https://doi.org/10.1111/nyas.14121>



A checkup of a pregnant mother at Nutrition Rehabilitation Centre in Orchha, Narayanpur, Chattisgarh

UNICEF/2018/Ataaf Ahmad

## Setting research priorities on multiple micronutrient supplementation in pregnancy

Research snapshot<sup>1</sup>

A series of publications recently presented evidence of the benefits of multiple micronutrient supplementation (MMS) on maternal and perinatal outcomes in addition to those provided by iron and folic acid (IFA) alone. Outcomes included significant risk reduction of low birth weight (LBW), small for gestational age (SGA), preterm birth, and stillbirth. However, important gaps in knowledge remain in the implementation of MMS in prenatal care programmes, which affect the successful implementation of this intervention. To clarify research needs, the Child Health and Nutrition Research Initiative (CHNRI) methodology was applied to inform the direction of research and investments needed to support the implementation of MMS interventions for pregnant women in low- and middle-income countries. Between April and June 2019, a group of international specialists identified and ranked the most urgent gaps in knowledge, focusing

particularly on aspects that would improve the delivery and effectiveness of this intervention.

Seventy-three research questions were received, analysed and reorganised, resulting in a final list of 35 research questions. These were scored in turn against four criteria, yielding a list of 10 ranked-priority research options. The questions that received the highest priority were those that focused on the use of behavioural change and counselling strategies, and community workers to increase antenatal care (ANC) attendance and adherence to MMS. This is not surprising, given that low adherence to prenatal micronutrient supplementation is a major barrier to achieving the full potential benefits of this intervention, even when programme coverage is satisfactory. Other high-ranked questions were about the best (field-friendly and cost-effective) indicators and methods needed to identify populations more likely to benefit from prenatal MMS interventions. This may be justified

by the lack of clear guidance for countries interested in adopting MMS interventions in the 2016 World Health Organization (WHO) Guidelines for ANC. In addition, questions around the potential benefit of extending MMS interventions beyond pregnancy into the lactation period were also ranked high. The lowest-scored question pertains to the marginal costs and benefits of adding each vitamin or mineral to MMS (possibly ranked low due to the presence of the commonly accepted 'UNIMMAP' formulation used in many of the trials that demonstrated additional benefits of MMS over IFA). This exercise identified important research gaps that must be urgently addressed to improve the implementation of this important and cost-effective nutrition intervention.

<sup>1</sup> Filomena Gomes, Megan W. Bourassa, Seth Adu-Afaruwah, Clayton Ajello, Zulfiqar A. Bhutta, Robert Black, Elisabete Catarino, Ranadip Chowdhury, Nita Dalmiya, Pratibha Dwarkanath, Reina Engle-Stone, Alison D. Gernand, Sophie Goudet, John Hoddinott, Pernille Kästel, Mari S. Manger, Christine M. McDonald, Saurabh Mehta, Sophie E. Moore, Lynnette M. Neufeld, Saskia Osendarp, Prema Ramachandran, Kathleen M. Rasmussen, Christine Stewart, Christopher Sudfeld, Keith West, and Gilles Bergeron. 2019. Setting research priorities on multiple micronutrient supplementation in pregnancy. The Authors. *Annals of the New York Academy of Sciences* published by Wiley Periodicals, Inc. on behalf of New York Academy of Sciences. <https://doi.org/10.1111/nyas.14267>



## Violent conflict and breastfeeding: The case of Iraq Research snapshot<sup>1</sup>

**T**he association between conflict and breastfeeding is currently understudied. Using secondary survey data, the authors of this paper examined the status and duration of breastfeeding in Iraq. Outcome variables on breastfeeding status and duration were taken from the 2006 and 2011 Multiple Indicator Cluster Surveys (MICS) for children aged 0 to 24 months. The measure of armed conflict was estimated using the number of casualties recorded in the Iraq Body Count database. Descriptive analysis

of breastfeeding practices, using pooled data from both surveys, showed that only 6% of infants were exclusively breastfed by their fifth month, 66% were breastfed at 12 months and 29% at 24 months. The mean casualty rate was around 0.20 casualties per 1,000 population.

For all outcome indicators, conflict intensity was negatively associated with breastfeeding. Each one-unit increase in the casualty rate (one additional casualty per 1,000 persons) was associated with a

3.75 percentage point (ppt) decline in the probability that a child had ever been breastfed (statistically significant (ss)); a 7.3 ppt decline in the probability that a child was currently breastfed (ss); a 8.17 ppt decline in the probability that a child was breastfed within one hour after birth (not ss); and a 2.74 ppt decline in the probability that an infant under six months of age was exclusively breastfed (not ss). Results were robust to alternative measures of conflict, although some coefficients from estimation based on the 2006 sub-sample were positive and not significant. Using the pooled sample or 2011 sub-sample, an increase in conflict-related casualties was associated with shorter breastfeeding duration (ss). For the 2006 sub-sample, higher conflict intensity was associated with longer breastfeeding duration (ss). Results suggest an increase in the use of breastfeeding substitutes, such as infant formula, concurrent with higher levels of conflict among wealthier families. While results reveal some relationship between conflict and breastfeeding, they are not consistently significant or unidirectional. The authors conclude that providing infant formula risks reducing the probability and duration of breastfeeding. Attention to the supply of skilled breastfeeding support and targeted support to infants dependent on formula are matters of the utmost urgency during and after conflict.



WFP/Inger Marie Vennize

<sup>1</sup> Diwakar, V., Malcolm, M. & Naufal, G. Violent conflict and breastfeeding: The case of Iraq. *Confl Health* 13, 61 (2019). <https://doi.org/10.1186/s13031-019-0244-7>

## Systematic review of breastfeeding protection, promotion and support in humanitarian emergencies

Research snapshot<sup>1</sup>

**I**nfants and young children are the most vulnerable segments of the population. In emergency conditions, morbidity and crude mortality rates of these population groups often rise dramatically. The protective and beneficial influence of breastfeeding for both infants and mothers is particularly important. Interventions to protect, promote and support optimal breastfeeding practices in humanitarian emergencies, illustrated in several Infant and Young Children Feeding in Emergency (IYCF-E) guidelines, are scarcely applied. This systematic literature review included 10 published articles in which both the interventions and related outcomes were described. Six referred to human-made or complex emergencies and four referred to context of natural disasters in low-income countries. Results relating to effectiveness of breastfeeding interventions involved improvements in knowledge about IYCF in mothers and pregnant women and two studies described a behavioural change in mothers and an improvement of IYCF optimal

practices following educational interventions. Outcomes related to training interventions showed an improved awareness, knowledge and performance related to breastfeeding and IYCF practices in health staff. Breastfeeding outcomes were reported in four studies. Two of these described an improvement in the exclusive breastfeeding rate, one highlighted an increase in the breastfeeding initiation rate following the intervention and one found a statistically-significant association between attending education sessions on IYCF and the current breastfeeding rate. Receiving counselling and support through home visits was also significantly associated with the reduction of the early introduction of liquids other than human milk in the first three days of life. Outcomes on maternal and infant or child health were not available. with mortality.

Despite the absence of strong evidence, the findings reported could inform further interventions and research. For example, the estab-

lishment of baby-friendly spaces should be a standard activity in the early emergency response to support breastfeeding optimal practices. In these safe places, mothers could receive breastfeeding counselling and technical support from skilled health professionals. Training of health professionals could also be a critical intervention to support breastfeeding optimal practices: many international documents and tools are available and could be used as the basis for emergency preparedness. More evidence is urgently needed to encourage and implement optimal IYCF-E practices.

<sup>1</sup> Immacolata Dall'Oglio, Francesca Marchetti, Rachele Mascolo, Patrizia Amadio, Orsola Gawronski, Maria Clemente, Andrea Dotta, Federico Ferro, Antonio Garofalo, Guglielmo Salvatori, Antonella Tarantino, Emanuela Tiozzo, Angela Giusti. Breastfeeding Protection, Promotion, and Support in Humanitarian Emergencies: A Systematic Review of Literature. *IBCLC Journal of Human Lactation*, First Published 7 Feb 2020. DOI: 10.1177/0890334419900151

An assessment of the nutritional condition of young children (Satkhira District) Bangladesh



## The Lancet series on the double burden of malnutrition

Research snapshot<sup>1</sup>

WFP/Hugh Rutherford

**T**he double burden of malnutrition (DBM) is the coexistence of overnutrition (overweight and obesity) alongside undernutrition (stunting and wasting), at all levels of the population – country, city, community, household and individual. This four-paper series in *The Lancet* explores how this coexistence is affecting low-income and middle-income countries (LMICs). Malnutrition in its many forms has previously been understood and approached as a separate public health issue, but the new emergent reality is that undernutrition and overnutrition are interconnected and, therefore, double-duty actions that simultaneously address more than one dimension must be implemented for policy solutions to be effective. .

### Dynamics of the double burden of malnutrition

The first paper, by Popkin *et al* (2020) explores the dynamics of the DBM in LMICs, based on repeated household survey data from the 1990s to the 2010s in multiple countries. Findings show that, in LMICs, trends in stunting, wasting and thinness in women are declining, while overweight is increasing in most age groups. This has been accelerated by shifts in the food system; particularly the availability of cheap, ultra-processed food and beverages, coupled with more sedentary lifestyles. As a result, LMICs face a new nutrition reality that requires greater understanding to inform effective policies to address the issue of the DBM at all levels.

### Aetiological pathways of the double burden of malnutrition

The second paper, by Wells *et al* (2020), explores aetiological pathways of DBM that affect individuals across life courses and generations. The authors attribute the long-lasting effects of malnutrition in early life to interconnected biological pathways, including imbalance of the gut microbiome, inflammation, metabolic dysregulation

and impaired insulin signalling. An increasing proportion of individuals who are overweight were undernourished earlier in life and in these individuals the health costs of obesity (including non-communicable disease) are exacerbated. Population susceptibility to DBM can be mediated by societal driving factors (rapidly changing diets, norms of eating and physical-activity patterns) and broader ecological factors such as high burdens of infectious disease and extrinsic mortality risk. The authors conclude that focusing on how our biological plasticity was shaped in ancestral environments to promote survival and reproduction might help design interventions that promote linear growth and lean-tissue accretion, rather than excess adiposity.

### Double-burden actions

Actions to address different forms of malnutrition are typically managed by separate communities, policies, programmes, governance structures and funding streams. The third paper, by Hawkes *et al* (2020), presents double-duty actions that, by contrast, simultaneously tackle all forms of malnutrition in a more holistic way, based on the rationale that all forms of malnutrition share common drivers that can be leveraged for double impact. These actions include interventions delivered through health services, social safety nets, educational settings, agriculture, food systems and food environments. Fundamental changes will be needed in governance, funding, capacity and research to enable the delivery of this strategy, and existing nutrition-coordination mechanisms must now incorporate malnutrition in all its forms and one minister or ministry made responsible for all.

The authors articulate concerns about the potential risks of intakes of ready-to-use therapeutic foods (rapid weight gain leading to excess adiposity later in life, effect on the gut microbiome and taste preferences, household sharing and

displacement of nutrition counselling). Research on the long-term effects of regular use of supplements in early life is needed to better evaluate the risks, although no alternative product that is equally safe, convenient and effective for treating severe acute malnutrition in the community is currently available.

### Economic effects of the double burden of malnutrition

Health effects from the DBM have an economic cost for individuals and economies in the form of lost wages and productivity, as well as greater medical expenses. In the final paper in this series, by Nugent *et al* (2020), the authors summarise existing approaches to modelling the economic effects of malnutrition and point out the weaknesses of these approaches for measuring economic losses from DBM. Findings show that most economic models of malnutrition evaluate costs and outcomes associated with either stunting or overweight and obesity, but not both. None of the models captures interactions between undernutrition and obesity, which could either diminish or exacerbate the combined effects compared to effects when only one form of malnutrition is present. In the absence of a combined model, the authors suggest that adding up the separate economic effects of undernutrition, and overweight and obesity, is a second-best approach to measuring the economic effects of the double burden of malnutrition.

An economic analysis of the costs and benefits of an illustrative double-duty intervention was undertaken, which showed significant benefits of implementation that outweighed the costs, with return on investment between 1.1 and 4.2. Removing either form of malnutrition from the analysis would have lowered the return on investment. This illustrates how important it is that economic models are modified to incorporate effects for both undernutrition and overweight in the same population.

For more on this topic see Views article on page 20 and at <https://www.enonline.net/fex/62/thelancetdoubleburdenseries>

<sup>1</sup> [www.thelancet.com/series/double-burden-malnutrition](http://www.thelancet.com/series/double-burden-malnutrition)

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Rachel Nugent, Carol Levin, Jessica Hale, Brian Hutchinson. Double Burden of Malnutrition 4: Economic effects of the double burden of malnutrition. *Lancet* 2020; 395: 156–64.



## New approach to simplifying and optimising acute malnutrition treatment in children aged 6 to 59 months: The OptiMA single-arm proof-of-concept trial in Burkina Faso Research snapshot<sup>1</sup>

**O**ptiMA (Optimizing treatment for acute MALnutrition) is a simplified protocol that aims to treat both moderate and severe acute malnutrition (MAM and SAM), determined through early household detection by the presence of oedema and/or mid-upper arm circumference (MUAC) <125 mm, with progressively reduced doses of a single-product, ready-to-use therapeutic food (RUTF). OptiMA was implemented from January 2017 to March 2018 in a 'real-life' setting by the

personnel of the Ministry of Health of Burkina Faso in all 54 health centres of Yako district, with operational support from a national and international non-governmental consortium and an established UNICEF-supported RUTF supply chain. Almost 5,000 children were included for analysis. Overall recovery rate was 86.3%, exceeding the SPHERE standard for both SAM and MAM programmes. Recovery was lowest among children who were most malnourished at admission, with 70.4% of the children admitted with MUAC<115

mm or oedema recovering. Mortality rate was low (0.4%), while defaults, non-response and transfers represented 4.7%, 3.4% and 0.2%, respectively. Programme outcomes stratified by MUAC and weight-for-height z-score (WHZ) at admission revealed that children with both MUAC<115mm and WHZ<-3 had the lowest recovery (64.3%) and highest non-response (12.5%) and mortality (1.7%) rates. Current SAM programmes typically plan for RUTF consumption of between 120-150 sachets per child treated, while MAM programmes plan for between 60 and 90 sachets of ready-to-use supplementary food (RUSF) per child. Although comparisons of average rations must consider variations in discharge criteria (under OptiMA, discharge was stringent at two consecutive measures of MUAC >125 mm), the overall RUTF consumption of an average of 60.8 sachets per child per course of treatment was highly encouraging. Further study will be needed to determine if increasing RUTF dosage for children admitted with MUAC<115mm will improve recovery and non-response, even if multivariate analysis reveals other factors that appear to influence recovery rate.



A mother and child in a targeted supplementary feeding programme in Damdégou, Burkina Faso

WFP/Rein Skallerud

<sup>1</sup> Daires, M., Phelan, K., Issoufou, M., Kouanda, S., Sawadogo, O., Issaley, K., Cazes C., Séri B., Ouaro B., Akpakpo B., Mendiboure V., Shepherd S., Becquet, R. (n.d.). New approach to simplifying and optimizing acute malnutrition treatment in children aged 6 to 59 months: The OptiMA single-arm proof-of-concept trial in Burkina Faso. *British Journal of Nutrition*, 1-31. doi:10.1017/S0007114519003258

## The effect of acute malnutrition on enteric pathogens, moderate-to-severe diarrhoea, and associated mortality Research snapshot<sup>1</sup>

**C**hildren with acute malnutrition are three times more likely to die from diarrhoea than children with better nutritional status, and over 200,000 diarrhoeal deaths are attributed to acute malnutrition annually. Using data from the Global Enteric Multicenter Study, authors assessed whether acute malnutrition modifies the association: a) between common enteric pathogens and moderate-to-severe diarrhoea, and b) in children with diarrhoea, between enteric pathogens and death. Children older than six months of age with moderate-to-severe diarrhoea and age-matched and community-matched controls were included in this analysis. Acute malnutrition was defined as mid-upper arm circumference (MUAC) below 12.5 cm. Odds ratios were adjusted for age, site and co-infection. Adjusted odds ratio (aOR) for moderate-to-severe diarrhoea associated with typical enteropathogenic *E. coli*

among children aged 6-11 months was 2.08 (95% CI 1.14-3.79) in children with acute malnutrition and 0.97 (0.77-1.23) in children with better nutritional status, compared with healthy controls. Enterotoxigenic *E. coli* among children aged 12-23 months also had a stronger association with moderate-to-severe diarrhoea in children with acute malnutrition (aOR 7.60 [2.63-21.95]) than among similarly aged children with better nutritional status (aOR 2.39 [1.76-3.25]). Results for *Shigella* spp, norovirus and sapovirus suggested they had a stronger association with moderate-to-severe diarrhoea than other pathogens among children with better nutritional status, although *Shigella* spp remained associated with moderate-to-severe diarrhoea in both nutritional groups. Among the 144 children with moderate-to-severe diarrhoea who died, 92 (64%) had acute malnutrition. Pathogen-specific, 60-day fatality rates for all pathogens were higher among children

with acute malnutrition, but no individual pathogen had a significantly larger increase in its relative association with mortality.

The authors conclude that acute malnutrition might strengthen associations between specific pathogens and moderate-to-severe diarrhoea. However, the strong link between acute malnutrition and mortality during moderate-to-severe diarrhoea in children is not limited to specific infections and affects a broad spectrum of enteric pathogens. Interventions addressing acute malnutrition could be an effective way to lower the mortality of both childhood malnutrition and diarrhoea.

<sup>1</sup> Kirkby D Tickell, Rumana Sharmin, Emily L Deichsel, Laura M Lamberti, Judd L Watson, A S G Faruque, Patricia B Pavlinac, Karen L Kotloff, Mohammad J Chisti. (2020) The effect of acute malnutrition on enteric pathogens, moderate-to-severe diarrhoea, and associated mortality in the Global Enteric Multicenter Study cohort: a post-hoc analysis. *Lancet Glob Health* 2020; 8: e215-24.



Pupils of the Sinthiou Mogo school having their lunch in Senegal

## Taller but thinner: trends in child anthropometry in Senegal 1990–2015

Research snapshot<sup>1</sup>

This article investigates trends in child anthropometry in Senegal between 1990 and 2015, associating them with potential causes; i.e., changes in health status, income, diet and socio-economic status. The author analysed data on height, weight, body mass index (BMI) and associated z-scores: height-for-age (HAZ), weight-for-age (WAZ) and weight-for-height (WHZ) from nine nationally representative Demographic and Health Surveys (DHS) samples of Senegalese children aged 12 to 59

months. Over a 25-year period, the average height of children increased by +1.88 cm and their average weight increased by +0.10 kg, but their BMI decreased by -0.53 kg/m<sup>2</sup>. Corresponding changes expressed in z-scores were +0.454 in HAZ, +0.109 in WAZ and -0.302 in WHZ. This pattern of decreasing stunting while increasing wasting was correlated with decreasing child mortality, despite small changes in income per capita and in adult heights or BMI. The largest improvements in HAZ were among the lower socio-economic strata, while largest declines in WHZ were more pronounced among the highest socio-economic strata (urban population, more educated mothers and wealthier families). When compared to the Centers for Disease Control and Prevention (CDC) reference dataset (2000) for the eight surveys, the mean anthropometry of Senegalese children was lower: -2.0 kg lower weight, -3.3 cm lower height and -1.2 kg/m<sup>2</sup> lower BMI. Comparison with DHS data from other Sahelian countries shows that children also grew taller and heavier over the same cohorts, but BMI tended to increase in Mali and in Niger, stayed about the same in Burkina-Faso and decreased only in Chad (but much less than in Senegal).

With the health transition, economic development and improving diet, the heights of children under five years of age tend to increase over time. Changes in child anthropometry in Senegal over the past 25 years therefore appeared atypical: children grew taller but became thinner over time. To explain these changes in child anthropometry, the author hypothesises that children's heights increased mainly because of a better control of infectious diseases, while BMI did not follow because increases in income and food intake were not enough to compensate for rising heights.

<sup>1</sup> Michel Garenne. Taller but thinner: trends in child anthropometry in Senegal, 1990–2015. *Public Health Nutr.* 2020 Jan 3:1–8. doi:10.1017/S1368980019003598

## Prevention of child wasting: Results of a Child Health & Nutrition Research Initiative (CHNRI) prioritisation exercise

Research snapshot<sup>1</sup>

An estimated 49.5 million children under five years of age are wasted. The decline in the global prevalence of wasting has been slow, from 7.9% in 2012 to 7.3% in 2018; just 37 (19%) out of 194 countries are on track to achieve the World Health Assembly (WHA) 2025 target of maintaining prevalence of wasting below 5.0%. There is a lack of robust studies on effective interventions to prevent wasting. To address this, a research prioritisation exercise was undertaken to identify and prioritise the main outstanding research questions in relation to wasting prevention to inform future research agendas. The authors followed the Child Health and Nutrition Research (CHNRI) method. Identified research gaps were compiled from multiple sources, categorised into themes and streamlined into forty research questions by an expert group. A survey was then widely circulated to assess research questions according to four criteria and an overall research priority score was subsequently calculated for each question in order to provide a ranking order.

In total, 146 individuals participated in the survey from a wide range of geographical and

organisational background. Research questions prioritised by this group had a strong focus on interventions. The importance of the early stages of life in determining later experiences of wasting was highlighted. Other important themes included the identification of at-risk infants and young children early in the progression of wasting and the roles of existing interventions and the health system in prevention. These results indicate consensus to support more research on the pathways to wasting encompassing the in-utero environment, on the early period of infancy and on the process of wasting and its early identification. They also reinforce how little is known about impactful interventions for the prevention of wasting. This exercise provides a five-year investment case for research that could most effectively improve on-the-ground programmes to prevent child wasting and inform supportive policy change.

<sup>1</sup> Frison S, Angood C, Khara T, Bahwere P, Black RE, Briend A, et al. (2020) Prevention of child wasting: Results of a Child Health & Nutrition Research Initiative (CHNRI) prioritisation exercise. *PLoS ONE* 15(2): e0228151. <https://doi.org/10.1371/journal.pone.0228151>



Monitoring assistants conduct health assessments on nursing mothers and children for entry into the supplementary feeding programme in Mindanao, Philippines



## Improving nutritional outcomes of rural households through a community-based approach in Ethiopia

By Lioul Berhanu, Haimanot Abebe, Wossen Assefa Negash and Daniel Abbott



Haimanot Abebe is a Communication and Reporting Specialist working for Growth through Nutrition Activity in Save the Children Ethiopia. She previously worked for the

Development Food Assistance Programme for Save the Children and as a Research Assistant for Nia Center for Children and Family Development.



Lioul Berhanu is Programs Deputy Chief of Party for the Growth through Nutrition Activity project in Save the Children, overseeing quality implementation of the project's multi-sector nutrition

activities. He previously worked as Nutrition Advisor for the same project and Senior Health and Nutrition Specialist at Save the Children Ethiopia.



Wossen Assefa Negash is a Senior Social Behaviour Change Communication (SBCC) Manager for Growth through Nutrition Activity in Save the Children Ethiopia. He is a qualified public

health professional with a background in SBCC, communication research, strategy formulation, campaigning, training and material development.



Daniel Abbott is Chief of Party of the Growth through Nutrition Activity project in Save the Children Ethiopia. He has 15 years of experience in nutrition; health; and water, sanitation and hygiene

programming and has led large, multi-sector nutrition programmes in Ethiopia.

Save the Children's Growth through Nutrition Activity project is funded by the United States Agency for International Development (USAID) under the Feed the Future Initiative. Two of Growth through Nutrition's international partners, The Manoff Group and Tufts University, contributed greatly to this article through their research papers. Five local non-governmental organisations also played a large role in implementing the Enhanced Community Conversations in the project's four implementation regions.

### Location: *Ethiopia*

**What we know:** In spite of reductions in undernutrition, the prevalence of stunting in children under five years old in Ethiopia remains high.

**What this article adds:** Growth through Nutrition is a five-year (2016-2021), multi-sector nutrition and water, sanitation and hygiene (WASH) programme implemented in 110 districts in four regions of Ethiopia that aims to prevent stunting in the first 1,000 days of life. Alongside WASH and livelihoods interventions, social behaviour change communication (SBCC) is targeted to very poor households with family members within the first 1,000 days' window. The SBCC component, Enhanced Community Conversations, involves 10 discussion sessions in peer groups (15-20 members) facilitated by trained volunteers on set topics related to healthy nutrition and WASH practices, with follow-up home visits. Some groups also receive virtual facilitation in the form of audio recordings on the same set topics. Qualitative and quantitative assessments revealed improvements between baseline and midline in provision of a minimum acceptable diet to infants age 6 to 23 months, iron and folic acid supplementation in pregnant women, number of antenatal and postnatal care contacts, and household WASH practices. Results on the impact of breastfeeding behaviours were mixed (qualitative results suggested improvement, but this was not reflected in quantitative results). The addition of virtual audio facilitation showed some statistically significant improved outcomes, but this should be balanced against costs. Results demonstrate the importance of SBCC within a package of nutrition-sensitive interventions, targeting men with SBCC messaging as drivers of change in households, and the potential for institutionalising this approach in routine government systems. The impact on maternal and child nutrition outcomes (including stunting) will be measured at endline.

### Background

Ethiopia has made significant progress in reducing child malnutrition over the last 15 years. However, although undernutrition is declining, stunting remains a significant problem (Figure 1). In 2019, nearly two out of every five children (37%) in Ethiopia under the age of five years old were stunted and more than one in 10 (12%) were severely stunted. Stunting is also nearly twice as prevalent in rural areas (46%) as urban areas (26%) (EMDHS, 2019). The impacts

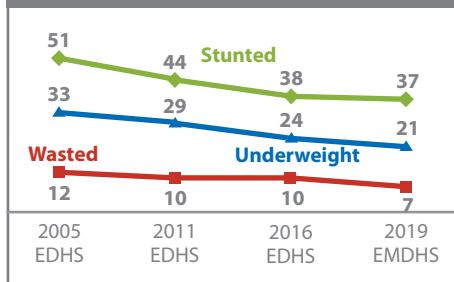
of malnutrition are enormous for individuals, communities and the country as a whole, from the immediate consequences of acute malnutrition, or wasting, to the long-term adverse effects of chronic malnutrition, manifested through delayed physical, mental and psychosocial development.

A wide range of factors, including maternal, infant and young child nutrition; water, sanitation and hygiene (WASH); and household gender dynamics contribute to the nutritional wellbeing of mothers and

Enhanced Community Conversation being conducted, led by a Community Change Agent, Shire District, Tigray Region, Ethiopia, 2010

Seifitu Assefied, Save the Children

**Figure 1** Trends in nutritional status of children in Ethiopia (EMDHS, 2019)



children in the first 1,000 days of life – a critical window of opportunity for a child’s growth and development. Only 7% of children between the ages of 6 and 23 months meet the criteria for a minimum acceptable diet (MAD) in Ethiopia<sup>1</sup> (EDHS, 2016) and recent figures estimate that 59% of infants up to the age of six months are exclusively breastfed, while the remaining 41% either additionally consume water, various liquids, milk from other sources, complementary foods, or are not breastfed at all (EMDHS, 2019). Other important causal factors are maternal undernutrition (in the past five years, 60% of women who gave birth in Ethiopia took iron-folic acid (IFA) tablets during pregnancy and only 11% took them for the recommended 90+ days (EMDHS, 2019)) and lack of optimal WASH facilities (nearly two in five (43%) of rural households do not have access to an improved drinking water source in Ethiopia and a staggering 94% of households use an unimproved toilet facility (EMDHS, 2019)). An important underlying cause of undernutrition in Ethiopia is the lack of female autonomy and decision-making at household level, which has been found to be negatively associated with household dietary diversity (Masters *et al*, 2017) and child anthropometric outcomes (Abate and Belachew, 2017). Lack of maternal education is another important factor: 42% of children born to mothers with no education were found to be stunted in recent estimates compared with 17% of children whose mothers have more than secondary education (EMDHS, 2019).

## Programme description

The Feed the Future Ethiopia Growth through Nutrition Activity is a United States Agency for International Development (USAID)-funded multi-sector nutrition and WASH project implemented in 110 districts of four major regions in Ethiopia (Amhara; Oromia; Southern Nations, Nationalities and People’s Region (SNNPR); and Tigray). The primary objective of this five-year (2016-2021) project is to prevent undernutrition during the first 1,000 days. The project delivers nutrition-sensitive and nutrition-specific livelihoods and agriculture activities; social and behaviour change communication (SBCC) on nutrition, WASH, and agriculture-related behaviours; improved nutrition service delivery; access to WASH products and services; and multi-sector coordination and capacity building to implement the National Nutrition Programme<sup>2</sup> and One WASH National Programme.<sup>3</sup> In addition, the

project implements cross-cutting activities to support gender and women’s empowerment, programme learning (for example, through baseline and endline surveys and evaluations), convergence and overlay of multi-sector activities, and emergency preparedness planning.

## The SBCC approach

The SBCC component of the programme involves multiple sectors and utilises a ‘whole-household nutrition’ approach. Its goals are to improve the dietary practices of pregnant and lactating women, infants and young children, and adolescent girls between the ages of 10 and 19; increase demand for nutrition and health services; improve WASH practices; and address imbalances in household gender relations. The strategy involves the identification of nutritionally vulnerable household members (those within the first 1,000 days’ window with a three-month food gap) who are targeted with interventions to support changes in practices in line with project aims. Interventions also aim to foster a stronger enabling environment for beneficiary households by targeting schools (teachers and adolescent girls and boys), communities, religious leaders, farmers’ associations, women’s savings and credit groups, and frontline workers in the agriculture and health sector. A package of multi-media SBCC materials is used in a variety of platforms, including Enhanced Community Conversations (ECC), SMS text messaging and radio.

## Enhanced Community Conversations

The First 1,000 Days ECCs were originally designed under the USAID-funded Empowering New Generations to Improve Nutrition and Economic Opportunities (ENGINE) project, the predecessor of Growth through Nutrition. ECCs are peer support groups comprised of 15-20 mothers, fathers and grandmothers of children under two years of age who meet in their respective groups on a regular basis (generally once a month) for a total of 10 sessions. Each session covers specific topics, information and skills related to nutrition-specific and nutrition-sensitive behaviours during the first 1,000 days. These sessions are followed by home visits to support households to implement agreed messages.

ECCs are facilitated by a community change agents (CCAs), who are community volunteers trained on the nutrition information covered in the ECCs and equipped with a package of multi-media SBCC materials to facilitate discussion and learning through peer-group activities. Activities may include listening to and discussing nutrition-related information and experiences, singing nutrition songs, demonstrations, skills-building games and role plays. Creative concepts are used to help mothers, fathers and grandmothers build on the knowledge, experiences and skills that they already have and practice adopting new behaviours and transformative gender roles through an *experiential learning approach*. Some ECC groups are augmented with virtual facilitation (VF). These groups all received the same face-to-face support, but in addition received pre-recorded VF audio sessions of two professional actors, who role-play around

issues raised in the SBCC materials.

Growth through Nutrition implements ECCs in partnership with The Manoff Group through five local non-governmental organisations and village savings groups organised under the project’s agriculture and livelihoods component. In its first three years of implementation, Growth through Nutrition supported close to 30,500 ECC participants in four regions and aims to graduate an additional 10,600 community members by September 2021. Around 50% of households targeted with the project’s agriculture and livelihoods intervention (provision of small livestock, vegetable seeds and fruit seedlings) also receive the ECC intervention. Agriculture frontline workers facilitate the development of homestead gardens and provide advice on animal rearing and, in doing, so support positive nutrition messaging.

## Assessment of programme impact – methodology

This article draws on the results of three studies to assess changes in maternal and infant and young child feeding (IYCF) practices as a result of the programme:

The ‘Documentation research on the USAID Growth through Nutrition First 1,000 Days maternal and child nutrition program outcomes and lessons learned’, hereafter referred to as the *ECC documentation study*, outlines outcomes and lessons learned from the implementation of the First 1,000 Days programme. This qualitative research study, led by the Manoff Group, was conducted in Amhara, Oromia, Tigray and SNNP regions using 32 focus group discussions (FGDs) and 32 in-depth, semi-structured interviews with key informants. A total of 234 mothers, fathers and grandmothers who participated in ECCs, male and female CCAs, health and agriculture frontline workers, religious leaders and municipality leaders participated in the study. Research participants were purposively sampled in two kebeles (neighbourhoods) in each of the four regions.

The ‘Effectiveness of virtual facilitator as an SBCC approach for improving nutrition status of women and children’ study, hereafter referred to as the *Virtual Facilitator (VF) comparison study*, was designed to evaluate the added value of the ECC VF tool (pre-recorded audio content with fictional characters used to augment ECC sessions led by facilitators) for improving IYCF practices and the nutritional status of women and children in project implementation areas. Since this approach incurs additional expense,

<sup>1</sup> A composite of minimum dietary diversity (MDD) and minimum meal frequency (MMF) for infants.

<sup>2</sup> The National Nutrition Program of Ethiopia (2016-2020) is a government-led nutrition programme developed to reduce the magnitude of malnutrition through the implementation and scale-up of multi-sector, coordinated and harmonised evidence-based nutrition interventions.

<sup>3</sup> The OWN (2013-2020) is a national programme that coordinates the efforts of the water, education, health and finance sectors to increase equitable and sustainable access to water supply and sanitation and the adoption of good hygiene practices to improve the health and wellbeing of communities.



it was important to find out if it led to additional benefits and therefore had potential for scale. A quantitative household survey was conducted using a quasi-experimental study design in purposively selected districts of Amhara and Oromia regions. A total of 410 pregnant and lactating mothers participated in the survey; women were sampled from an intervention group (who attended ECC sessions with VF) and a control group (who attended ECC sessions without VF). The study lasted approximately one year, from December 2018 to November 2019. Tufts University led the design of the study, recruitment and training of data collectors, and field supervision of data collection.

A Growth for Nutrition *midterm evaluation* was also undertaken to assess the successes and challenges of project implementation from project baseline to mid-point. The study considered seven evaluation questions, one of which focused on whether ECCs are associated with key behavioural outcomes. This evaluation followed a mixed-methods design which included a desk review of project documentation (including project baseline (2017) and follow-up (2018) household surveys and the VF comparison study), semi-structured key informant interviews with project staff, and programme-review meetings held in 10 purposively selected districts across the four regions. Woreda (district) selection primarily targeted high- and low-performing woredas per region, as rated by project staff considering all multi-sector components of the project. The programme-review meetings involved government representatives from the health, agriculture, and WASH sectors from regional, zonal, district and municipality levels and were facilitated by project staff trained on data capturing tools and supervised by an external consultant.

**Results**

*Improved maternal, infant, and young child nutrition practices*

Participants in the ECC documentation study indicated that IYCF practices changed positively as a result of the First 1,000 Days ECCs. Participants reported that mothers were giving colostrum to their newborns and exclusively breastfeeding their babies during the first six months. Review meetings from the midterm

evaluation also supported these findings, although VF comparison study quantitative data for early initiation of breastfeeding showed minimal or no changes (Figure 3). Results of the VF comparison study showed a modest increase in the age of exclusively breastfed infants in both control (4.95 to 5.14 months) and intervention groups (4.64 to 5.16 months).

Participants of the ECCD documentation study reported improvements in minimum dietary diversity (MDD) and minimum meal frequency (MMF) among target intervention groups. They reported that families were introducing thick porridge when children reached six months old and were growing, buying and preparing nutritious complementary foods to ensure that their children had a diverse and nutritious diet. Qualitative study participants routinely mentioned carrots, beetroot, meat, eggs, butter, oil, bananas, oranges, avocado, papaya and other foods as good options to include in the preparation of soft, thick porridges for children, beginning at the age of six months, demonstrating good knowledge on MDD. Figure 3 shows data from the VF comparison study that indicate a dramatic increase in MAD of children aged 6 to 23 months (6.12% to 26.9% in ECC only groups and 5.6% to 26.9% in ECC+VF groups). The difference in change between groups was statistically significant (p=0.017), demonstrating that VF had added benefit for MAD compared to in-person SBCC facilitation alone. Improvements were also seen in MDD scores (10.2% to 31.3% for ECC-only groups and 12.2% to 37.5% in ECC+VF groups) and MMF, although this change did not achieve statistical significance.

ECC documentation study participants frequently identified IFA supplementation as a behaviour change among pregnant women that was catalysed through their participation in the ECCs and supported by CCAs during home visits. The VF comparison study supported these findings, particularly among the intervention group (Figure 4), which showed a 21% to 60% increase in IFA intake for three months or greater, with modest improvements in the control group of 23% to 29% (p= 0.004). The VF comparison study also indicated an increase in women attending four or more antenatal care (ANC) visits in both control (30.7% to 46.4%)

and intervention (41% to 60.5%) groups, with a significantly bigger difference seen in the ECC+VF group (p=0.04). There was also a notable increase in postnatal care received within two days after birth in both control (37.5% to 68.2%) and intervention (59.4% to 69.5%) groups, with a significantly bigger difference in the ECC+VF group (p=0.004), demonstrating that the addition of VF has additional benefits for encouraging health-seeking behaviours. Only a modest increase was seen, however, in institutional deliveries (hospital or health post/health centre) in both groups pre and post interventions.

*Improved WASH practices*

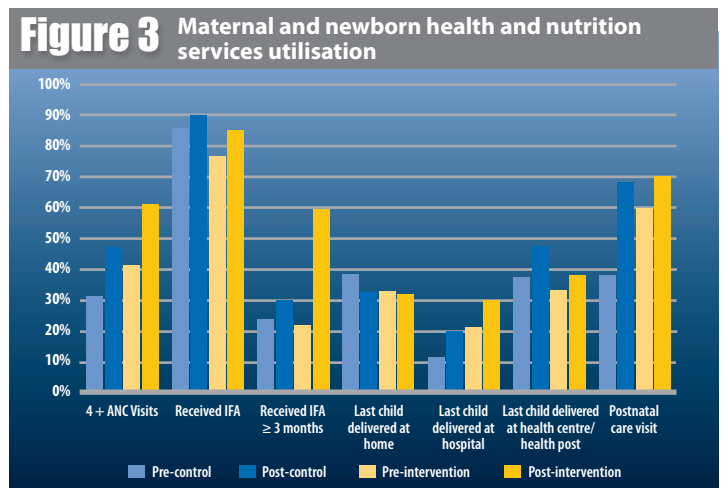
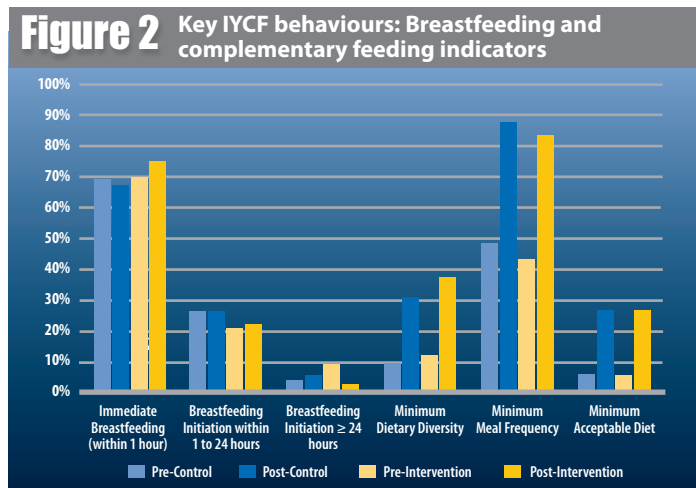
Across all regions, target households in the ECC documentation study reported improved WASH practices, including handwashing with soap and water, building and using latrines, keeping compounds swept, separating farm animals from the household, and washing clothes more frequently. The VF comparison study demonstrated a decrease in no handwashing from 29% in the control group and 24% in the intervention group to 0% for both groups. Participants reported discussing nutrition and diversified diets with their husband or partner, although conversations were often initiated by women. Participants of both the ECC documentation study and midterm evaluation reported that fathers and mothers were intentionally keeping more nutritious foods for family consumption, rather than selling everything they produce.

**Lessons learned**

Results show that Growth through Nutrition's First 1,000 Days ECC approach has had a positive impact on the improvement of nutrition-specific and nutrition-sensitive behaviours among target households. These positive outcomes are attributed to several key strengths of the programme, in spite of a few shortcomings.

*Diffusion of learned behaviours*

The First 1,000 Days programme has gone beyond individual behaviour change to achieve social change in three broad areas: (1) the diffusion of nutrition-related practices among neighbours of target households; (2) improved interpersonal relationships among family members and neighbours, and (3) transformation in gender roles and power dynamics in households





An ECC facilitator praises her husband, Alemu, for having supported her with household chores during her pregnancy, Ankesha District, Amhara Region Ethiopia, 2019

Muligeta Alebachew

and communities.

Across all four regions, many FGD participants reported that their neighbours and other relatives often ask them about what they learn in the ECCs, observe the new practices they are employing in their homes, and imitate them. New practices ranged from handwashing with soap and water and building latrines to growing vegetables in backyard gardens and improving child feeding practices. Improved WASH practices appear to have diffused particularly rapidly in communities. Findings from the FGDs in the ECC documentation study suggest that the work of frontline health workers, combined with the information and skills promoted during the ECCs and home visits by the CCAs, are the reasons for this successful outcome. For example, ECC graduates in some districts were assigned to cascade their learning to up to five pregnant and lactating neighbours.

### *Reinforcing knowledge, attitude and skills through SBCC materials*

Results revealed that behaviour change and social change can happen rapidly when materials, messaging and interventions are appropriately designed. The package of complementary materials and interventions, including VFs, take-home posters, skills-building games and role plays, were all frequently referenced by research participants. These SBCC materials were methodically designed to encompass a behaviour-centred focus that began with formative research on behaviours and behavioural influences, and included the careful testing of creative concepts, messages and materials as part of the design phase. Take-home posters, in particular, appear to be very influential in catalysing discussion about nutrition practices at home and among neighbours, and appear to validate the credibility of the information that ECC participants relay. Both VF and non-VF-facilitated ECC sessions have contributed to changes in key IYCF indicators. ECC+VF sessions had significantly higher positive outcomes for MAD, postnatal care-seeking behaviours, attendance at four or more ANC visits, duration of IFA supplementation and hand-washing practices. This suggests that supplementary audio materials are essential tools that effectively communicate and reinforce messages to target audiences.

### *Targeting fathers and husbands for improved nutritional outcomes*

Results of the ECC documentation study show

that fathers and husbands are very receptive to maternal and child nutrition information, appreciate being directly targeted with materials and interventions designed specifically for them, and appear to be the greatest influencers of change in their families. Husbands in the FGDs expressed that they were keen to teach their wives what they had learned and wives were receptive to their messages, while mothers and grandmothers were often met with scepticism when trying to relay ECC messages to their families. These findings suggest that, although all the ECC participants appear to have changed their nutrition-related practices and to have influenced others, it is easier for men, rather than women, to initiate these changes at home and in the neighbourhood.

### *Programme challenges*

Challenges for ECC implementation were largely related to technical issues and time requirements, such as ECCs taking too long (1.5 hours) from the perspective of participants and group coordinators, and poor mobile phone sound quality during VF transmission. A few challenges encountered during home visits included difficulty in following up with participants after graduation, CCAs not using counselling materials as intended, the feasibility of reaching the targeted number of monthly visits, and difficulties reaching fathers during home visits.

The Growth through Nutrition project plans to mitigate some of these challenges by developing a handover guideline for government staff to ensure the sustainability of the intervention, reinforcing time management through CCAs, cutting back the number of visits CCAs are expected to conduct, and exploring options for better reach of fathers during household visits.

### *Next steps*

Despite qualitative assessments reporting positive changes in both breastfeeding and complementary feeding-related practices, quantitative assessment has shown only a modest effect of ECCs on related indicators. This calls for further research to understand inconsistencies in the results and a review of the content of the sessions and/or content delivery.

Going forward, consideration will be given to the institutionalisation of ECC within existing government structures to ensure cost-effectiveness, scalability and sustainability. Participants in the programme-review meeting of the midterm eval-

uation recommended that ECC facilitation training be extended either to all municipality-level extension workers, or to development armies. Furthermore, although the VF comparison study showed that both VF and non-VF approaches are effective in bringing about changes in key IYCF indicators, the most cost-effective approach could be prioritised during institutionalisation.

## **Conclusion**

Assessments of the Growth for Nutrition project to date have demonstrated as a whole that structured and interactive community-based SBCC sessions, when implemented within a package of multi-sector support (including messaging on WASH and livelihood interventions), have the potential to bring about positive changes in key maternal and IYCF practices. Key to the success of the ECC approach in this context was the targeting of men in households and the addressing of underlying gender imbalances in household decision-making. This element of the programme should be factored into future SBCC approaches in similar contexts. Supplementation of the ECC approach with audio materials further enhanced some positive nutrition and health-related practices; however, the cost benefit of this approach must be considered in each context, particularly in terms of sustainability and scale. The project shows the potential for embedding similar programmes in government systems, given that ECC implementers in this context were trained government health extension workers. Changes in outcome indicators, including stunting in children under five years old and maternal nutrition status, will be measured among all project participants in the endline survey, the results of which will be shared.

For more information, please contact Lioul Berhanu at

[lioul.berhanu@savethechildren.org](mailto:lioul.berhanu@savethechildren.org)

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## Impact evaluation of a nutrition-sensitive social protection programme in northern Nigeria

By Caroline Antoine, Stella Esedunme, Céline Sinitzky Billard, Sabi'u Suleiman Shehu and Gladys Esther Ahuwan



Caroline Antoine is a health referant for Action Contre La Faim (ACF), in charge of the development and deployment of the organisation's health strategy. She has a decade of experience working in health in the humanitarian sector.



Stella Esedunme is the Action Against Hunger (AAH) Project Manager of the Child Development Grant Programme (CDGP) in Nigeria. She has expertise in community engagement, development, management of malnutrition and strengthening government capacity.



Céline Sinitzky Billard is Cash and Voucher Assistance and Social Protection Advisor for ACF. She is an agronomist with a Master's degree in agro-economy and has extensive humanitarian experience across in Africa, Asia and the Middle East.



Sabi'u Suleiman Shehu was the Advocacy and Communications Officer for phase one of the CDGP. He has eight years' experience in advocacy and communications and is currently Advocacy and Communications Manager for AAH Nigeria.



Gladys Esther Ahuwan is Nutrition and Health Manager for the CDGP who worked to implement the social behaviour change communication strategy in Jigawa.

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This article presents the summary findings of the endline evaluation of the Child Development Grant Programme (CDGP) conducted by the e-Pact consortium<sup>1</sup> and led by Oxford Policy Management. It summarises information from the evaluation report, authored by the e-pact consortium, which can be accessed at [www.opml.co.uk/projects/evaluation-child-development-grant-programme-cdgp](http://www.opml.co.uk/projects/evaluation-child-development-grant-programme-cdgp)



Mobile cash transfer distribution in Maiduguri

### Location: Northern Nigeria

**What we know:** There is strong evidence that cash transfers can have a positive impact on food security, but the evidence of impact on nutrition is weaker.

**What this article adds:** The Child Development Grant Programme (CDGP) was implemented in Zamfara and Jigawa states in northern Nigeria between 2013 and 2019 to address widespread poverty and undernutrition. Pregnant women received monthly cash transfers until their offspring turned two years of age. Low-intensity or high-intensity social behaviour change communication (SBCC) was implemented to randomly selected programme areas. The programme was evaluated through a quantitative survey undertaken at baseline, midline and endline; a process evaluation; and a qualitative survey of key informants. Findings show that the programme reached its intended audience with cash transfers and SBCC interventions (with some spillover). Endline results show increased use of antenatal care services and facility-based births, and improvements in infant and young child feeding beliefs, attitudes and practices, especially in immediate, exclusive and appropriate breastfeeding and improved dietary diversity in infants aged 6-23 months. Indicators of child health improved, including uptake of vaccinations and incidence of diarrhoea and illness, some of which can be linked to improved water, health and sanitation practices. The prevalence of stunting in children under five years old declined by 5.4% at endline in CDGP areas, but no improvements were seen in indicators of wasting or underweight. Results show that cash plus SBCC can reduce child malnutrition and improve child health outcomes, although challenges remain in substantially improving anthropometric outcomes.

### Introduction

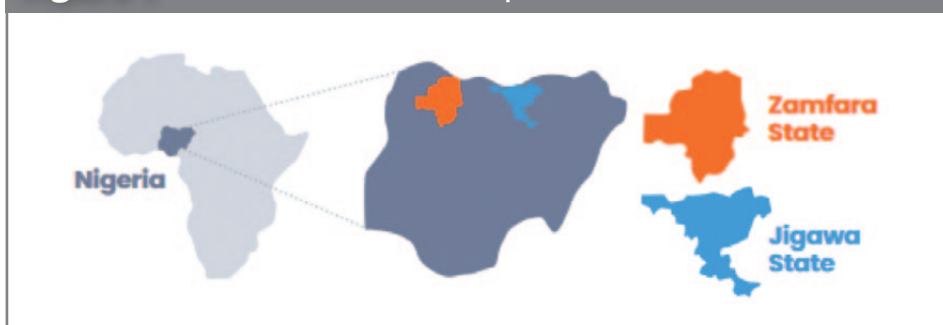
The Child Development Grant Programme (CDGP) was a six-year, UK Department for International Development-funded programme that was implemented in northern Nigeria in Zamfara State by Save the Children and in Jigawa State by Action Against Hunger between 2013 and 2019. The programme targeted five local government authorities (LGAs); Anka and Tsafe in Zamfara, and Buji, Gagarawa and Kiri Kasama in Jigawa. The programme was implemented in a rural setting, where agricultural activities form the main source of livelihoods. Households are typically large (with an average household size of nine members recorded at endline) and organised around a male household head, living with one or

more of his wives and their children. Rates of poverty and deprivation are high in northern Nigeria, with an estimated 64 million of the country's extreme poor living in the region.<sup>2</sup> The significant burden of poverty, coupled with gaps in health-service provision, have contributed to extremely high prevalence of undernutrition. Around 37% of children under five years of age are stunted in Nigeria as a whole; in Northern Nigeria nearly half of all children are

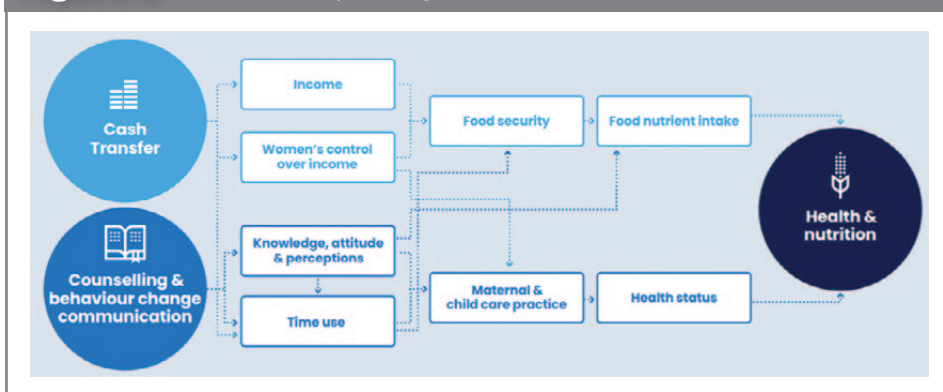
<sup>1</sup> The e-Pact consortium is made up of Oxford Policy Management, Itad and the Institute for Fiscal Studies. It is funded by DFID. For further information, visit [www.opml.co.uk](http://www.opml.co.uk)

<sup>2</sup> Calculated using 2004 Nigerian Living Standards Survey and 2010 UN Population Division population projections.

**Figure 1** Locations where the CDGP was implemented



**Figure 2** The CDGP theory of change



stunted, one third of children under five years old are underweight and one fifth are wasted.<sup>3</sup>

The programme aimed to address widespread poverty and undernutrition by providing an unconditional cash transfer of Nigerian Naira (NGN)3,500 per month (around US\$10) to over 90,000 pregnant women. The transfer value was revised upwards in January 2017 to NGN4,000<sup>4</sup> due to an average increase of 44% in the cost of a healthy nutritious diet in the programme area reported in 2016<sup>5</sup> and subsequent advocacy efforts among stakeholders to adjust the transfer accordingly. Transfers were scheduled to begin once pregnancy was detected and last until the child turned two years old, thereby targeting the first

1,000 days of the child's life. Alongside the cash transfer, communities in the programme were provided with education and advice about nutrition and health through a social and behaviour change communication (SBCC) component (cash+).

The programmes tested two SBCC approaches:

1. Low-intensity SBCC, delivered through posters, radio messaging, text messaging, health talks and food demonstrations;
2. High-intensity SBCC, delivered through support groups and one-to-one counselling for women receiving the transfer, in addition to all of the components of low-intensity SBCC.

The cash + approach was expected to contribute to improved food security and the adoption of

positive practices and behaviours to support maternal and child health through the pathways illustrated in Figure 2. The programme aimed to protect 42,000 people from hunger and extreme poverty, and specifically to reduce stunting among 94,000 children in target households (by an increase in height-for-age z-score (HAZ) of 1 standard deviation by endline) and under-five child mortality by 3–5%.

### Methodology of the impact evaluation

There is strong evidence from elsewhere that cash transfers have an impact on food security, but the evidence of impact on nutrition is weaker. The programme was therefore designed with an independent evaluation and research component to generate evidence of nutrition impact. The evaluation, conducted by Oxford Policy Management (OPM), aimed to describe the impact of the programme on intended outcomes using quantitative, process and qualitative evaluation methods.

The quantitative evaluation was based on a household survey carried out before the programme started (baseline; August to October 2014), two years later (midline; October to December 2016) and towards the end of the programme (endline; August to October 2018). This survey aimed to measure the effect of the programme on child nutrition; knowledge and practices regarding healthy behaviours and nutrition; and livelihoods activities. This component was set up as a cluster randomised controlled trial (RCT) in which communities were randomly assigned to groups either receiving CDGP interventions (treatment groups; both receiving cash transfer with one receiving low-intensity SBCC and the other high-intensity SBCC) or none (control group).

An evaluation of the processes of the programme combined analysis of programme data with interviews with programme implementers and other stakeholders to understand how the programme worked, challenges faced during implementation, and factors influencing its impact. A longitudinal qualitative study was also undertaken that followed a small group of households that received the programme over three rounds of data collection. Through individual discussions, this component explored household members' views about the programme and its impact on their lives, including those relating to culture, behaviour and power relations. Detailed methodology of the qualitative and quantitative components of the evaluation can be found in the full report.<sup>6</sup>



Preventive nutrition distribution for pregnant and breastfeeding women and young children (6 – 59 months) Borno State, Nigeria

WFP/Inger Marie Vermeze

<sup>3</sup> Calculated as a weighted average of the prevalence in the northeast and northwest zones using Nigeria DHS 2008 and Census 2006 data.

<sup>4</sup> On the local market, NGN 4,000 covers 10kg of maize (NGN1,300), 10kg of sorghum (NGN1,200), 2l of palm oil (NGN1,000) and 1kg of chicken (NGN500) and equates to around 10% of monthly income.

<sup>5</sup> Rapid Market Analysis to update the CDGP Cost of the Diet Report (2015), Save the Children under DFID funding, September 2016.

<sup>6</sup> Full methodology of the RCT component is described here: [www.opml.co.uk/projects/evaluation-child-development-grant-programme-cdgp](http://www.opml.co.uk/projects/evaluation-child-development-grant-programme-cdgp)



## Main findings

### Programme intervention

The CDGP was successful in reaching its intended recipients of women who were pregnant up to the second birthday of child; nine out of every 10 women who were pregnant during the baseline period reported having received cash transfers from the programme by endline. On average, beneficiaries stopped receiving transfers when the child was 24 months of age, as intended. The level of exposure to SBCC channels was relatively high, with the majority of men and women in CDGP communities reporting having accessed at least one of the low-intensity channels. Many men and women assigned to receive the low-intensity version reporting having accessed some of the high-intensity channels, suggesting little differentiation between the two versions in practice. For women, the SBCC channels most frequently reported were posters, followed by food demonstrations. For their husbands, radio and posters were most frequently reported.

### Impact on knowledge, attitudes and practices related to maternal health and infant and young child feeding (IYCF)

#### Maternal health and antenatal care (ANC) services

The CDGP led to significant increases in the use of ANC services in CDGP communities for women who were pregnant at endline. Fifty-one per cent of women who were pregnant when interviewed in CDGP communities reported utilising ANC services, compared with 36% of pregnant women in non-CDGP communities. Children born in CDGP communities were 11 percentage points more likely to have been delivered at health facilities compared with children in non-CDGP communities. This is similar to the findings at midline, indicating a continuation of these positive impacts over time. Nevertheless, only one in every four children who were born after the CDGP midline survey were delivered at a health facility. This may be due to limited availability of skilled staff at health facilities in the evaluation communities; delivery of children was only possible in around 60% of facilities in evaluation areas. The qualitative study also found that the costs of accessing health facilities (for example, cost of transport) were a key influence on attendance.

#### Knowledge of healthy breastfeeding and IYCF practices

Findings reveal improvements in beliefs and attitudes regarding a range of health issues, including early initiation of breastfeeding, exclusive breastfeeding, the benefits of colostrum, and the fact that it is not advisable to give water to a baby under six months of age. These improvements were observed for both men and women at midline and endline, indicating a positive persistent shift across all household members. Findings also show improvements in breastfeeding practices (immediate, exclusive and appropriate breastfeeding) and improved dietary diversity for children aged 6-23 months (53%

of this age group had foods from the recommended number of food groups in CDGP areas compared to 37% in non-CDGP areas).

The qualitative research revealed enablers and barriers to exclusive breastfeeding. Uptake of exclusive breastfeeding was enabled by seeing other women and members of the community adopting this practice, especially since it went against tradition. This snowball effect was felt by non-beneficiaries of the CDGP, as well as those directly involved in the SBCC activities. Engagement of husbands in SBCC channels was also found to be an important factor in the uptake of messages, according to beneficiaries and local key informants. The role of the CDGP's community volunteers in providing continuous support, answering questions and showing women the best ways to breastfeed (not only "telling us what to do") was also found to be a deciding factor for many. Barriers to the adoption of exclusive breastfeeding in CDGP communities included traditional beliefs (such as the view that the first milk, or colostrum, is harmful), the religious practice of giving rubutu (prayer water) to the baby after birth, and the opposition of other influential people, especially older women. To overcome this, traditional birth attendants, female preachers and male religious leaders were urged to encourage women to practice health-

seeking behaviours and to help counsel women on IYCF practices in their communities. Overall, many respondents in all research communities reported having adopted the new breastfeeding practices themselves, supporting their wives to do so, or that they would advise other women to do so, because they believed it was better for the baby's health and nutrition.

#### Maternal and child nutritional status and health

The ultimate goal of the CDGP was to improve maternal and child health and nutrition. Findings show that the CDGP led to investments in child health, corresponding to the broad set of SBCC messages delivered. Considering the sample of 'midline' children first (which includes children who would have been directly exposed to the CDGP), at endline we find a continuation of many of the impacts first observed at midline. So, for children born after the baseline and before the midline, impacts were seen on the uptake of vaccinations (76% of children received the measles vaccination in CDGP areas versus 64% in non-CDGP areas); reduction in the incidence of diarrhoea (22% in CDGP communities versus 32% in non-CDGP communities) and reduction in the proportion of children who had recently suffered an illness or injury (61% in CDGP areas versus 73% in non-CDGP areas);

**Table 1** IYCF practices for endline children (born after the midline, before the endline)

|   | Endline |               |                  |
|---|---------|---------------|------------------|
|   | N       | Non-CDGP (SD) | CDGP effect (SE) |
| <b>Child ever breastfed</b><br>Proportion of children born in the last 24 months who were ever breastfed  | 1,885   | 99.8          | -0.06 (0,02)     |
| <b>Age-appropriate breastfeeding</b><br>Proportion of children 0-23 months of age who were appropriately breastfed  | 1,883   | 68.5          | 6.15** (2,53)    |
| <b>Early initiation of breastfeeding (immediately)</b><br>Proportion of children born in the last 24 months who were put to the breast within one hour of birth | 1,881   | 67.2          | 20.20*** (2,70)  |
| <b>Early initiation of breastfeeding (24 hours)</b><br>Proportion of children born in the last 24 months who were put to the breast within 24 hours of birth    | 1,881   | 87.1          | 9.64*** (1,78)   |
| <b>Exclusive breastfeeding among children under 6 months</b><br>Proportion of infants 0-5 months of age who were fed exclusively with breast milk               | 335     | 47.3          | 29.57*** (6,31)  |
| <b>Predominant breastfeeding among children under 6 months</b><br>Proportion of infants 0-5 months of age who were predominantly breastfed                      | 336     | 90.9          | 2.45 (3,21)      |
| <b>Continued breastfeeding at one year (12-15 months)</b><br>Proportion of children 12-15 months of age who were fed breast milk                                | 500     | 97.8          | 1.29 (1,19)      |
| <b>Continued breastfeeding at two years (20-23 months)</b><br>Proportion of children 20-23 months of age who were fed breast milk                               | 232     | 35.7          | -7.59 (6,65)     |

Source: CDGP baseline, midline and endline survey data. SD = standard deviation. SE = standard error.

Notes:

1. The sample is women who were pregnant at the time of the baseline survey in 2014. We interviewed them and their husbands and also asked questions about their children. We interviewed the same people at midline and endline.
2. Mean = unweighted estimate of the mean in the control group. SD is reported for continuous indicators only.
3. Effect = the adjusted difference in means between CDGP and non-CDGP communities.
4. ML-EL diff. = p-value of the difference between the effect at midline and at endline.
5. Means, effects and differences are measured in percentage points for binary and categorical indicators. For continuous indicators, they are measured in the relevant unit of measurement.
6. Both the 'effect' and the 'ML-EL diff.' are estimated by OLS regression with LGA and tranche fixed effects, adjusted for baseline characteristics of the household and of the woman. In addition, we control for child age and gender. SEs are clustered at the village level. Significance levels: \* (10%), \*\* (5%), \*\*\* (1%).

and the proportion of children given deworming medication in the last six months prior to the endline survey (49% in CDGP communities and 37% in non-CDGP communities). Similar impacts also arise for the 'endline child' (children born after the baseline, before the midline) demonstrating that the programme had a sustained effect in increasing the uptake of immunisations and other positive health outcomes. This shows that investments in health were sustained for the younger siblings of children initially exposed to the programme, even once the transfers ended. This points to a sustained programme effect.

The impact of the CDGP on reducing the incidence of diarrhoea is consistent with other findings, including improvements in households having access to an improved water source and increases in the uptake of exclusive breastfeeding among children aged under six months. A link between exclusive breastfeeding and diarrhoea was also noticed by respondents in the qualitative midline and endline studies, who reported observing fewer episodes of diarrhoea in their children after introducing exclusive breastfeeding.

General improvements in hygiene practices around the home may also be part of the explanation. The qualitative results show increased adoption of a number of positive practices, including hand-washing, covering food, keeping utensils clean and draining stagnant water around the house, and respondents (qualitative endline) reported these are low-cost, sustainable behaviours. This may help explain why the quantitative results show reduced diarrhoea for the 'endline' child, for whom households in CDGP communities are mostly no longer receiving transfers. Regarding the impact of the CDGP on children's nutritional status, measured by anthropometric indicators, at midline the quantitative results showed a positive impact of the CDGP on child height-for-age. Figure 3 reports impacts on these indicators at endline for the sample 'midline' children, who are aged between 21 and 49 months at the time of the endline survey. The CDGP has also successfully achieved a positive impact on reducing the prevalence of stunting among this sample of children (figure 3).

There was no impact on wasting (weight-for-height) or the proportion of children who are

underweight (low weight-for-age). This is in contrast to the results of the midline evaluation, where a small increase was found in wasting associated with the CDGP. It is possible that early improvements in nutrition may have contributed to an increase in a child's height, but were not sufficient to overcome continued lack of access to adequate nutrition, even in CDGP communities. This may then have prevented children's weight gains from keeping up with their height gains.

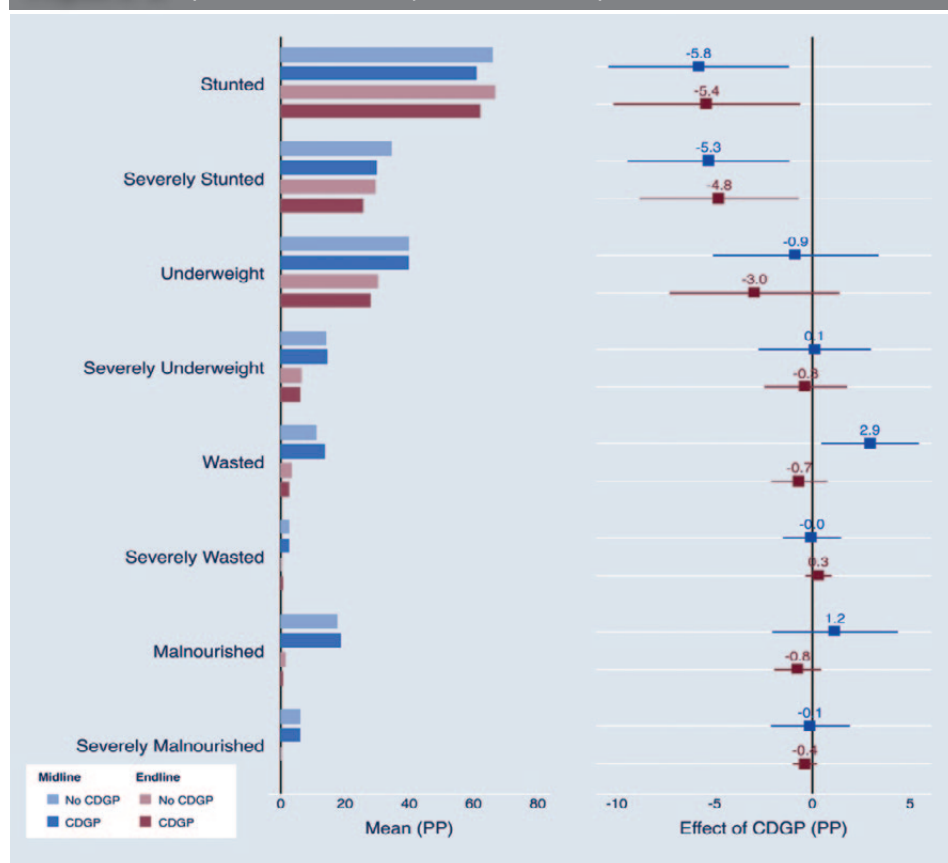
The sample of 'endline' children (born after the midline and before the endline), aged between 0 and 30 months during the endline survey, primarily consists of indirect-beneficiary children; i.e., younger siblings of those children directly exposed to the intervention. The CDGP was not explicitly designed to have a continued impact on the nutritional status of successive children born into the household after the transfers had ended. There were no impacts in anthropometric outcomes for this sub-sample in stunting, wasting or underweight measures. The findings indicate that direct exposure to CDGP transfers may be required to achieve improvements in anthropometric measurements. This is not altogether surprising, since the outcomes of younger siblings are not directly included in the CDGP theory of change. It is nonetheless interesting that the considerable improvements in IYCF practices and positive health behaviours that we saw for this sample of younger siblings do not translate into improved anthropometrics.

On the whole, there was little evidence of any effect of the CDGP on women's nutritional status, as measured by height, weight, body mass index and mid-upper arm circumference. An impact was not expected, given that the core impact objectives focused on the health and nutrition of children.

### Conclusion

Findings of the evaluation demonstrate that a cash transfer targeted to the 1,000-days window alongside SBCC in the context of the CDGP programme in Nigeria had important positive impacts on health and nutrition practices, some of which had lasting impact beyond the duration of the project and on younger siblings. The project was associated with a reduction in stunting prevalence; however, there was no observed impact on underweight or wasting. Sustained improvements in feeding practices, dietary diversity and child illness should facilitate more healthy children, yet this was not captured in anthropometric measures. This needs closer examination. It could be that raising the amount of cash transfer beyond 10% of monthly income (towards the generally accepted level of transfer of between 15% and 30%) leads to increased impact on nutrition outcomes, as well as changing how transfers are delivered, for example transferring less money more frequently. A broader set of complementary interventions, including longer programme duration, systems strengthening and water, sanitation and hygiene (WASH) interventions, may also be necessary to effect anthropometric change. The programme is currently being transferred to government ownership for continuation and scale-up.

**Figure 3** Effect of the CDGP on stunted, wasted and underweight for midline children (born after the baseline, before the midline)



Source: CDGP baseline, midline and endline survey data.  
 Notes:  
 1. The sample is women who were pregnant at the time of the baseline survey in 2014. The same people were interviewed at midline and endline.  
 2. The left panel shows unweighted estimates of mean levels in non-CDGP and CDGP communities, by wave. The right panel shows the effect of the CDGP, where the number and square are the point estimates and the line is the 95% confidence interval. The effect is estimated by OLS regression with LGA and tranche fixed effects, adjusted for baseline characteristics of the household and of the woman. In addition, we control for child gender. SEs are clustered at the village level. The effect of the CDGP is statistically significant at the 5% level if the confidence interval does not overlap with the vertical line. The line indicates zero effect.  
 3. Means, effects and differences are measured in percentage points (PP) for binary and categorical indicators. For continuous indicators, they are measured in the relevant unit of measurement.  
 4. All Z-scores are computed using 2006 WHO growth charts and cleaned by the standards described therein (WHO, 2006).



### Editorial team

Jeremy Shoham Anne Bush  
 Marie McGrath Gwénola Desplats  
 Chloe Angood

### Office Support

Judith Fitzgerald  
 Laura Delfino  
 Ella Nicholson

### Design

Orna O'Reilly/Big Cheese Design.com

### Website

Oxford Web Applications

### Contributors for this issue:

Abigail Naliaka Nyukuri  
 Alexandra Rutishauser-Perera  
 Alice Burrell  
 Assaye Bulti  
 Beatrice Lorge Rogers  
 Bishow Raman Neupane  
 Caroline Abla  
 Caroline Antoine  
 Céline Sinitzky Billard  
 Charles Umar  
 Cora Mezger  
 D Taylor Hendrixson  
 Daniel Abbott  
 Devika Suri  
 Donna Wegner  
 Gladys Esther Ahuwan  
 Gloria Olisenekwu  
 Haimanot Abebe  
 Harendra Bahadur Chand  
 Hatty Barthorp  
 Kristine Caiafa  
 Lioul Berhanu  
 Maria Wrabel  
 Mark Manary  
 Meghan Callaghan  
 Mueni Mutunga  
 Patrick Webb  
 Pooja Pandey Rana  
 Pramila Shrestha  
 Rebecca Roediger  
 Sabi'u Suleiman Shehu  
 Satya Narayan Acharya  
 Shelley Walton  
 Shraddha Manandhar  
 Simeon Nanama  
 Sri Sukotjo  
 Stefano Fedele  
 Stella Esedunme  
 Steve Collins  
 Veronica Tuffrey  
 Wossen Assefa Negash  
 Ye Shen  
 Yvette Fautsch Macías

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### Front cover

Settlement in Cox's Bazar, Bangladesh, 2017; WFP/Saikat Mojumder

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## About ENN

ENN is a UK registered charity, international in reach, focused on supporting populations at high risk of malnutrition. ENN aims to enhance the effectiveness of nutrition policy and programming by improving knowledge, stimulating learning, building evidence, and providing support and encouragement to practitioners and decision-makers involved in nutrition and related interventions.

ENN is both a core team of experienced and academically able nutritionists and a wider network of nutrition practitioners, academics and decision-makers who share their knowledge and experience and use ENN's products to inform policies, guidance and programmes in the contexts where they work.

ENN implements activities according to three major workstreams:

**Workstream 1: Experience sharing, knowledge management and learning.** This includes ENN's core products: Nutrition Exchange and en-net, as well as embedded knowledge management within two key global nutrition fora (the Scaling Up Nutrition Movement (SUN) and the Global Nutrition Cluster (GNC)).

**Workstream 2: Information and evidence on under-researched nutrition issues.** This comprises ENN's research and review work on filling gaps in the evidence base for improved nutrition policy and programming.

**Workstream 3: Discussion, cooperation and agreement.** This includes a range of activities for discussing and building agreement and consensus on key nutrition issues. It includes ENN's participation in and hosting of meetings, its activities as facilitator of the IFE Core Group and its participation in the development of training materials and guidance, including normative guidance.

ENNs activities are governed by a five year strategy (2016-2020), visit [www.ennonline.net](http://www.ennonline.net)

## The Team



Jeremy Shoham and Marie McGrath  
 Field Exchange Co-Editors and Technical Directors



Carmel Dolan, Emily Mates, Tanya Khara  
 and Technical Directors



Rebecca Lewin  
 Operations and Finance Director



Chloe Angood  
 Field Exchange  
 sub-editor



Natalie Sessions  
 ENN's Global  
 Knowledge  
 Management  
 Coordinator  
 (SUN Movement)



Charulatha Banerjee  
 ENN's Regional  
 Knowledge  
 Management  
 Specialist for Asia,  
 based in India



Tamsin Walters  
 en-net Moderator



Jon Mayo  
 Finance Manager



Clara Ramsay  
 the ENN's  
 Finance  
 Assistant, based  
 in Oxford



Judith Fitzgerald  
 ENN Office  
 Manager based  
 in Oxford



Laura Delfino  
 Administrative  
 Assistant



Charlotte Barton  
 SUN KM  
 Administrative  
 Assistant



Samantha Owen  
 Project Manager



Joanne Parsons  
 Project Manager



Judith Hodge  
 Nutrition  
 Exchange  
 Co-editor



Jonah Klein  
 Digital Content  
 Producer



Ella Nicholson  
 Project Officer



Orna O'Reilly  
 design and  
 production of  
 ENN's  
 publications

## supported by:



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**ENN**

2nd Floor, Marlborough House, 69 High Street,  
Kidlington, Oxfordshire, OX5 2DN

Tel: +44 (0)1 865 372340

Mobile: +44 (0)7737 996822

Email: [office@enonline.net](mailto:office@enonline.net)

[www.enonline.net](http://www.enonline.net)

