

# Field Exchange

Emergency Nutrition Network



- **MUAC v weight for height debate in Philippines**
- **Food by prescription in Zambia**
- **Access to global RUTF supplies**
- **Managing MAM in Guinea**
- **Blanket SFP efficiency in Sudan**
- **Special focus on coverage assessment**
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# From the Editor

This issue of Field Exchange gives extended coverage to a briefing paper just released by Oxfam and SC UK on the 2011 response to the Horn of Africa crisis. This paper argues that the response was late and led to the unnecessary deaths of between 50,000 to 100,000 people, at least half of whom were children under 5 years. According to the authors, there was sufficient early warning to trigger a response as early as November 2010 but the main response only unravelled in July 2011, following declaration of famine and concerted media coverage. The paper identifies the usual litany of reasons for this failure of response, i.e. only responding when media attention is overwhelming, politically influenced decision-making, time-lags between early warning and appeals, making appeals on the basis of capacity to deliver and access rather than need, inability to act on risk and forecasts and the divide between development and emergency programming and funding. These reasons are familiar to most of us and were largely applied to analyses of previous failures of response going back as far as the Sahelian famine of 1984. However there is a coherence and clarity in this paper, particularly in the way it trains its focus on the need for future response to be based more upon risk reduction and the institutional structural change needed to support such an approach.

The ENN fully supports the recommendations in this briefing paper and believes that this important document can provide a powerful advocacy tool for change. Some of the issues around the emergency/development divide raise uncomfortable questions for the ENN itself, which we will reflect upon in due course. There is however one important element of the analysis which we feel is not adequately addressed in the report. This relates to the relationship between early warning and donor response and the recommendation for use of earlier triggers and risk analysis. These recommendations are hardly new and have been made repeatedly over the past 25 years. The piece of the jigsaw that is still missing is the lack understanding and transparency about 'how donors make decisions whether to respond'. The failure of donor response over many years in certain high profile emergencies suggests that there are complex political and institutional processes that hinder timely and effective response, including the type of risk taking advocated in the Oxfam/SC UK briefing paper. The nutrition community, perhaps not unsurprisingly, continues to focus on 'technical' solutions, yet until we have a better understanding of the constraints faced by donors and their 'room for manoeuvre' to effect change, our technical solutions will have little impact on response. We therefore strongly support any advocacy efforts that encourage donors to systematically analyse their decision-making processes during emerging crises and to make such findings publically available.

And now to the rest of this Field Exchange edition. Field articles in this issue of Field Exchange (no 42) can largely be divided into those related to the treatment of severe acute malnutrition (SAM) and those related to treatment and prevention of moderate acute malnutrition (MAM). Three of the SAM related articles describe the experience of conducting different types of coverage surveys for community based management of acute malnutrition (CMAM) programmes and feature in a special section of this issue on coverage assessment. An article by Ernest Guevarra, Saul Guerrero, and Mark Myatt describes the use of the SLEAC method to assess national level coverage of CMAM in Sierra Leone. The advantage of the approach is that relatively small sample sizes are required to make accurate and reliable classifications of coverage and to identify barriers to programme access. Assessments can therefore be completed relatively quickly. The authors conclude that the SLEAC method should be the method of choice when evaluating coverage of CMAM programmes at regional or national level. An article by Jose Luis Alvarez Moran, Brian Mac Domhnaill and Saul Guerrero at Action Contre la Faim (ACF) describes the experience of conducting remote SQUEAC investigations in Mali and Mauritania where certain areas are difficult to reach by external investigators. The approach does require greater reliance on field teams, as well as strengthening or modifying certain SQUEAC processes, e.g. separating the data collection and analysis processes, using new technologies and addressing supervision and motivation issues proactively. A third article on coverage assessment describes the use of the SQUEAC method to undertake a causal analysis of SAM in rural areas of eastern Sudan. The data collected were sufficient to identify risk factors and risk markers (i.e. diarrhoea, fever, early introduction of fluids other than breastmilk) that were associated with SAM. The authors suggest that it is possible to use the SQUEAC toolbox to collect causal data using staff trained as SQUEAC supervisors and trainers, although data analysis may require staff with a stronger background in data-analysis.

Moving on, an article by Bernardette Cichon describes ACF nutrition survey findings in the Philippines, where three consecutive surveys found large discrepancies in the prevalence of SAM using either a weight-for-height cut off below  $-3$  z-scores or a mid upper arm circumference (MUAC) less than 115 mm. The authors conclude that as long as the risk of mortality in children with a weight-for-height of less than  $-3$  z-scores but a MUAC greater than 115mm isn't properly understood, all children classified as malnourished according to both indicators should receive treatment (in this instance, admission to a CMAM programme). The authors recognise that using two indicators complicates programming. Whilst not the case in this example, this may also have significant programme capacity implications. Interestingly, a research summary in this issues research section based on an old data set from Senegal examines the risk of dying of children having either a low MUAC or a low weight-for-height (z score) or a combination of both in the absence of treatment. Analysis found that MUAC has a better ability than weight-for-height (z score) to assess risk of dying. Furthermore, using both indicators together did not improve the identification of high risk children.

Also related to CMAM programming, a field article by Jan Komrska of UNICEF's Supply Division in Copenhagen describes how UNICEF has been keeping pace with the increased demand for Ready to Use Therapeutic Food (RUTF) as CMAM programming has been scaled up rapidly across many countries. The article describes various strategies employed, including increasing the number of global suppliers in Europe, identifying local producers in Africa and Asia, improving forecasting of demand and the pre-positioning of stocks. Staying with SAM management, a research summary of work by Tufts describes the success of a pilot CMAM programme in an Upzila in Bangladesh where community health workers were responsible for and supported in diagnosing and treating SAM children. Programme indicators like recovery and mortality exceeded SPHERE standards and an extraordinary coverage of 89% was recorded.

A further three field articles deal with the prevention and treatment of MAM in different contexts. An article by Naomi Cosgrove and colleagues working for ACF in Myanmar describes how reduced daily rations of RUTF (one sachet instead of two or three used for SAM treatment) were used to treat successfully uncomplicated cases of MAM managed within the CMAM programme. Fuelled by imported supply constraints and a rising caseload, ACF modified the treatment protocol and introduced a second phase of treatment, once the child had improved from a severe to a moderate (i.e. MAM) stage of malnutrition. A key conclusion from the article was that the programme success was partly due to the high quality ration but also the attention given to programme design, including well trained staff and good community mobilisation. Another article written by Dr Jean-Pierre Papart and Dr Abimbola Lagunju of Fondation Tdh covers MAM management and the important role of quality staff in service delivery in Guinea. Community and facility level screening and provision of RUTF (for SAM) coupled with cooking demonstrations, counselling, some food supply (for MAM) and defaulter follow up were undertaken by government staff. Urban community health workers played a key role in service delivery. The authors concluded that government health facilities can deliver good results with the appropriate technical, material and equipment support. On the job training and supervision, feedback on performance and regular higher level supervision of nutrition activities played an important role in service quality. A WFP pilot blanket supplementary feeding programme (BSFP) in Kassala State, Sudan is the subject of a third field article on MAM, written by Pushpa Acharya and Eric Kenefick of WFP. This article details how intensive community engagement and sensitisation were key



Alison Shelley/Concern, Port-au-Prince Haiti, 2010

components of the programme, as were certain key messages derived from a KAP (Knowledge, Attitudes and Practices) survey. All pregnant and lactating women and children under five years of age were targeted with the BSFP, providing approximately 500 kcals/day. The pilot found that 68% of malnourished children enrolled in the programme recovered within four weeks, although the cost of the programme was at least twice as high per child as the targeted SFP implemented by WFP. The authors concluded that when food availability and quality is enhanced through the provision of small quantities of highly fortified food combined with the intensive engagement of the community around harmful feeding practices, the impact of food aid is significantly increased. The size of the programme allowed intensive monitoring by the Ministry of Health and WFP. The challenge lies in taking the pilot to scale.

A final field article written by Catholic Relief Services (CRS) in Zambia considers a Food by Prescription (FBP) programme that targets moderately and severely malnourished HIV positive adults with medicalised doses of nutrition supplements through the home based care programme. Individual sachets of the supplement are distributed to reduce household sharing and strengthen the understanding that the food is a 'medicine'. Data from the pilot programme showed that there was an increase in client Body Mass Index (BMI) between admission and discharge. Among adult clients, the average BMI on admission was 17.6 and the average BMI on discharge was 20.5. The overall average increase in BMI pre-FBP to post-FBP was 2.9. Most clients required three to six months of nutrition rehabilitation to qualify for discharge.

The research section of this issue also covers a wide range of subjects. There are two articles on cash transfer programmes. One is a summary of a study of the national 'Bolsa Familia' programme (BFP) in Brazil, which is the world's largest conditional cash transfer programme. It reaches 5,564 municipalities in the 27 states of Brazil and about 11 million families (25% of the Brazilian population). Once a family enrolls, it must comply with certain health and education conditions to remain in the programme. The study found that children from families exposed to the BFP were 26% more likely to have normal height-for-age than those from non-exposed families; this difference also applied to weight-for-age but not weight-for-height. Another study looks at a cash transfer programme in Niger using mobile phone technology and found that in comparison to physical cash transfer programmes, there was a significantly reduced cost to programme recipients, as well as reduced implementing agency's variable costs associated with distributing cash. There is also a fascinating article on the political economy of crop diversification policies and the policy process at government level in Malawi. The article explains how the processes of discussing, negotiating, approving and implementing policies are as important as the scientific content of the policies themselves. The experience with crop diversification shows that dominant stakeholders almost always have their way and that in Malawi,

implementation of crop diversification has been constrained by a dominant narrative that equates food security with maize production.

Other research of note in this issue include a psychological study to understand how humanitarian workers remain effective in challenging environments, a study to assess the effect of performance based payment of health care providers on the use and quality of child and maternal care service in healthcare facilities in Rwanda and a position paper to guide country-level health clusters on how to apply IASC (Inter-Agency Standing Committee) civil military coordination principles to humanitarian health operations given the "shrinking of humanitarian space" in many complex crises.

Our opening 2012 issue is a reminder of the ongoing innovations and inevitable compromises that are sometimes necessary in humanitarian programming. You can have the best designed intervention, but national and sub-national capacity to deliver on the ground and supply chain difficulties can make or break a quality programme. The articles featured also reflect some of the 'grey' areas in the emergency nutrition sector. For example, whilst SAM management has rapidly developed and improved through CMAM programming over the past 10 years, there is a limited evidence base for optimal programming for the prevention and management of MAM. The jury is still out on how best to deal with high and fluctuating levels of MAM and field practice remains a bit of a 'free for all'. A news piece by ACF, laying out the agency's position on the role of products in the treatment and prevention of global acute malnutrition, sets out certain boundaries whilst highlighting some of the more contentious areas. Our prediction is that the role of products in the prevention and treatment of MAM will be one of the big issues in the coming year. And we hope the SCUK/Oxfam paper has just generated another - the 2011 Horn of Africa crisis highlights once again a clear failure of response at the highest level of the international aid community. Is it not incumbent upon donor governments to analyse why that occurred and to work with the rest of us to address the reasons for this failure as urgently as possible?

We hope you enjoy this diverse issue of Field Exchange and wish all our readers a healthy, happy and productive 2012.

Jeremy Shoham, Editor  
Marie McGrath, Sub-editor

**We would like to dedicate this issue of Field Exchange to Kari Noel Egge and Mr Abdikarim Hashi Kadiye, whose untimely and premature deaths saddened the whole humanitarian community. We have included short tributes to both of them in a new Field Exchange obituary section for humanitarian workers, which we sincerely hope remains unused in subsequent issues.**

<sup>1</sup> Simplified LQAS (Lot Quality Assurance Sampling) Evaluation of Access and Coverage

<sup>2</sup> Semi-quantitative Evaluation of Access and Coverage

MUAC measurement of a child in the Municipality of Arakan

B. Cichon, Philippines, 2010

# MUAC versus weight-for-height debate in the Philippines

By Bernardette Cichon

Field Article



Bernardette is a Public Health Nutritionist who at the time of the work described in this article, worked with Action Contre la Faim (ACF). She is currently working with Médecins sans Frontières.

The author would like to thank ACF Spain, in particular Elisa Dominguez (Senior Nutrition Advisor) and Amador Gomez (Technical Advisor), as well as the ACF Philippines technical team in the mission and all the surveyors involved in data collection.

In the 39th issue of Field Exchange, an article was published by Jennifer Carter and Joel Conkle<sup>1</sup> that discussed the differences in prevalence of acute malnutrition in Cambodia determined using either weight-for-height or mid upper arm circumference (MUAC) measurements. In this article, we share similar observations from the Philippines that challenge the implementation of a community-based surveillance system for early detection and referral of acutely malnourished children to therapeutic feeding programmes. The article

discusses possible causes of the differences between MUAC and weight-for-height and calls for more research into this topic.

MUAC measurements have been used worldwide for identification, referral and admission of severely malnourished children aged 6-59 months to nutrition programmes. It is a good indicator of both muscle mass and mortality risk. MUAC measurements enable community volunteers with minimal training to carry out emergency needs assessments and active case finding. It is a quick, easy and cheap alternative to weight-for-

height measurements and has recently been endorsed by the World Health Organisation (WHO).<sup>2,3</sup>

However, in some populations, large differences have been observed between prevalence of acute malnutrition measured by weight-for-height versus MUAC. In line with this, three surveys carried out by Action Contre la Faim (ACF) in the Philippines found a big discrepancy between the two. This raises a number of questions, such as what causes such a big difference between MUAC and weight-for-height based prevalences in some populations and not in others, what are the programmatic implications, and which is the better indicator for measuring acute malnutrition in the Philippines?

Figure 1: Prevalence of SAM according to weight-for-height and MUAC

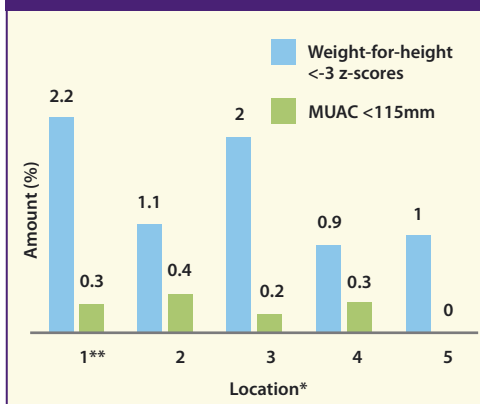
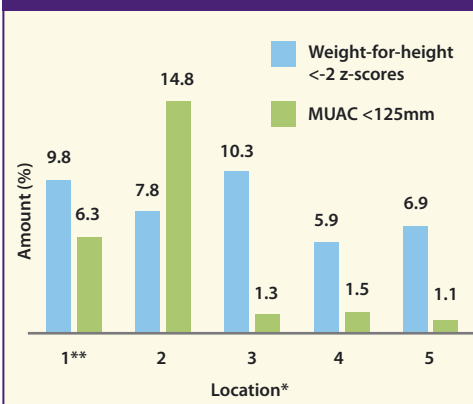


Figure 2: Prevalence of GAM according to weight-for-height and MUAC



\*Location: 1= Joint emergency nutrition and food security assessment of the conflict-affected persons in Central Mindanao (UNICEF/WFP, January- March 2009), 2= Follow-up emergency nutrition assessment in the conflict affected communities in Central Mindanao (Save the Children, March/April 2010), 3=Anthropometric and mortality survey in the municipality of President Roxas, Central Mindanao (ACF, October/November 2010), 4= Anthropometric and mortality survey in the municipality of Arakan, Central Mindanao (ACF, November 2010) , 5= Anthropometric and mortality survey in the municipality of Kapatagan, Central Mindanao (ACF, November/December 2010).

\*\* The MUAC cut-off used for SAM in the UNICEF/WFP survey was 110mm not 115mm.

<sup>1</sup> Jennifer Carter and Joel Conkle (2010). CMAM in Cambodia – indicators of acute malnutrition for screening. Field Exchange, Issue No 39, September 2010. p47. <http://fex.enonline.net/39/cmam.aspx>

<sup>2</sup> UN Standing Committee on Nutrition. Task Force on Assessment, Monitoring and Evaluation. Fact Sheets on Food and Nutrition Security Indicators/Measures: Mid-Upper Arm Circumference (MUAC).

<sup>3</sup> Myatt M., Khara T. and S. Collins. A review of methods to detect severely malnourished children in the community for their admission into community based therapeutic care programmes. 2005.

not adequate for detecting undernutrition in Filipino children<sup>4</sup>. Even though standards and cut-offs used then differ from those used today, five surveys carried out in the southern Philippine island of Mindanao between January 2009 and December 2010 have found similar results. Prevalence of severe acute malnutrition (SAM) was much lower according to MUAC than weight-for-height in all five surveys (see Figure 1) and global acute malnutrition (GAM) in four out of five surveys (see Figure 2).

Not only did the percentage of acute malnutrition differ between the two indicators, but the children selected were not always the same. While a large proportion of children identified as acutely malnourished according to MUAC were also classified as malnourished according to weight-for-height, only a small proportion of children classified as malnourished according to weight-for-height were also classified as malnourished according to MUAC (see Table 1).

### Programmatic implications and dilemmas

The three surveys carried out by ACF between October and December 2010 were baseline surveys for a new four year integrated food security, nutrition, water and sanitation programme funded by the Spanish Cooperation (AECID). One of the activities of this programme was to enable local health services to provide SAM treatment for those who need it. Active case finding was planned as a priority activity to be carried out by community

nutrition workers in the villages using MUAC. However, the large difference between MUAC and weight-for-height means that this approach has to be reviewed. If MUAC is used for active case finding, only a small proportion of children classified as malnourished according to weight-for-height would be identified and referred to the programme (see Table 1).

In addition, the caseload would be so low that it is difficult to justify an intervention. In the municipality of President Roxas, for example, survey results showed 10% GAM and 2% SAM according to weight-for-height, a prevalence high enough (in alert levels) to justify the need for community based management of acute malnutrition (CMAM). Prevalence according to MUAC, however, was much lower (see Figures 1 and 2: 1.3% GAM and 0.2% SAM prevalence, respectively). If MUAC turned out to be a better indicator of malnutrition in this population, the type of intervention needed would differ. The decision to intervene was based on prevalence according to weight-for-height, but is this correct? It seems that before we can answer this question, more research is needed to understand the weight-for-height/MUAC relationship and to determine which indicator is more appropriate in the Philippine context.

### Why is there such a big discrepancy between MUAC and weight-for-height?

A study carried out by Myatt et al in 2007 that included data from 560 surveys from 31 countries showed that while a similar prevalence of acute malnutrition (GAM and SAM) according to MUAC and weight-for-height was found for the whole data set, there were differences in the MUAC/weight-for-height relationship between and even within countries<sup>5</sup>. While in some populations the prevalence of acute malnutrition was the same according to both indicators, in others MUAC led to a higher prevalence than weight-for height or vice versa. Similar to the results from the Philippine surveys above, prevalence of acute malnutrition according to MUAC was found to be lower in parts of Ethiopia and Kenya, Sudan, Chad, the Indian subcontinent and the Hispanic populations<sup>6</sup>. Equivalent problems have also been observed in Cambodia in the national survey carried out in 2008<sup>7</sup>. Not only did the prevalence differ according to the two indicators, but the children selected were not always the same<sup>8</sup>.

A number of different factors have been associated with the MUAC/weight-for-height relationship such as body shape, age and mortality (see below). Although it is possible that inaccuracies in the measurements are in part responsible for the large differences found, the fact that five surveys carried out by different organisations found the same problem means that this issue deserves further attention.

The multi-centre growth reference study (WHO 2006) confirmed that ethnicity and environment influence growth of infants and children, but according to the WHO these differences were not "large enough to invalidate the general use of the WHO growth standards population as a standard in all populations"<sup>9</sup>. Contrary to this, studies have shown that body shape does seem to influence weight-for-height in some populations. In Ethiopia, for example, prevalence of acute malnutrition in pastoralist populations as measured by weight-for-height was found to be much higher than according to MUAC: 20% versus 7%. In agrarian populations in the same country, both indicators led to similar estimates. Studies have shown that in these populations, body shape was associated with the MUAC/weight-for-height relationship. Children from pastoralist populations have longer legs and shorter trunks and thus lower sitting to standing height ratio (SSR) than agrarian populations. Whereas weight-for-height was strongly influenced by body shape, the effect on MUAC was very small<sup>10</sup>. It is possible that body shape also plays a role in the Philippines and other Asian populations but no data were found to support this supposition.

It has been shown that children identified as acutely malnourished using MUAC are, on average, younger than those selected by weight-for-height<sup>11</sup>. As a result, it has been shown that the MUAC/weight-for-height relationship is better in children under 24 months and height-adjusted MUAC cut-offs have been suggested<sup>12</sup>. While malnourished children were found in all age and height groups according to weight-for-height in the Philippine surveys, no children with a MUAC of less than 125mm were found in the taller children (see Table 2) and in two of the three surveys no children over 24 months had a MUAC of less than 125mm (see Table 3).

MUAC has been shown to be a better predictor of mortality than weight-for-height<sup>13</sup>. In the Philippine surveys, both mortality rates and prevalence of acute malnutrition according to MUAC were relatively low whereas prevalence according to weight-for-height was much

**Table 1: The relationship between weight-for-height and MUAC in three municipalities in Central Mindanao (October-December, 2010)**

	President Roxas	Arakan	Kapatagan
% of children with a W/H of less than -2 z-scores that have a MUAC of less than 125mm	7.8%	15%	14%
% of children with a W/H of less than -3 z-scores that have a MUAC of less than 115mm	17.6%	0%	0%
% of children with a MUAC of less than 125mm that also have W/H z-score of less than -2	77.6%	60%	89%
% of children with a MUAC of less than 115mm that also have W/H z-score of less than -3	100%	0%	-

**Table 2: Prevalence of acute malnutrition according to weight-for-height and MUAC by height group in three municipalities in Central Mindanao (October-December 2010)**

Municipality	Height groups (cm)	W/H <-2 z-scores	MUAC <125mm	W/H <-3 z-scores	MUAC < 115mm
President Roxas	≥65 and ≥75	16.1	6.4	4.5	1.3
	≥75 and ≥90	9	0.2	1.7	0
	≥90	8.3	0	1.1	0
Arakan	≥65 and ≥75	9.4	6.2	0	1.5
	≥75 and ≥90	5	0.6	0.6	0
	≥90	5	0	3	0
Kapatagan	≥65 and ≥75	13.4	4.8	1.8	0
	≥75 and ≥90	5	0.5	0.8	0.3
	≥90	4.7	0	0.8	0

**Table 3: Prevalence of acute malnutrition according to weight-for-height and MUAC by age group in three municipalities in Central Mindanao (October-December 2010)**

Municipality	Height groups (cm)	W/H <-2 z-scores	MUAC <125mm	W/H <-3 z-scores	MUAC < 115mm
President Roxas	≥ 24 months	12.3	3.2	2.7	0.4
	≥ 24 months	9.3	0	1.6	0
Arakan	≥ 24 months	5.4	5	0	1
	≥ 24 months	5.7	0	1.3	0
Kapatagan	≥ 24 months	11.8	3.3	1.5	0
	≥ 24 months	4.6	0.4	0.7	0.2

<sup>4</sup> Johnson MD, Yamanaka WK, Formation CS. A Comparison of Anthropometric Methods for Assessing Nutritional Status of Preschool Children. The Philippines Study. *Journal of Tropical Pediatrics* 1984;30:96-104.

<sup>5</sup> Myatt M, Duffield Isabella. A review of survey data collected between September 1992 and October 2006. 22nd October 2007.

<sup>6</sup> Myatt and Duffield, 2007. See footnote 5.

<sup>7</sup> Carter J and Conkle J. CMAM in Cambodia-indicators of acute malnutrition for screening. Field Exchange Issue 39, September 2010.

<sup>8</sup> WHO, UNICEF, 2009. WHO child growth standards and the identification of severe acute malnutrition in infant and children. A joint statement by the World Health Organisation and the United Nations Children's Fund.

<sup>9</sup> WHO, UNICEF, 2009. See footnote 8.

<sup>10</sup> Myatt M, Duffield A, Pasteur F. The effect of body shape on weight-for-height and mid-upper arm circumference based case definitions of acute malnutrition in Ethiopian children. *Ann Hum Biol.* 2009 Jan-Feb;36(1):5-20.

<sup>11</sup> See footnotes 5 and 8.

higher. It is possible that morbidity plays a role in this relationship.

Malnutrition can be caused by lack of food and/or infection. While in both cases children lose weight, it is possible that effect on body composition and thus arm circumference differs. In malnourished children, once glycogen stores are used, fat becomes the main fuel for energy production and protein breakdown is reduced. During infection, protein turnover is increased due to an increased need for proteins involved in the body's response to infection. It has been shown that while protein breakdown and synthesis are reduced in malnourished children, it increases if the malnourished children have an underlying infection<sup>14</sup>. Muscle is a good source of protein and MUAC is directly related to arm muscle mass. It is therefore possible the increased protein breakdown in infected malnourished children leads to a lower MUAC than uninfected malnourished children. This might also explain why MUAC is a better predictor of mortality than weight-for-height. Furthermore, it is possible that in locations where infection is generally high, for example due to an unhealthy environment or high prevalence of HIV/AIDS, MUAC leads to higher estimates in malnutrition than in other contexts.

#### MUAC, weight-for-height, or both?

The WHO recommends that where differences between these two indicators exist, both should continue to be used. Some programmes have used a two stage approach where MUAC has been used for referral and weight-for-height for admission to programmes<sup>15</sup>. This has led to the problem of rejected referrals and therefore some organisations are now using both as admission criteria. While such an approach is possible in populations where prevalence of acute malnutrition is higher according to MUAC, in the Philippines this would not be possible. Using MUAC for identification and referral at the community level would mean that, as mentioned above, a very large proportion of children that are malnourished according to weight-for-height would be missed and the caseload would be so low that it would be difficult to justify the need for a programme. On the other hand, using only weight-for-height for active case finding, referral and admission is costly, takes more time and requires much better trained staff. One possibility might be to increase the MUAC cut-offs to a value that corresponds better to weight-for-height.

However, Myatt warns us not to automatically accept weight-for-height as the gold standard because it can overestimate the prevalence of malnutrition in some populations, as shown in pastoralist populations in Ethiopia (see above). So the question that we face in the Philippines is not how best to find children with a low weight-for-height in the community but what is the better descriptor of nutritional status.

We must remember that both MUAC and weight-for-height are anthropometric measurements and are not direct indicators of nutritional status. Weight-for-height compares weight to height and while it is very likely that a child with a weight-for-height of less than -3 z-scores is malnourished in some form or another, a child with a z-score of greater than -2 is not necessarily well nourished. Weight-for-

height cannot tell us anything about nutrient stores and body composition, the latter of which does influence weight. Muscle, for example, weighs more than fat. Body Mass Index (BMI), another anthropometric indicator that compares weight to height, has been known to classify healthy athletes with a low percentage of body fat as obese. Contrary to weight-for-height, MUAC is directly related to muscle mass<sup>16</sup> and therefore gives us some idea about body composition. In addition it is a better predictor of mortality than weight-for-height and is independent of body shape. Admitting children based on MUAC might therefore focus limited resources to those most at risk of death. However, it is well known that with the 2006 WHO standards, children are selected earlier which increases case load but improves chances of survival. Another question that therefore needs to be answered is whether in the Philippines (where many more children are classified as severely malnourished according to weight-for-height than MUAC) waiting until children have a MUAC of less than 115mm would reduce their chances of survival.

#### Conclusions

In the immediate term, as long as we do not fully understand the risk of mortality in children with a weight-for-height of less than -3 z-scores but a MUAC greater than 115mm, all children classified as malnourished according to both indicators should receive treatment in the Philippines. The easiest option to find as many malnourished children in the community as possible would be to increase the MUAC cut-off used for referral. This cut-off would need to be carefully chosen to avoid the problem of rejected referrals. Alternatively, weight and height measurements could be used in addition

to MUAC, which would ensure that children classified as malnourished according to both indicators would be found. Since it will not be possible for community volunteers to carry heavy height boards, measuring tapes or height sticks have been suggested as alternatives. The problem is, of course, that height measurements would not be as accurate as with the height boards, active case finding would be more time consuming and it is unclear how many of the barangay nutrition scholars (community volunteers) are able to read weight-for-height tables.

Before a more conclusive recommendation can be made in the Philippines, the weight-for-height/MUAC relationship in this population needs to be better understood. This will require research into the influence of body shape and morbidity on the weight-for-height/MUAC relationship. The appropriateness of the use of WHO standards in this population should be investigated, as well as the risk of death in children with a weight-for-height of less than -3 z-scores but a MUAC of greater than 115mm. If WHO standards turn out to be appropriate and weight-for-height a better indicator than MUAC, MUAC cut-offs need to be revised for this population.

For more information, contact Bernardette Cichon, email: cichon\_b@yahoo.com or Elisa Dominguez, email: edominguez@achesp.org

<sup>12</sup> Van Herp M, Leurquin B, Verwulgen A, Delchevalerie P. Can height-adjusted cut-offs improve MUAC's utility as an assessment tool? Field Exchange Issue 30, April 2007.

<sup>13</sup> Myatt et al, 2005. See footnote 3.

<sup>14</sup> J.C. Waterlow. Metabolic changes In: Protein Energy Malnutrition. Smith-Gordon and Company Ltd. 2006.

<sup>15</sup> Myatt et al, 2005. See footnote 3.

<sup>16</sup> Myatt and Duffield, 2007. See footnote 5.



Length measurement of a child in the Municipality of Arakan, Mindanao

B Cichon, Philippines, 2010

# Qualitative review of an alternative treatment of SAM in Myanmar

By Naomi Cosgrove, Jane Earland, Philip James, Aurélie Rozet, Mathias Grossiord and Cecile Salpeteur



Children attending a stabilisation centre

Naomi Cosgrove has over 13 years of experience in the food industry. In addition to experience in the humanitarian sector, including a local Mental Health & Development NGO in Sri Lanka and as a Food Security, Livelihood & Hygiene Advisor in Northern Argentina. This research project was completed as part of her Masters in Human Nutrition.

Jane Earland is a registered Dietitian and Public Health Nutritionist and works in nutrition and research at the Universities of Liverpool and Sheffield. Her background includes nutrition education and training in Papua New Guinea for 11 years, Field Director for Save the Children and short term work in Indonesia, Malaysia and Papua New Guinea.

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Phil James was a Masters student with LSHTM in 2010 analysing the performances of the alternative treatment of SAM in Myanmar and is now Emergency Nutrition Coordinator for ACF UK. He is preparing a scientific article with ACF on this MSc thesis.

Cecile Salpeteur is a public health nutritionist and is ACF HQ Operational Nutrition Research Facilitator and HIV focal point. She has six years ACF field experience in implementing a wide range of nutrition and food security programmes.

In 2009, Action Contre la Faim (ACF) treated an estimated 18,000 children under five years for severe acute malnutrition (SAM) in Maungdaw and Buthidaung Townships and Sittwe, Rakhine state, western Myanmar. This followed a change of protocol in January 2009 where the identification of malnourished children was switched from being based on National Centre for Health Statistics (NCHS) standards to the 2006 WHO International Child Growth Standards (ICGS)<sup>1,2</sup>. As a result of this change, the number of children falling into the category of severe malnutrition increased dramatically (a multiplication factor of 5.6) so that there was an increased amount of product required to treat these children. In addition, in April 2009, there were complications with the import of the ready to use therapeutic food (RUTF) (Plumpy'Nut®). This meant that there was insufficient stock to cover the case load of SAM affected children until the end of the year and ACF had to identify a solution to the problem<sup>3</sup>.

## Modified treatment protocol

ACF decided to modify the treatment protocol and introduced a second phase of treatment, once the child had improved from a severe to a moderate (MAM) stage of malnutrition (see Figure 1 for existing and modified treatment protocols). Eligible children for this 'Alternative Treatment' were uncomplicated MAM cases, without oedema, above six months of age and with increasing weight. The intake of RUTF for this second phase was reduced from two or three sachets per child per day (depending on body weight as defined in the usual protocol) to only one sachet and hence a reduction in kilocalories. This reduction ranged from 116% (< one year old) to 62% (> four years old) of the child's daily energy needs, based on an average requirement of an adequately nourished child within that age category<sup>4</sup>. As a result, ACF staff advised caregivers to make up the energy requirements of the child with food available at home<sup>5</sup>.

This Alternative Treatment was implemented from July 2009 to January 2010 and the data were collected, analysed and compared to the same period the year before. Despite the reduced ration using the Alternative Treatment, the performance of the programme was found to be as good and

in some instances, better than when the Standard Protocol was used in 2008. However there were limitations to comparing these two data periods, mainly due to the different standards being used (NCHS in 2008 versus WHO in 2009). Nevertheless, results of the Alternative Treatment greatly exceeded the international Sphere Standards.

Paediatricians and scientists who developed the normal treatment protocol for SAM were aware that that the quantity of RUTF sachets given to children was rounded up to the higher figure and maintained throughout the treatment until complete recovery, in order to simplify implementation by health personnel. However, the nutritional needs of the child for catch up growth are expected to decrease as his/her nutritional status improves. Thus the quantities administered in the latter stages of treatment are not fully justified from a nutritional perspective<sup>6</sup>.

## Rationale for proposed study

As the key drivers behind this successful programme outcome were not fully understood, ACF wanted to carry out further study.

## Aims & objectives

The overall aim of this study was to identify the factors that contributed to the success of the Alternative Treatment.

The objectives were:

1. To identify all factors associated with success of the intervention, as well as areas for improvement in the Myanmar programme using the Alternative Treatment.
2. To develop a feasibility grid system for identifying another country with these optimum conditions for further testing of the Alternative Treatment.

## Methods

See Figure 2 for a summary of the eight stage study design used in this research project and described in more detail here.

1. A literature review was conducted to identify new innovative tools and methods for qualitatively evaluating programmes and the factors that may influence the success of feeding programmes. This was used to inform the development of the interview guide and analysis<sup>7</sup>.

2. ACF documents and reviews were collected and reviewed that included capital-

Figure 1: Summary of the admission and discharge criteria for the Outpatient Therapeutic Programme and the two phased treatment for the Alternative Treatment

Admission criteria in Therapeutic Nutrition Programmes in 2009	
Age 0-59 months and WHZ <-3 (WHO) and/or MUAC <110 mm with a length of >65 cm and/or oedema grade 1 or 2 and no medical complications and appetite	
Willing caregiver	
Treatment phase 1 (usual protocol):	
RUTF given according to body weight Systematic medical treatment Health education given to caregiver	
Treatment phase 2: Alternative protocol:	Treatment Phase 2: Usual protocol:
If MUAC > 110 mm and WHZ ≥ -3 + 200g (<65cm) or +300g (>65cm) and no medical complications, no oedema and appetite	If oedema grade 1 & 2, if age <6 months
1 sachet RUTF (92g)/ child/day Treatment phase 2 (usual protocol)	RUTF given according to body weight Treatment phase 2 (usual protocol)
Discharge criteria	
15% weight gain after 2 consecutive weighings MUAC > 110mm and WHZ ≥ -2	

<sup>1</sup> NCHS. (2011). National Centre for Health Statistics. Retrieved 28.04.11, 2011

<sup>2</sup> WHO. (2011). World Health Organisation. Retrieved 28.04.11, 2011

<sup>3</sup> ACF (2009). ECHO Report - Integrated Approach to malnutrition through nutrition, health and care practices.

<sup>4</sup> FAO, WHO, UNU Human energy requirements: Report of a Joint FAO/WHO/UNU Expert Consultation. FAO: Rome, 2004

<sup>5</sup> James, P. (2010). Evaluation of an Alternative Protocol for the Treatment of Severe Acute Malnutrition, implemented by ACF Myanmar from July 2009 to January 2010 Masters in Nutrition, London School of Hygiene and Tropical Medicine. Also see Footnote 3.

<sup>6</sup> Golden, M. (2011). RUTF Sell - Prevention and Treatment of Severe Acute Malnutrition Forum Area. <http://www.en-net.org.uk/question/362.aspx> also Footnote 4.

isation reports from the relevant field Programme Managers during 2009 and ACF Country Operational Strategy Reports (2009 and 2011) from ACF HQ Paris. Notes were taken from these documents to inform the questions for the interview guide. This information was also used to validate the data gathered from the interviews at a later stage, i.e. a triangulation approach<sup>8</sup>.

3. Using information gathered from steps one and two, the interview guide with key questions was developed as a tool for conducting the interviews. These questions needed to be open ended to ensure accurate, non-biased answers. Probes and follow up questions were added where necessary, to ensure the question was fully answered. Seven key

areas were identified as areas to explore in the interview. Questions were developed for each and were incorporated into the interview guide. These areas were:

- General introduction and context of Myanmar.
- Opinions and descriptions of the Nutrition Programme
- Management Style
- Training and Capacity Building
- Community Involvement
- Other ACF programmes
- Other international non-governmental organisations (INGOs) working in the area.

valued individuals who had a great deal of field experience. The five key questions which were debated in the workshop were:

- How solid, coherent and consistent is the evidence in support of the findings?
- To what extent and in what ways do the findings increase and deepen understanding of the situation/success of the Alternative Treatment for SAM?
- How do these qualitative factors complement the quantitative outcomes and help to explain the success of the programme?
- To what extent are the findings consistent with other knowledge?
- To what extent are the findings useful for use in other programmes globally?

The initial findings were also sent to two of the interviewees to get reactions and additional comments.

7. A one page success factor matrix was developed and discussed in the workshop. The aim of this matrix was to visually represent the findings and correlate them with the quantitative outcomes.

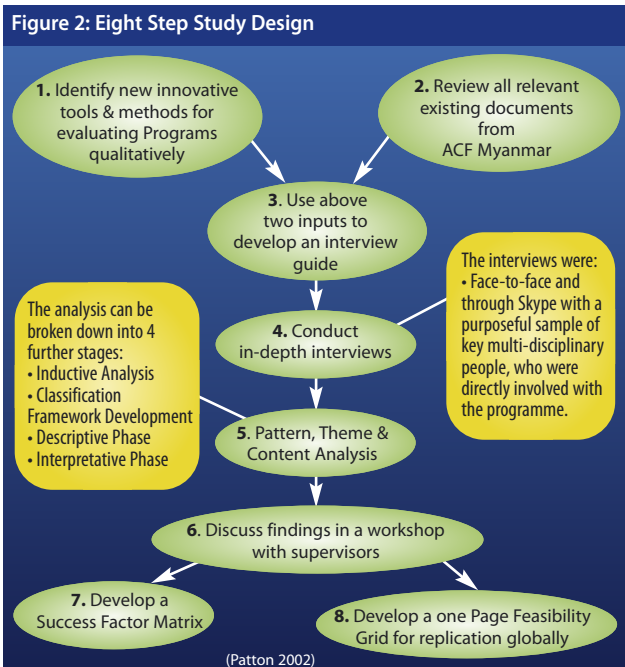
8. A simple, one page feasibility grid was also developed and discussed in the workshop. This involved creating a series

4. In-depth interviews were conducted, lasting up to an hour, with key informants across a range of professional disciplines to obtain an accurate and balanced perspective of the programme, processes and relationships. Where possible, the interviews were held face-to-face - this was not always possible due to logistics and therefore several were done through Skype. Key people interviewed included the Nutrition Advisor in ACF Paris HQ, regional and local Nutrition Managers, the local Human Resources Manager for the programme, the Head of Base (logistics and administration) and local Programme Managers in other ACF programmes.

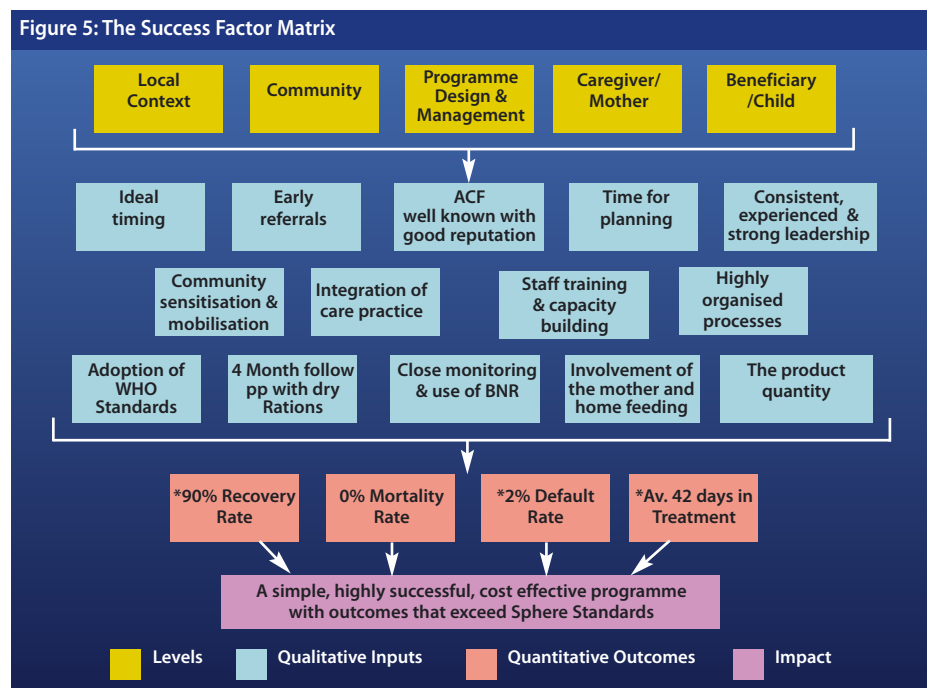
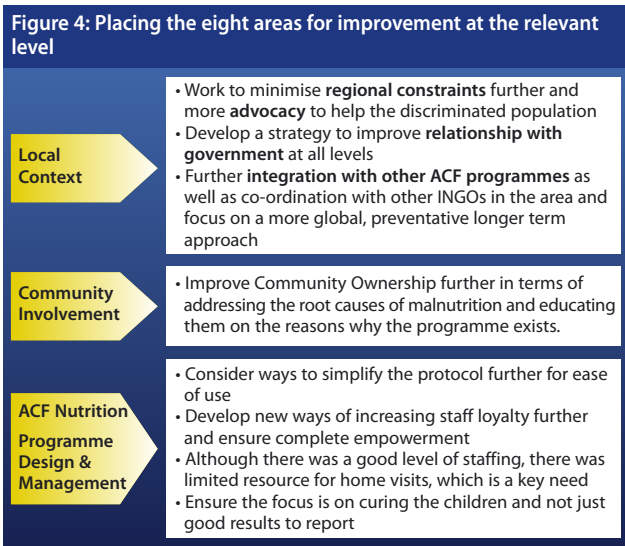
5. A Pattern, Theme and Content Analysis method was used to analyse the data collected. The analysis consisted of identifying core consistencies and meanings from the material and interviews. Patterns and themes were searched for across all information provided (both interview transcripts and notes from the relevant documents) and re-occurring words and texts were identified, including their frequency and the context in which they were used<sup>9</sup>. Data were presented in the form of quotations with sufficient context to ensure that they could be interpreted.

6. The early findings were discussed in a workshop which included two highly

<sup>7</sup> Literature review: Dersham, L. (2011). Design, Monitoring and Evaluation - Save the Children. Retrieved 05.05.11.  
 Draper, A. and J. A. Swift (2011). Qualitative research in nutrition and dietetics: data collection issues. *J Hum Nutr Diet* 24(1): 3-12.  
 Green, J. and N. Thorogood (2009). *Analysing Qualitative Data. Qualitative methods for Health Research.* D. Silverman, SAGE publications Ltd: 195-228.  
 Patton, M. Q. (2002). *Qualitative Research & Evaluation Methods*, Sage Publications Ltd. .  
 Pilnick, A. and J. A. Swift (2011). Qualitative research in nutrition and dietetics: assessing quality. *J Hum Nutr Diet* 24(3): 209-214.  
<sup>8</sup> Green, J. and N. Thorogood (2009). *Analysing Qualitative Data. Qualitative methods for Health Research.* D. Silverman, SAGE publications Ltd: 195-228  
<sup>9</sup> Patton, M. Q. (2002). *Qualitative Research & Evaluation Methods*, Sage Publications Ltd.



BNF: Beneficiary  
 These success factors were then placed at the relevant levels in terms of local context, community involvement, the Nutrition Programme, the mother/caregiver and the BNF/child.



\* Quantitative outcomes were measured from admission to discharge.  
 \* The remaining % of children: 6.71% had an unknown outcome, 0.07% transferred due to medical complications and 0.91% were non responders  
 \* Children spent a median of 14 days on phase 1 and 21 days on phase 2 of the Alternative Treatment



of questions and a scoring system. The aim of this grid is to identify another country with optimum conditions for further testing the Alternative Treatment.

**Results**

The fourteen factors that were consistently identified as key contributors to the success of the Alternative Treatment are summarised in Figure 3. Eight areas of improvement were also identified and are summarised in Figure 4.

**Discussion**

The discussion below focuses on the key outcomes including the Success Matrix and the Feasibility Grid and also raises additional findings and considerations from the research.

*The Success Matrix*

The Success Matrix was developed to build a picture of the data as a whole to aid systematic analysis and link the qualitative findings to the quantitative outcomes (see Figure 5).

*The Feasibility Grid*

The Feasibility Grid needed to be in a spreadsheet form that could be used for identifying other countries that also have optimum conditions for further testing the Alternative Treatment. Input and feedback was given by all those people that would be using it to ensure it was user-friendly and relevant.

The grid was developed as a series of questions to be answered by Country Nutrition Co-ordinators for each country being considered for replicating the Alternative Treatment. There is a simple scoring system. If the answer is yes to a question, 1 point is given and if no, 0 points are given. This enables each country to be ranked, in order to identify the optimum country for further testing the alternative protocol. All questions were given the same weighting although weighting might be considered in future versions of the grid. The country that scores the highest points is the recommended country.

The grid could potentially be adapted and used for on-going programmes in the future, including as an annual quality check. A portion of the spreadsheet is shown in Table 1. The full spreadsheet is available on request from the author.

*Discussion on what makes a good quality programme*

Responses were not consistent to the interview question on what makes a good quality programme. However there were several recurring themes, including good programme management, staff training, educating the caregiver on the causes of malnutrition and caring for the child, and having a preventative strategy in place. The review of published papers on programme effectiveness indicated that there has been very little discussion at an international level on programme quality and the impact this has on the outcomes. There appears to be an emphasis on quantitative outcomes and limited understanding of the factors which contributed to these outcomes, i.e. the 'how' and 'why' questions, which are typically addressed through qualitative research. This suggests a need for a clear definition and set of guidelines regarding programme quality, as well as more published studies examining the qualitative aspects of humanitarian programmes globally.

**Table 1: Further testing the Alternative Treatment: A sample of the Feasibility Grid**

Level	Questions	Yes	No	Comments
<b>Local Context</b>	<ul style="list-style-type: none"> <li>Has it been confirmed that there are no natural disasters or any other potential/planned risks in the coming 6 months, which could jeopardise household (HH) Food Security?</li> <li>Does each HH have food access and its availability guaranteed for 6 months (whether through good agricultural season or through food assistance)?</li> <li>Has each HH access to drinkable water in the area of CMAM implementation and guaranteed for 6 months?</li> <li>Are health services available and functioning in the area for the next 6 months?</li> <li>Is the security level of the mission and base =&lt; level 2?</li> <li>Is ACF established and been active in the area for at least 1 year?</li> <li>Does ACF have a good working relationship with national &amp; local authorities as well as humanitarian actors in Health and Nutrition in the area?</li> </ul>			
<b>Community Involvement</b>	<ul style="list-style-type: none"> <li>Have WHO international standards been adopted? If not possible, has consideration be given to earlier identification of children using NCHS ref. but with a cut-off of WHZ &lt; -2.5?</li> <li>Has the community been sensitised and mobilised in the area in terms of awareness, education and support of the programme?</li> <li>Have key members from the community been identified and trained as community caregivers for continuous screening of children and ensuring early referrals to the centres? If not, has this been built into the planning stage of the project?</li> </ul>			

*Cost saving of using less RUTF versus additional time and resource needs*

Although there were some cost savings in using the Alternative Treatment in terms of product, the research shows that more time and resource are required by the staff and management to ensure successful implementation. Although the amount of additional time and resources to implement the alternative protocol in the Myanmar programme are believed to be relatively low due in part to exceptional management and highly competent, well trained staff, this will not always be the case going forward in other missions and countries.

*Ideal setting in Myanmar*

There are a number of reasons as to why this was an ideal setting for testing the Alternative Treatment. These included absence of natural disaster during 2009, home feeding being part of the treatment, and existence of well trained and experienced staff. However it is important to consider that if any of these factors were to change, the outcomes could be very different. It is also worth noting that ACF had complete control of the programme and did not depend on the government and local amenities for any aspect of programming. This will not always be the case, especially as a key objective for many INGOs today is to empower local governments so that they can implement nutritional services.

*Sustainability of the programme*

Some of the constraints to sustainability include the high turnover of local medical staff, the high cost of the RUTF product (over 50% of total programme costs)<sup>10</sup> and the need to import product. Insufficient government involvement in the programme also impedes sustainability. This suggests the urgent need for strategic review. Despite high levels of community awareness, there appears to be no improvement in overall malnutrition rates in the intervention area of

ACF in Myanmar since the programme began in 2003 and children continue to be admitted.

**Conclusions**

The aim and objectives of this study were successfully achieved using both review of documents and in-depth interviews. The study has shown the importance of combining qualitative and quantitative research to give a comprehensive picture and meaning to the figures. This combined learning has led to a deeper understanding of the Alternative Treatment.

The results from this research project have given invaluable insights into the Alternative Treatment of SAM. The findings confirm that it is not only the high quality of RUTF itself which is necessary for success, but a large number of quality considerations some of which may be specific to the local context in Myanmar. It is a combination of all of these factors that resulted in the quantitative outcomes far exceeding the Sphere Standards and it is these factors which need to be considered before the Alternative Treatment is replicated globally.

This research project indicates that there needs to be a stronger emphasis on nutrition programme design. Key design issues and factors include careful planning, existence of well trained staff and community mobilisation.

The findings have also shown that the current programme is not sustainable in Myanmar and that future strategies must address this challenge.

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<sup>10</sup> James, P. (2010). See footnote 5.



# Dangerous delay in responding to Horn of Africa early warnings of drought

Summary of briefing paper<sup>1</sup>



According to a briefing paper just released by Oxfam and Save the Children UK (SC UK), the 2011 crisis in the Horn of Africa has been the most severe emergency of its kind this century, with more than 13 million people still affected and hundreds of thousands at risk of starvation. The authors assert that this crisis, affecting primarily the drylands of Ethiopia, Somalia and Kenya, unfolded despite having been predicted. All three countries were almost equally affected by the total failure of the October to December 2010 rains and the poor performance of the March to May 2011 rains, resulting in crop failure and animal deaths. The situation was much worse in southern and central Somalia, where conflict further impeded traditional drought coping mechanisms, and reduced access for humanitarian agencies. The briefing paper is principally concerned with how the international system responded (or not) to early warnings of the oncoming crisis, and why it was allowed to spiral into a disaster.

The countries affected by this drought were in very different situations. For example, in Ethiopia, there has been considerable effort to build resilience through the development of the Productive Safety Net Programme (PSNP), investment in new health posts which enabled huge increases in access to nutrition responses, investment in pastoral areas through the Pastoral Community Development Programme (PCDP) and the promotion of disaster risk management policy and practice. This contrasts with Somalia, where such work has been largely absent, due to access restrictions, a complex environment and the unwillingness of donors to invest.

The emergency in the Horn of Africa in 2011 was not a sudden-onset crisis. Forecasts of the impending crisis started in August 2010, as changing weather conditions linked to the La Niña phenomenon were confirmed. These predictions became more strident in early November 2010, when the October to December short rains were forecast to be poor. This prediction was accurate, prompting the Food Security and Nutrition Working Group for East Africa (FSNWG) to set up a La Niña task force. In December 2010, it stated that “pre-emptive action is needed to protect livelihoods and avoid later costly lifesaving emergency interventions” and called on the humanitarian community (donors, United Nations agencies, non-governmental organisations (NGOs)) “to be prepared now at country level.”

Multi-agency scenario planning took place in February 2011. A Famine Early Warning Systems Network (FEWSNET) food security alert dated 15 March 2011 made it clear that the current situation was already alarming and would deteriorate further if the March to May rains were as poor as expected. It stated that even average rains would lead to a critical food

security situation until May or June, and predicted “localised famine conditions [in southern Somalia], including significantly increased child mortality... if the worst case scenario assumptions are realised”. The FSNWG also warned that “failure of the March to May rains is likely to result in a major crisis”. At this stage, humanitarian actors were advised to begin large-scale contingency/response planning immediately and to implement expanded multi-sectoral programming. Yet this call was not adequately heeded.

The various early actions taken by national governments affected by the crisis are set out in the briefing paper, e.g. in Ethiopia, the government’s Agricultural Task Force, supported by the Food and Agriculture Organization of the United Nations (FAO), developed a roadmap for interventions in early 2011. Meanwhile in the regional autonomous state of Puntland, the President announced a drought emergency in November 2010, and called on the international community and aid agencies to provide humanitarian assistance. However, it is the international response which the briefing paper focuses mainly upon.

The donor response at scale was too slow. Figure 1 shows the level of humanitarian funding to Ethiopia, Kenya, and Somalia in the lead-up to the crisis. An increase can be seen after the first warnings in late 2010 and the UN Consolidated Appeals Process (CAP) appeal (November 2010). But it was only after major media coverage in June/July 2011, and after the UN declared a famine in Somalia, that donors drastically increased the funds available. Some donor representatives in the region were also aware of and acted on the impending crisis much earlier. For example, key donors in Kenya – European Commission Humanitarian Aid & Civil Protection (ECHO), UK Department for International Development (DFID) and United States Agency for International Development (USAID) – met in December 2010 to co-ordinate their initial response. Indeed, Oxfam accessed ECHO funding for work in Turkana, Kenya, in April 2011, and this was quickly scaled up in July. Nevertheless, most donors were not able to access funding at scale from their headquarters until malnutrition rates were at dangerous levels and media attention broke the story.

In Somalia, a further complicating factor was present: the international community failed to prioritise growing humanitarian concerns over political considerations, reflected in Oxfam and Save the Children struggling to find funding for work in South Central Somalia.

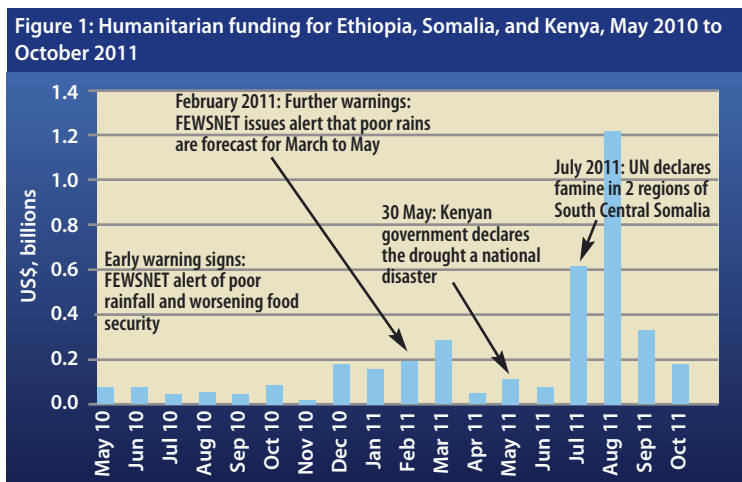
The UN’s humanitarian appeal in November 2010 seriously underestimated the number of people in need of emergency aid. This is partly because the timeline of UN appeals is not aligned with the seasons in the Horn of Africa. Assessments were carried out in September, before the failure of the short rains (which normally start in October) and did not take into account the future weather predictions. And for Somalia, more recent appeals were based more on what programming can be achieved (within the constraints of access and partners) rather than what funding would be required to avert disaster, thus potentially giving a misleading picture of needs within the country. The Consolidated Appeal (CAP) – a key document for marshalling donor resources – was only fully revised at the end of July 2011. This was clearly a factor in the failure to scale up the response early on. In Somalia, for example, the original 2011 CAP was set at \$530m in late 2010. This was revised to more than \$1bn by August 2011.

Many agencies, including Oxfam and Save the Children, had begun a small-scale response by December 2010, and tried to focus international attention on the impending crisis. But while some performed better than others, most agencies did not adapt their programming on a sufficient scale to meet the level of need over the following six months, and did not begin to respond at scale until after the 2011 rains failed in May. Some agencies declared the situation a corporate priority as early as February 2011, but this only happened in Oxfam and Save the Children at the end of June and early July 2011 respectively.

Pressing domestic, regional and international developments, including the conflict in Somalia, the Arab Spring uprisings, global recession, other crises such as the Japan earthquake/tsunami, or donor fatigue, may have delayed the international community’s response to the drought.

While the early warnings were clear, the scale (numbers of people) and depth (severity)

<sup>1</sup> A Dangerous Delay. The cost of late response to early warnings in the 2011 drought in the Horn of Africa. Oxfam, Save the Children UK. Joint agency briefing paper. 18 January 2012. Available from: <http://policy-practice.oxfam.org.uk>



Source: OCHA Financial Tracking Service

of the crisis still caught many by surprise. This is partly because needs assessments carried out by UN agencies or governments – which are a key driver for donor interventions – are published several months after the assessment is done and critically, do not incorporate forecasts or predictions based on a changing situation. Thus the UN appeal for Somalia, launched in November 2010, had relatively low figures for those in need of assistance in 2011 and failed to sufficiently reflect the La Niña predictions. Ultimately, the EWSs performed, but decision makers chose not to respond. Possible reasons for reluctance to respond early may include:

- Fear of getting it wrong – with both financial and reputational risk at stake.
- Fear of being too interventionist – undermining communities’ own capacities to cope.
- Fatigue – “there are droughts every year” – encouraging an attitude of resignation to the high levels of chronic malnutrition, and an inability to react to the crisis triggers.

All humanitarian actors – governments, UN agencies, donors, implementing NGOs – want to be certain about the scope and depth of a looming food crisis before responding at scale. The international humanitarian system only becomes fully operational when Integrated Phase Classification (IPC) phase 4 – ‘emergency’ – has been reached<sup>2</sup>. Responding on the basis of forecasts instead of hard data requires a shift in dealing with uncertainty. Forecasts involve uncertainty. Yet this uncertainty is not unquantifiable – standard risk management techniques allow us to convert this uncertainty into risk, which can then be managed and minimised. Figure 2 shows a typical risk impact/probability chart, which plots the probability that a hazard will occur against its impact.

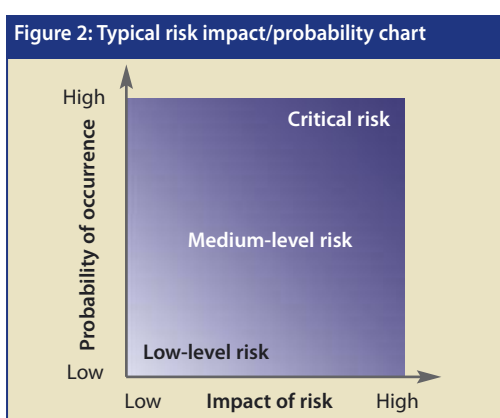
Using this logic, it would have been clear from around January 2011 that the high probability of poor March–May rains in the Horn of Africa, magnified by the failure of the previous rains in late 2010, would constitute a critical risk that needed to be addressed immediately.

Once the EWS has flagged a potential problem, this should immediately activate a process of further investigation – detailed monitoring which can be used to design interventions – and the operationalisation of emergency plans. These plans need to be clear on who should do what and when. There should be a common approach to using triggers, so that decision makers know exactly what they ought to be doing as the situation deteriorates and the consequences if they fail to act on those triggers.

All actors need to work together to develop a system of triggers that:

- recognises the national government (where possible) as primary duty bearer for meeting citizens’ food needs
- reflects the high levels of chronic malnutrition in some areas
- reflects the exponential rather than linear development of malnutrition
- does not lead to interventions that undermine communities’ capacity to cope
- is context-specific for different livelihoods zones
- is agreed between different actors

It is expected that there will be a range of triggers for different sorts of response. So, for



Source: Mind Tools

example, at an early stage the trigger might be for advocacy, but as the situation deteriorates, it might be for a livelihood response, and subsequently for a food/nutrition response.

Long-term programmes are in the best position to respond to forecasts of a crisis. There are established links with communities and thus the vulnerabilities and the complexities are understood. There are staff and/or partners in place, they are in a trusted position with donors with funding available and their work has been negotiated with government bodies. Long-term programmes should become more sensitive to drought risks and seek to reduce vulnerability by reducing the underlying risk factors. When risk analysis is made integral to long-term programme design – by using Drought Cycle Management (DCM) or similar tools – droughts can be seen as an integral part of the livelihood system, rather than as an unexpected shock.

Early humanitarian response, which seeks to reduce disaster risk, is both effective and cost-effective in addressing the underlying factors that make people vulnerable.

Humanitarian interventions which should be started on the basis of forecasts include:

- Livelihood protection interventions, in order to safeguard key assets.
- Interventions involving a significant time lag. If food distributions are likely to be necessary, the process of mobilising resources and arranging logistics should begin on the basis of early assessments, with quantities being revised at a later stage.
- ‘No regrets’ options: measures that build capacity and disaster preparedness but have no negative effect even if the worst forecasts are not realised (either because the cost is very low or because they will build resilience). This would include activities such as
  - putting human resources systems in place
  - talking to existing and potential donors and drafting outline proposals for response
  - building links with private sector partners, e.g. developing standing agreements with money transfer companies, starting tender processes
  - building and strengthening the capacity of local partners
  - starting to engage with all relevant stake holders, such as partners, local authorities and the women, men and children in communities
  - practical measures like assessing borehole operations, prepositioning stocks, market assessments, mapping the capacity and coverage of traders, etc
- Flexible funding measures that involve a

level of expenditure commensurate with the probability of the crisis occurring. Projects could be designed and initiated with limited but sufficient start-up funding, with a commitment to more substantial resources as the crisis develops.

Early response requires us to move away from the traditional distinction within the aid system between development and humanitarian work. This approach, with different staff, mandates, skillsets, timescales, budgets and beneficiaries, is not valid in regions like the Horn of Africa. To increase the effectiveness of the aid system, this artificial gap must be bridged.

Skilled and experienced staff and partners are needed who are able to build risk analysis into their work and are thus able to adapt what they do, and how they do it, as the situation and needs change.

Much greater investment is needed in long-term joint efforts to strengthen government capacity, both in disaster risk management and coordination, but also in improving the ability of long-term development work in all sectors to build resilience.

Humanitarian and development strategies are often developed separately, whereas a risk management approach requires common thinking and planning. Where structures are institutionally divided, an effective coordination and integration approach with various mechanisms for direct cooperation, joint programming and implementation (in combination with shared learning cycles) can help to merge development and response.

Neither humanitarian nor development funding streams are ideally suited to the situations of chronic vulnerability that occur regularly in the Horn of Africa, where the situation is often in transition between humanitarian emergency and development. Humanitarian programmes are short-term, which doesn’t allow for longer-term planning, but they are usually fairly flexible in terms of programme approach and the ability to change expenditure. Development programmes are long-term but less flexible. Implementing agencies are required to predict their expenditure at the start, with often only a small contingency (for the EU, this is a maximum of five per cent). This is designed to boost accountability, but it does hinder flexibility and agile programming. Some emergency aid donors have made considerable efforts to be more flexible, with innovative funding mechanisms to support recovery and resilience. Other donors should emulate these models.

Donors – including the UN for the Central Emergency Response Fund – need to revisit their mandates and protocols for funding streams and continue to push the boundaries, so that they can disburse sufficient funds quickly to support early response.

The ‘bottom line’ of this analysis is plainly stated: predictions about the impact of the 2010–11 drought in the Horn of Africa were clear, and unfortunately, much of what has happened was preventable. The scale of death and suffering, and the financial cost, could have been reduced if early warning systems had triggered an earlier, bigger response.

<sup>2</sup> <http://www.ipcinfo.org/>

SCUS/FIC, Bangladesh, 2009



Measuring MUAC

## Community case management of severe acute malnutrition in southern Bangladesh

Summary of study<sup>1</sup>

**B**angladesh has the fourth-highest number of children (approximately 600,000 at any one time) suffering from severe acute malnutrition (SAM) in the world. Currently, ongoing national programmes (such as the National Nutrition Programme) do not include an effective mechanism of identifying or treating young children who suffer from SAM.

A recent prospective cohort study aimed to examine the effectiveness and feasibility of adding the diagnosis and treatment of SAM to the community case management (CCM) package delivered by community health workers (CHWs) outside health facilities in Barisal, Bangladesh. Research goals included:

- To compare the effectiveness (i.e. the rate of recovery) of treatment of SAM provided by CHWs with that provided by the standard of care for SAM in Bangladesh.
- To compare the cost effectiveness of CCM of SAM provided by CHWs with that of the standard of care for SAM in Bangladesh.
- To estimate the coverage of CCM of SAM provided by CHWs.
- To examine the quality of care (error-free case management) delivered by CHWs for cases of SAM.

Barisal Division in southern Bangladesh comprises six districts and with a population of about eight million people, is among the poorest in the country, with alarmingly high rates of acute malnutrition among children under five. Save the Children USA (SC US) have been working in the Division since June 2004 and between 2004 and 2010, have implemented a six-year Development Assistance Programme named 'Jibon o Jibika' ('Life and Livelihoods' in Bangla) in three Districts. As part of this programme, SC US employed a cadre of CHWs, all local women educated to grade eight, to deliver preventive and curative care to children in the target Districts. Interventions included CCM of basic childhood illnesses such as diarrhoea and acute respiratory infection (ARI), monthly growth monitoring and promotion (GMP) sessions, and household-level education and counselling around infant and young child feeding, health, and sanitation.

SC US and Feinstein International Centre (FIC) at Tufts University were given permission by the Government of Bangladesh (GoB) and the Institute of Public Health Nutrition (IPHN) to pilot the community case management of SAM (CCM of SAM) in Burhanuddin Upazila in one of the JoJ target Districts (Bhola District). In a neighbouring Upazila (Lalmohan) in the same District, the Upazila Health Complex

(UHC) was supported to provide inpatient treatment for children with SAM according to National Guidelines and to compile monitoring data on referrals and outcomes of treatment. This Upazila received exactly the same support by the 'Jibon o Jibika' programme apart from support for the CCM of SAM.

In both Burhanuddin (the intervention Upazila) and Lalmohan (the comparison Upazila) a mid-upper arm circumference (MUAC) measure and an oedema check for all children <3 years old was introduced into all routine CHW activities. These included the monthly GMP sessions and household visits for counselling and treatment of sick children. CHWs also discussed SAM and its consequences with different groups of community members in ongoing counselling and mobilisation activities.

### Method

The study ran between June 2009 and June 2010. All children more than six months in age that were identified as suffering from SAM by one of the 261 CHWs working under the SC US programme in Burhanuddin Upazila were eligible for the intervention. Any child identified with SAM with appetite and no medical complication was treated directly by the CHW with ready to use therapeutic food (RUTF). Any child with SAM with medical complications, such as the absence of appetite, was referred to the UHC to receive inpatient stabilisation care. In the comparison Upazila, all children identified with SAM by CHWs were referred to the UHC.

Informed consent was obtained from all participating caregivers before recruitment. This involved the CHW discussing a verbal consent form with groups of mothers before each growth monitoring session and with individual caregivers at household visits. This form explained the objective of the study and the procedures for any child identified with SAM.

Children were discharged from treatment as recovered once MUAC was assessed as more than 110 mm and they had gained at least 15% of their admission weight for two consecutive weeks. Children admitted with nutritional oedema were discharged once oedema was absent for two consecutive weeks and their MUAC was assessed as more than 110 mm.

All CHWs in the intervention and the comparison Upazilas participated in a two-day training which covered the causes and consequences of SAM, the standardised measurement of MUAC and how to check for

nutritional oedema. CHWs in the intervention Upazila were also trained on the classification of SAM and the use of nutritional and medical protocols for its treatment. Subsequently, CHWs in the intervention Upazila met with their supervisors every month to discuss problems, submit monthly reports, and receive a new stock of therapeutic food and medicines.

At the UHC in both the intervention and the comparison Upazilas, core medical staff participated in a two-day training that covered the causes and consequences of SAM, the standardised measurement of MUAC and how to check for nutritional oedema, and the nutritional and medical protocols for the inpatient treatment of SAM. In both Upazilas, SC US supplied the equipment and all ingredients for therapeutic milk. In the comparison Upazila, SC US also provided one additional care assistant whose sole job was to care for children with SAM and counsel caregivers on child feeding and care practices.

In the intervention Upazila, CHWs were trained to use a simple algorithm that classified children into two groups: SAM with complications and SAM without complications. Any child with SAM with complications was referred to the UHC to receive one to four days of inpatient treatment with therapeutic milks and medication. Once complications were under control, children were referred back to the CHW to complete treatment. Any child with SAM without complications was seen weekly in their homes by a CHW and treated with RUTF.

All dietary treatment for any child admitted to the UHC was administered according to the Bangladesh National Guidelines for inpatient management of SAM. In the intervention Upazila, for children suffering from SAM with complications, this included an initial phase (phase 1) of treatment in the UHC. Locally-prepared Formula 75 (F75) containing 75 kcal/100 ml/day was given over 12 feeds per day. The child was discharged back to their CHW where treatment continued with RUTF at home when the following conditions were satisfied: good appetite, oedema reducing and infection under control.

For all children treated by the CHW, RUTF was provided as a weekly ration in proportion to a child's weight. The CHW used a simple chart to calculate the correct ration size which

<sup>1</sup> Sadler.K et al (2011). Community Case Management of Severe Acute Malnutrition in Southern Bangladesh. Save the Children and Feinstein International Centre. June 2011

provided 175-200 kcal/kg/day and 4-5g protein/kg/day.

All medical treatment followed protocols as specified in the National Guidelines for the Management of Severely Malnourished Children in Bangladesh. This includes a single oral dose of folic acid (5 mg) and the broad-spectrum antibiotic Cotrimoxazole oral (Trimethoprim 5 mg/kg and Sulphamethoxazole 25 mg/kg) given twice a day for five days. Albendazole and vitamin A were only given where there was no record of the child receiving these treatments during the twice yearly Vitamin A+ campaigns that are common in the target area. All medication was prescribed by the UHC staff during inpatient management and by the CHW during outpatient management.

For cases of SAM without complications in the intervention Upazila, the antibiotic was administered by the caregiver at home. The CHW instructed each caregiver on when and how to give the drug. For cases of SAM with mild pneumonia in either the intervention or the comparison Upazila, the trained CHW provided treatment with Cotrimoxazole following CCM of ARI and Diarrhoea guidelines.

## Results

Results show that when SAM is diagnosed and treated by CHWs, a very high proportion of malnourished children can access care and they are very likely to recover. The main outcome measures including the high recovery rate (92%) and low mortality and default rates (0.1% and 7.5% respectively) are all considerably better than the Sphere international standards for therapeutic feeding programmes and compare favourably with other community-based management of acute malnutrition (CMAM) programmes across the world. The also compare favourably to previous work that has examined the outpatient rehabilitation of children suffering from SAM in Bangladesh. The level of coverage seen in this programme was 89% (CI 78.0%–95.9%) by April 2010; this is one of the highest rates of coverage ever recorded for similar programmes. In contrast, monitoring data in a comparison Upazila (an administrative subdivision of a district), where the standard of care (facility-based treatment) was the only mechanism for treating SAM, showed that most children referred never made it to the facility or, if

they did, they went home before completing treatment.

There are a number of reasons that explain these positive findings. First, results show that CHWs were able to identify and treat SAM very early in the course of the disease. This meant that children presented with fewer complications, were easier to treat and there was rarely a need to refer a child for inpatient treatment. The programme design supported this early identification of cases through decentralised and multiple pathways to treatment including the use of MUAC bands by CHWs at monthly growth monitoring sessions and during home visits to sick children and the use of a 'watch-list' of sick children by CHWs in their villages. In addition, study findings show that there was a good interface between the community and the programme. Mothers and community-level health practitioners, such as village doctors and other community-based stakeholders, were aware of SAM, trusted CHWs to provide effective treatment, and referred their own children and others in their villages when they were sick or losing weight. Study findings also demonstrated a very high quality of care delivered by CHWs. When assessed against a treatment algorithm they achieved, on average, a rate of 100% error-free case identification and management.

Cost effectiveness was also analysed as part of this study. The CCM of SAM in Bangladesh cost \$165 per child treated and \$26 per DALY (disability-adjusted life year) averted. This is a similar cost-effectiveness ratio to other priority child health interventions such as immunisation and treatment of infectious tuberculosis. It is also at a level considered 'highly cost-effective' according to WHO's definition that defines an intervention as cost effective if it averts one DALY for less than the per capita GDP of a country.

This study has demonstrated that such a model of care in Bangladesh is feasible and could be an effective and cost-effective strategy to ensure timely and high quality treatment for a condition that is typically associated with high levels of mortality. This is an important finding in a country that has the fourth-highest number of children suffering from SAM in the world, yet to date has had no effective mechanism of identifying and treating them.

# Mortality risk factors in severely-malnourished children hospitalised with diarrhoea

## Summary of published research<sup>1</sup>

A case-control study conducted in the Dhaka Hospital of the International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR,B) to identify the risk factors of mortality in severely malnourished children hospitalised with diarrhoea has recently been published. One hundred and three severely malnourished children (weight-for-age <60% of median of the National Centre for Health Statistics reference) who died during hospitalisation were compared with another 103 severely malnourished children who survived. These children were aged less than three years and admitted to the hospital during 1997. On admission, characteristics of the fatal cases and non-fatal controls were comparable, except for age. The median age of the cases and controls were six and eight months respectively ( $p=0.05$ ). Patients with low pulse rate or imperceptible pulse had three times the odds of death compared to the control group ( $p<0.01$ ). The presence of clinical septicaemia and clinical severe anaemia had 11.7 and 4.2 times the odds of death respectively ( $p<0.01$ ). Patients with leukocytosis ( $>15,000/cm^3$ ) had 2.5 times the odds of death ( $p<0.01$ ).

Using logistic regression, clinical septicaemia {adjusted odds ratio (AOR) = 8.8, confidence interval (CI) 3.7-21.1,  $p<0.01$ }, hypothermia (AOR = 3.5, CI 1.3-9.4,  $p<0.01$ ), and bronchopneumonia (AOR = 3.0, CI 1.2-7.3,  $p<0.01$ ) were identified as the significant risk factors of mortality. Severely malnourished children ( $n=129$ ) with leukocytosis, imperceptible pulse, pneumonia, septicaemia, and hypothermia had a high risk of mortality.

The strength of this study is that it was a well-defined matched case-control study where the cases and controls were selected from among severely malnourished children with diarrhoea. However, the limitation of the study is that the data used were not representative of mortality among all severely malnourished children with diarrhoea in Bangladesh.

The authors conclude that septicaemia, pneumonia, and hypothermia were high risk factors of death among diarrhoeal children with severe malnutrition and that this fatality could be prevented by early use of antibiotics and supportive care.

<sup>1</sup> Roy, K et al (2011). Risk factors of mortality in severely-malnourished children hospitalised with diarrhoea. *Journal of Health, Population and Nutrition* 2011, June 29 (3); 229-235



An informal group discussion

SCUS/FIC, Bangladesh, 2009



An Argentinean aid worker holds a girl injured in the earthquake in Leogane, Haiti

UN, Haiti, 2010

## Research

# Voices from the field: Optimising performance for humanitarian workers

By Jared Katz, Deborah Nguyen, Carla Lacerda and Gerald Daly

The authors extend special thanks to Olesya Dudenkova for helping to get the project off the ground, and to everyone who took the time to support this project along the way.

A recent study<sup>1</sup> set out to understand how humanitarian workers remain effective in challenging environments while also maintaining personal life balance.

Discussions were held with twenty-six professional humanitarians from eight international organisations currently working on the frontline of global emergencies. The interviews were framed on a McKinsey model of 'Centred Leadership', which identifies five capabilities that, in combination, generate high levels of professional performance and life satisfaction. They are finding meaning in work, converting emotions such as fear or stress into opportunity, leveraging connections and community, acting in the face of risk, and sustaining energy. The following is a compilation of the best personal practices of these 21st century humanitarians.

### Having meaning in work and life

The humanitarians interviewed most often found meaning in the understanding of and connection with those receiving humanitarian aid. Humanitarians have a combination of motives that may not be altogether altruistic, as the work can be financially motivating and the positions themselves bestow power and respect. However, those who find meaning in their work convey energy and enthusiasm because the goal is important to them personally, because they actively enjoy its pursuit, and because their work plays to their strengths. One humanitarian commented: "The ultimate goal must have meaning for humanitarians and the people they are serving; otherwise they'll lack the energy and motivation to get things done."

#### 'Stay on target' – Maintaining meaning

Often, the noble motivations humanitarians may have had when entering this field become diluted, as they grow dependent on the money and benefits they receive from the work. Many interviewees stressed that staying out of the field to climb the bureaucratic ladder caused their work to become abstract and meaningless. Maintaining a sense of meaning throughout a humanitarian's career can be aided by periodic visits to the field, and the connection with real on-the-ground issues.

When unable to get into the field, respondents found other methods of maintaining the connection. Some stayed in close contact with colleagues in the field to remember the meaning of their work. "It is important to talk to staff that work in the field, you will catch their enthusiasm."

#### 'Balancing act' – Don't neglect meaning outside of work

Finding meaning in humanitarian work needs to be balanced with maintaining meaning outside of work. Maintaining personal relationships is often the best remedy against losing yourself and becoming over defined by your job.

Balancing work and personal life is difficult. "It is a never ending challenge, and particularly so during an emergency situation where you

are most likely to be separated from your family."

#### 'Rolling with the punches' – Resilience and recovery

Having a strong sense of meaning and a purpose greater than oneself fosters humility, which strengthens the ability to withstand and recover quickly from difficult situations. Emergencies cannot afford to have workers who are knocked off balance by their own shortfalls, but who keep their "sights on target" and can adapt and react quickly to tough situations.

Humanitarianism is not about you, but what you do: "You are not the centre of anything when you are a humanitarian. It's about your work; it's about achieving your objective." By realising you are only a means to a greater end, you can limit frustrations and losses by not getting knocked off balance with failures. You can recognise when you have made a mistake, "analyse your mistake and criticise yourself, but forgive yourself," and move forward.

#### Mental Framing: Converting emotions into opportunity

Optimists have an edge over pessimists. Leaders who do not naturally see opportunity in change and uncertainty create stress and limit creative solutions. It is no surprise that 75% of respondents believe they are optimists and use positive framing on a regular basis; they have found ways to convert stress into opportunity. "One of the reasons for my success is positive framing, I always see the bright side, I see the glass half full."

#### 'Making a purse out of a sow's ear' – value in positive framing

Effective leaders grappling with failure see opportunity and creative solutions when others see defeat. Early on in emergencies, confusion is usual and decision-making is based on weak information, so projecting a positive and calm mindset supports team spirit. Leaders often project a positive frame because they know their team needs it.

#### 'Teflon has its uses' – Protecting yourself and your team

Some people might choose deliberately to shelve emotions that are triggered by the intense suffering of people struck by a disaster. In doing so, they often are able to remain effective in the midst of the storm. The 'Teflon method' is such a shelving technique, allowing negative or intense situations to slide off and not affect one's work during a crisis. While the 'Teflon method' can be effective in the short-term, one respondent cautioned on the need to share with friends traumatic experiences as they occur. Their reasoning was that an unprocessed negative experience might ambush a humanitarian worker years after a traumatic event has been experienced.

#### 'I've got high hopes' – A fine line Between optimism and naivety

A common piece of advice was the importance

of having realistic expectations of what can be accomplished. Humanitarian workers do not 'save the world', but rather the best they can hope for is to help a disaster-impacted community or help with the formulation of a policy. Although there is nothing wrong with idealistic aspirations, it is important they are not confused with naivety, which can lead to disappointment or even depression.

#### Leveraging connections and community 'Stay connected' – Managing complex networks in emergencies

Maintaining real-time updates in emergency situations by developing community and inter-organisational networks can tremendously increase efficiency and help decision-making under conditions of uncertainty. "In order to stay connected you have to spend a lot of time in the field and understand the local context; what is on paper is not always what is really happening. Talk to donors, beneficiaries and other agencies to find out what needs to be worked on." This approach provides updates on the politics, as well as other developments in fast-paced crisis environments. The role of information technologies to achieve effective communication and decision-making goals in emergencies is a skill-set to be fully honed.

#### 'Soak it in' – Learning from others

In a complex and high-pressure environment with little structured training, mentors provide an opportunity for young humanitarians both to learn from their experiences and provide inspiration to emulate their actions and make them more effective humanitarians. A shortfall in humanitarian mentoring system was summed up as: "Mentors don't come easily, you have to make them happen."

Only one organisation, out of all those represented in this study, had a structured mentoring system.

With little structured mentoring, it is important to learn as much as possible from everyone you come across. "At work you meet different people, some inspire you, and some have more experience. I try to absorb as much as I can on how they deal with different issues: the way they manage a conflict between two colleagues, or how they listen to their team. I do not follow one model."

A unique angle of this issue is the new concept of reverse mentoring. Humanitarians who have been in the business a long time can have a narrowly defined skill-base and be ignorant of emerging humanitarian trends. Often it is younger colleagues who are most savvy in the newly emerging skill areas (e.g. social media in times of emergency). One respondent advised: "If older humanitarians wish to stay relevant and keep with the pulse of the 21st century needs, I suggest they ask to be reverse-mentored by a younger colleague."

<sup>1</sup> Development in Practice, Vol. 22 Issue 2.

### Acting in the face of risk

Risk aversion and fear are widespread in humanitarian crises, as mistakes are often publicised and punished more than successes are rewarded.

#### *'No 'I' in Team' – Trusting in others*

Many humanitarians do not delegate due to lack of trust and perceived consequences of poor actions, or the fear of losing their jobs by giving away their 'technical expertise'. Encouraging others to act and take risks on your behalf is extremely difficult. However, it should be considered imperative for leaders in humanitarian organisations as this gives people confidence and demonstrates trust, which creates an even higher demand for people to act responsibly.

#### *'Living on the Edge' – Decision making: risk taking and intuition*

In high-risk environments where there are more questions than answers, intuition plays a major role in humanitarian decision-making. "Your intuition tells you what is around the corner and how to take action with a number of unknowns." However, decisions should always utilise as much fact as possible and "common sense based on an understanding of the politics of where you are. Without that, you're floundering around in the dark."

#### *'Rules were meant to be broken' – Organisational rules vs. humanitarian imperative*

Organisational rules set a general framework for action and decrease the risk of negligence and failure. But rules are sometimes too detached from the reality on the ground, and in emergency situations, when lives are at stake and the window for action is narrow, you sometimes have to break the rules to do what makes the most sense. "We are living by the rule of humanitarian imperative, which might be in conflict with agency regulations."

Competent humanitarians need to have the personal strength to take critical initiatives both with creativity and speed. "In real emergency situations you have to balance getting the job done, ethics, transparency, and are you going to live with this the next day."

#### *'The road to hell is paved with good intentions' – personal values in testing environments*

"When you are first starting off it's all about ideals, humanitarianism and doing the right thing. With time, those ideals don't hold up. You have to find your own way of reconciling these really big disparities. There's a certain amount of hypocrisy that has to be reconciled."

Historical and social factors make each country different, and institutional structures, ethnic and religious rivalries can all test personal values. Corruption, for example, may not be seen as much of a problem in some societies, and bribery can be socially acceptable as a means of getting things done quickly. It is very easy to empathise with the communities one works with or with a government official, particularly when it gives access to key decision makers and project benefits are immediate.

In these situations, humanitarians must stick to the 'limits' of their personal values. "A tough situation was witnessing a culture of corruption for one of the organisations I worked in. I was instructed to utilise stolen equipment, even after I pointed out to them that it was stolen." One interviewee felt that, "a morally 'purist' approach may not always be possible" while another felt you should "never break personal

principles; you have to weigh whether the conflict breaks personal principles or if it is just an approach that can be resolved by swallowing some pride and compromising."

While values are context-bound and vary across cultures and individuals, there are limits in all cultures. Humanitarians should not support cultural norms that undercut the long-term stability and development a society hopes to achieve. "Humanitarians need to understand that an emergency is a rupture in the normal development of a country – and the job is to help it resume that development as soon as possible – so we have to understand long-term development and cultural contexts as well as short-term emergency efficiency contexts."

### Sustaining energy

#### *'What's in there, you ask? Only what you take with you' – Emergency response is not for everyone*

"While the mind can be very powerful, it can very easily break (or burn-out) in high-pressure situations. We owe it to ourselves to not walk blind into a wall of fire." Being aware of your strengths and weaknesses helps you cope with the challenges of the job and avoid situations you cannot handle. "You need to understand who you are before you can throw yourself into this type of work. Nobody is effective on the ground if they collapse when personal problems surface due to extreme psychological stress." For some humanitarians, the pressures induced by working in conflict and emergency environments are used as a driving force. "The pressure itself helps me. You see results faster, it makes you motivated, it helps you pull through and you have a goal to achieve. There is an adaptation to work under adrenaline. But you need to like pressure ... if you don't, you're not cut out for humanitarian work."

#### *'You are what you eat' – Preparation before entering the field*

Many respondents stressed the interdependence and importance of both physical and mental preparation. "Psychologically preparing yourself for the length of your assignment is critical. "I was in Darfur as an emergency coordinator for a few months, which was fine, because I knew it was a few months. It's psychologically important to know duration, because if you're in an intense location and don't know how long you'll be there, it's draining."

#### *'Lean on me' – Relying on colleagues to monitor stress*

Staff burnouts harm humanitarian relief operations because an individual's quality of work can deteriorate to the point that there is a gap in operational capacity and a replacement is needed. Due to the lack of training and preparation, most humanitarians develop their own ad-hoc strategies to maintain themselves in crisis situations.

Relying on and communicating with colleagues working under the same external pressures is fundamental in identifying your own levels of stress and coping with the pressures. "Make sure everyone on your team is doing OK ... make a pact with a friend who would tell you if you are near to burnout." Beyond symptoms of extreme stress, respondents identified indicators to know when colleagues are nearing a burnout point. "Reaching the edge, humanitarians often resort to over use of alcohol as a negative means to deal with stress, and people tend to become extremely ironical and sarcastic."

### *'Leave the ball on the field' – The importance of disconnecting from work*

"People who have burnouts don't detach themselves from a cause and don't move on." It is important for humanitarians to be efficient while at work, but to limit themselves, and once they leave, try to switch off from their job." While working in an emergency context, "You need to relax, know yourself, have something to do after work, have a comfortable place to stay." Being able to find some peace after a hard day is easier said than done, but if you can empty your mind by doing something that has nothing to do with work, it helps to get the stress out of your system. This is particularly difficult for humanitarians, because shutting one's mind to suffering is not easy. Mechanisms are diverse, and range from meditation, exercise, to reading a novel.

#### *'The horror' – Dealing with trauma, one way or another*

The period following a difficult mission is just as significant as preparation in avoiding burnouts. One organisation had psychologists who do systematic debriefs of staff who are departing psychologically damaging work situations, but this support is not always effective for everyone, and informal channels need to be explored. Talking with colleagues, friends and family can help to express the traumas experienced.

### Conclusions

Somewhere within this physically and psychologically demanding and politically complex environment is where humanitarians find themselves working and living day-by-day. As there are very limited training mechanisms, each humanitarian is often making their own way through the field, learning from their own mistakes and successes. Humanitarians have devised innovative (and sometimes unusual) practices to overcome the old and modern challenges of working in the humanitarian field.

1. Maintaining meaning in work and life in order to sustain personal effectiveness and satisfaction.
2. To convert stress into opportunity, positive framing was seen to project confidence and tranquillity on the team and encourage outside-the-box solutions.
3. Leveraging connections included developing informal community and inter-organisational connections to maintain real-time updates in emergencies, and an ad-hoc system of mentoring as a source of information and inspiration.
4. Learning to act in the face of risk is achieved through having a thorough understanding of the local context to limit failure, knowing how to work around organisational rules, and understanding the limits of personal values.
5. Sustaining energy is the most difficult aspect to control in emergency situations. It is a factor of personal character and self-awareness, physical and psychological preparation, relying on colleagues to monitor stress, disconnecting from work, and effectively dealing with trauma when it occurs.

Through this study, we have seen that a humanitarian's unique, individual practices can be combined to fit together within a larger framework maximising work effectiveness and personal satisfaction. Each humanitarian finds their own way to cope with the challenges they encounter, and keeping the balance is key.

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Mother and child health nutrition programme in Uganda

WFP/Marc Hofer, Uganda, 2010

## Exclusive breastfeeding promotion by peer counsellors in sub-Saharan Africa

### Summary of published research<sup>1</sup>

Exclusive breastfeeding (EBF) is reported to be a life-saving intervention in low-income settings. A recent cluster-randomised trial set out to assess the effect of breastfeeding counselling by peer counsellors in Africa.

Twenty-four communities in Burkina Faso, 24 communities in Uganda, and 34 communities in South Africa were assigned in a 1:1 ratio, by use of a computer-generated randomisation sequence, to the control or intervention clusters. In the intervention group, the research team scheduled one antenatal breastfeeding peer counselling visit and four post-delivery visits by trained peers. The data gathering teams were masked to the intervention allocation. The primary outcomes were prevalence of EBF and diarrhoea reported by mothers for infants aged 12 weeks and 24 weeks. Country-specific prevalence ratios were adjusted for cluster effects and sites. Analysis was by intention to treat.

A total of 2,579 mother-infants pairs were assigned to the intervention or control clusters in Burkina Faso (n=392 and n = 402, respectively), Uganda (n=396 and n=369, respectively), and South Africa (n=535 and 485, respectively).

The prevalences of EBF at 12 and 24 weeks of age are given in Table 1, and the prevalences of diarrhoea in Table 2. These show a much higher prevalence of EBF in the intervention groups in Burkino Faso and Uganda at both 12 and 24 weeks. The prevalence and differential between the intervention and control groups is much lower in South Africa. An impact on diarrhoea prevalence was not found.

The results for South Africa must be viewed in the context of EBF being rare at baseline. Most people in rural and urban South Africa purchase most of their food and the Department of Health's routine child health services have a history of promoting commercial infant formula as part of the protein energy malnutrition scheme, while the International Code of Marketing of breastmilk substitutes is not yet legislated in South Africa.

The authors conclude that low-intensity individual breastfeeding peer counselling is achievable and, although it does not affect the diarrhoea prevalence, can be used to effectively increase EBF prevalence in many sub-Saharan African settings.

The authors of the study caution that the community based approach could possibly have resulted in socially desirable answers. The results were based on self-reports so that a bias towards desirable answers cannot be ruled out. There was also some questionnaire fatigue in the Ugandan site, i.e. reluctance to fully engage in answering similar questions after a few interviews.

Overall, however, the authors conclude that low-intensity individual breastfeeding peer counselling is achievable and, although it does not affect the diarrhoea prevalence, can be used to effectively increase EBF prevalence in many sub-Saharan African settings.

<sup>1</sup> Tylleskar, T et al (2011). Exclusive breastfeeding promotion by peer counsellors in sub-Saharan Africa (PROMISE-EBF): a cluster-randomised trial. *www.thelancet.com* Vol 378, July 30, 2011, pp 420-427

Table 1: EBF prevalence at 12 weeks and 24 weeks of age

	EBF (24 hour recall) at 12 weeks				EBF (24 hour recall) at 24 weeks			
	Intervention	Control	Prevalence ratio	95% CI	Intervention	Control	Prevalence ratio	95% CI
Burkino Faso	79% (310/392)	35% (139/402)	2.29	1.33-3.92	73% (286/392)	22% (88/402)	3.33	1.74-6.38
Uganda	82% (323/396)	44% (161/369)	1.89	1.70-2.11	59% (232/396)	15% (57/369)	3.83	2.97-4.95
South Africa	10% (56/535)	6% (30/485)	1.98	1.30-3.02	2% (12/535)	<1% (2/485)	9.83	1.40-69.14

Table 2: Diarrhoea prevalence at 12 weeks and 24 weeks of age

	Diarrhoea prevalence at 12 weeks				EBF (24 hour recall) at 24 weeks			
	Intervention	Control	Prevalence ratio	95% CI	Intervention	Control	Prevalence ratio	95% CI
Burkino Faso	5% (20/392)	9% (36/402)	0.57	0.27-1.22	7% (26/392)	8% (32/402)	0.83	0.45-1.54
Uganda	10% (39/396)	9% (32/369)	1.13	0.81-1.59	13% (52/396)	16% (59/369)	0.82	0.58-1.15
South Africa	8% (45/535)	7% (33/485)	1.16	0.78-1.75)	10% (54/535)	7% (33/485)	1.31	0.89-1.93

## Effects of a conditional cash transfer programme on child nutrition in Brazil

### Summary of published research<sup>1</sup>

The Bolsa Familia programme (BFP) in Brazil is the world's largest conditional cash transfer programme. It reaches 5,564 municipalities in the 27 states of Brazil and about 11 million families (25% of the Brazilian population). The programme guarantees direct cash transfers to: families in poverty or extreme poverty (household income per capita below US\$44 and below US\$22 respectively in 2005-6), families with children 0-15 years of age and families with a pregnant or lactating woman.

In 2008, the age group for the children was extended to 17 years. In most cases, the cash transfer is paid to the reference female of the family group. The per capita income cut-offs and the values of cash transferred are readjusted every two years or so, by decree. The value per family depends on the poverty threshold and family composition. No nutrition supplement is distributed.

Once a family enrolls, it must comply with certain health and education conditions to remain in the programme: i) a minimum school attendance of 85% of the monthly school hours for children 7-17 years old, ii) a health and nutrition agenda for beneficiary families with pregnant women, breastfeeding mothers or children under 7 years of age (pre-natal care, vaccination, health and nutrition surveillance).

A study that has just been published set out to examine the association between the BFP and the anthropometric indicators of nutritional status in children. Using the opportunity provided by vaccination campaigns, the Brazilian government promotes Health and Nutrition Days to estimate the prevalence of anthropometric deficits in children. Data collected in 2005-6

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A family enrolled in the cash transfer programme





A family enrolled in the cash transfer programme

©fotos de Bruno Spadry/NDP

for 22,375 impoverished children under 5 years of age were employed to estimate nutritional outcomes among recipients of the BFP. All variables under study, namely child birth weight, lack of birth certificate, educational level and gender of family head, access to piped water and electricity, height for age, weight for age and weight for height, were converted into binary variables for regression analysis.

The subsequent analysis found that children from families exposed to the BFP were 26% more likely to have normal height for age than those from non-exposed families. This difference also applied to weight for age. No statistically significant deficit in weight for height was found. Stratification by age group revealed 19% and 41% higher odds of having normal height for age at 12-35 months and 36-59 months of age, respectively in children receiving the programme and no difference at 0-11 months of age.

The authors of the study note that others studies have found that the Gini index, an indicator of income distribution, remained stable in Brazil for many years but has dropped consistently since 2001. Almost one quarter of the drop is attributable to the BFP. Furthermore, propensity score analysis used in the baseline study for the BFP showed larger family expenditures among enrolled families than in the comparison groups, especially on food (US\$172 more a year on food items).

The authors conclude that the BFP can lead to better nutritional outcomes in children between 12-59 months of age. However, longitudinal studies designed to evaluate the impact of the BFP are necessary to determine if the nutritional effects observed in the study can be attributed to the conditional cash transfer programme. Furthermore, there is a need to guarantee families in the BFP increased access to goods and services conducive to improved nutrition, which should in turn result in improved health. Similarly, to guarantee programme effectiveness, the Brazilian government needs to provide more and better services in the spheres of basic education, health, social protection and inclusion in the labour market.

<sup>1</sup> Paes-Sousa. R, Santos.L and Miazaki. E (2011). Effects of a conditional cash transfer programme on child nutrition in Brazil. Bulletin of the World Health Organisation 2011; 89: 496-503. Published online: 29th April 2011

## MUAC and weight-for-height in identifying high risk children

Summary of research<sup>1</sup>

The World Health Organisation (WHO) and UNICEF propose to use two independent criteria for diagnosing non-oedematous severe acute malnutrition (SAM) in children aged 6-60 months: mid-upper arm circumference (MUAC) less than 115 mm and weight-for-height z-score (WHZ) less than -3 (based on WHO growth standard). WHZ has been used for years in clinical settings for diagnosing SAM, but the use of MUAC was introduced more recently with the development of community-based management of SAM. In practice, large-scale programmes increasingly use MUAC as single diagnostic criteria as it is closely related to the risk of dying and is easy to implement at the community level after minimum training by health workers or even by volunteers. MUAC and WHZ, however, do not identify the same set of children as having malnutrition, and using only one of the diagnostic criteria proposed by WHO may potentially leave some high-risk children untreated.

A newly published study used an old data set from Senegal to examine the risk of dying of children having either a low MUAC or a low WHZ or a combination of both in the absence of treatment. The specific objective was to test whether combining both MUAC less than 115 mm and WHZ less than -3 would improve the identification of high-risk children.

The original study, which was conducted in 1983 and 1984, followed an open cohort of about 5000 children, comprising all children under 5 living in 30 villages. The team visited the children four times at six-month intervals in May and November of 1983 and 1984. At each visit, comprehensive anthropometric measurements were taken (weight, height, head circumference, arm circumference, triceps skin fold and subscapular skin fold).

For this analysis, the data from all children aged 6-59 months at the time of anthropometric assessment were used. WHZ was calculated using the WHO growth standards. Receiver operating characteristic (ROC) curves (sensitivity vs. 1-specificity) were calculated for WHZ and for MUAC using death within six months as outcome. Only the part of the curve with a percentage of false positive less than 5% was explored, as these indicators are always used in a context of limited treatment capacity and a high specificity is required. The anthropometric index with the highest ROC was considered as more adapted to identify high-risk children.

Specificity and sensitivity of 'MUAC less than 115 mm AND WHZ less than -3' and also for 'MUAC less than 115 mm OR WHZ less than -3' were also estimated and positioned in relation to the ROC curve of MUAC and WHZ.

In total, 12,638 measures were made on 5,751 children, and 303 deaths occurred within six months of the nutritional assessment. The criteria 'WHZ less than -3 AND MUAC less than 115' had a specificity of 99.0% and a sensitivity of 5.9%. For 'MUAC less than 115 mm OR WHZ less than -3', the specificity was 96.9% and the sensitivity was 13.2%. Both points combining WHZ less than -3 and MUAC less than 115 mm were positioned above the WHZ ROC curve but below the MUAC curve.

For a MUAC, the threshold of 112 mm had a specificity of 99.1, comparable with the specificity observed for 'MUAC less than 115 AND WHZ less than -3'. However, the sensitivity of MUAC 112 mm was

6.0%, slightly higher than for these two indices combined. For a MUAC of 119 mm, the specificity was 96.9%, comparable with the specificity of 'WHZ less than -3 OR MUAC less than 115 mm'. However, the sensitivity was higher at 14.9%.

This study confirms that MUAC has a better ability than WHZ to assess the risk of dying. This is consistent with a previous analysis of the same data set, which showed that MUAC was superior to weight for height (percentage of the National Centre for Health Statistics median) to identify high-risk children. This is also consistent with other reports from the literature.

In addition to confirming previous findings, this study also shows that using WHZ equal to or <-3 and MUAC equal to or <115 mm together did not improve the identification of high-risk children. The position of two possible combinations of WHZ equal to or <-3 and/or MUAC equal to or <115 mm compared with the MUAC ROC curve suggests that using the two indices together may lead to poorer results than using MUAC alone. Arguably, using WHZ equal to or <-3 AND MUAC equal to or <115 mm increases the specificity, but this can be obtained by using a lower MUAC cut-off (112 mm) with a greater sensitivity. Conversely, using WHZ equal to or <-3 OR MUAC equal to or <115 mm increases sensitivity, but it also decreases the specificity. Using a MUAC cut-off of 119 mm, with the same specificity as WHZ equal to or <-3 OR MUAC equal to or <115 mm, will result in a higher sensitivity.

Several explanations have been given to explain the apparent superiority of MUAC to assess the risk of dying. A first hypothesis is that MUAC, which grows continuously with age, selects younger children with a higher risk of dying when used with a cut-off not adjusted for age. Another explanation might be that MUAC is closely related to muscle mass. A close association between MUAC and muscle mass has been suggested by corresponding measures of body composition by Dual energy X-ray absorptiometry. The underappreciated metabolic role of muscle both in health and disease may explain its association with survival.

Finally, it has been shown that WHZ differences are largely influenced by leg length, unrelated to the nutritional status of the child, which may also decrease its ability to identify high risk children.

This study was based on MUAC data carefully collected by skilled investigators. Its findings may not be extrapolated to other settings where these conditions are not met. Appropriate training of field workers and standardisation of measures are probably needed to use MUAC successfully in field conditions to identify high-risk children. The use of colour banded MUAC straps could also help to minimise measurement errors.

In conclusion, this study shows that there is no benefit for programmes in using both MUAC equal to or <115 mm and/or WHZ equal to or <-3 to identify high-risk children. If a higher sensitivity is required for programmatic reasons, for instance to take into account a poor food security, it seems preferable to increase the MUAC cut-off rather than combine it with WHZ. In the same way, if a higher specificity is required, in case of limited treatment capacity, lowering the MUAC cut-off should be preferable.

<sup>1</sup> Briend. A et al (2011). Mid-upper arm circumference and weight-for-height to identify high-risk malnourished under-five children. Maternal and Child Nutrition 2011

## Civil-military coordination during humanitarian health action

### Summary of position paper<sup>1</sup>

A recent position paper has been produced to guide country-level health clusters on how to apply Inter-Agency Standing Committee (IASC) civil military coordination principles to humanitarian health operations. The paper is intended to serve as the basis for discussions with a wide range of stakeholders including health cluster partners, military representatives, civil defence and civil protection actors and other humanitarian clusters. The relation between health humanitarian actors and non-state military groups is outside the scope of the paper.

The paper reviews the existing guidance on civil-military coordination and attempts to clarify how it applies to the health sector. It also identifies some gaps in the guidance and emerging challenges.

The document's target audience is health cluster participants involved in civil-military coordination. It is also intended to stimulate discussion within the overall humanitarian community and military counterparts.

The document is informed by and builds on the more general efforts of the United Nations (UN) and other humanitarian organisations to identify appropriate civil-military coordination modalities during humanitarian crises. The position paper is a work in progress that may be revised to take account of inputs from global health cluster (GHC) partners and other humanitarian agencies, as well as developments in the area of civil-military coordination.

The scenarios in which humanitarian health agencies operate are complex in terms of internal dynamics and interactions with external parties involved in the response. Over the last decade, military actors have been increasingly involved in relief activities in various settings, including sometimes providing direct assistance to crisis-affected populations. From a humanitarian perspective, this poses specific questions regarding the extent to which their involvement has a positive impact and, conversely, whether and how this involvement might affect humanitarian organisations' ability to respond impartially to the needs of the population. Civil-military coordination problems are particularly relevant for the health sector. Health activities have historically been part of counterinsurgency military strategies. More importantly, rehabilitating the health sector is increasingly seen as key to ensuring the country's stability.

### Different mandates

Humanitarian organisations and military forces have different mandates:

- Humanitarian organisations endeavour to provide life-saving assistance to affected populations based on assessed and documented needs and on the humanitarian principles of humanity, independence and impartiality.
- Civil defence and civil protection units are usually deployed in a humanitarian crisis on the basis of an agenda of the government to which they belong. As there is no agreed international definition for these categories, the different mandates, modes of operation and natures (civilian or military) of these actors must be considered when identifying whether and how the humanitarian mechanisms on the ground will engage and coordinate with these actors.
- Militaries may be present in the context of a humanitarian crisis as combatants, they may have a specific mandate granted by the Security Council (peacekeeping, peace-enforcement or combat), or they may deploy internationally at the invitation or with permission of the affected government. Military forces may be deployed abroad or inside their own borders. While the specific mandate will differ in different settings, it is important to recognise that militaries are deployed with a specific security and political agenda or in support of a security and political agenda.

These fundamental differences at the core of the mandates – the needs of the population on the one hand and political/security goals on the other – guide the respective decision-making processes of humanitarians and the military. This can result in minor differences that still allow for cooperation (e.g. when responding to a natural disaster in a non-conflict setting) or major differences (e.g. those that may occur in combat settings). Any confusion between the different mandates carries the risk that humanitarian aid agencies may be drawn, or perceived to be drawn, into conflict dynamics. Humanitarian agencies that are perceived as acting according to agendas other than their humanitarian mandate may lose their credibility in the eyes of other local actors, as well as the trust of the population they are there to serve. This can severely affect their ability to operate and ultimately, create security risks for their staff and for the aforementioned populations.

## Research

Identifying a way to engage with the military – one that does not dangerously confuse the two mandates – is at the core of the civil-military coordination challenge.

### Limitations in current guidelines

The IASC's current guidelines clearly outline the principles that should inform the relations between military and civilian actors. Some limitations in the guidelines emerged during the preparation of the position paper:

- The guidelines primarily address the UN peace-keeping environment. Multi-stakeholder peace operations pose new challenges that the guidelines address only partially.
- The multiplication of actors involved in relief activities has resulted in an ever-increasing variety of operational scenarios for civil-military coordination. For example:
  - National armies and civil defence and civil protection units intervening in their own country, assisted by an international response effort (e.g. Pakistan earthquake in 2007 and floods in 2010)
  - Civil-military units with a reconstruction mandate endorsed by the national government (e.g. provincial reconstruction teams in Afghanistan)
  - Private security firms protecting the offices, homes and staff of humanitarian organisations.

### Proposed revision of the civil-military coordination guidelines

The GHC encourages the revision of the civil-military coordination guidelines to respond to the new challenges posed by emerging complex scenarios including the following:

The proliferation of non-traditional actors in the humanitarian arena has blurred the lines of distinction between humanitarian action based on the principles of humanity and impartiality and other activities inspired by different agendas. This calls for an analysis of how the interactions between different actors and agencies can affect humanitarian principles.

National civil defence and civil protection agencies, which are part of the international disaster response system, raise a number of questions for coordination which must be addressed in relation to the specific nature of the entities involved. There is no internationally agreed definition of civil defence or civil protection actors in terms of how they operate, what is their mandate or nature of the relationship with military or security forces of their countries. While in some countries and regions, these terms may have developed distinct meanings, these terms are sometimes used interchangeably. Given their increasing importance in humanitarian response, improved coordination is needed between humanitarian health actors and civil protection actors in the field and globally. How this should happen in a specific setting depends on the specific nature of the civil defence and civil protection actors in that setting. It may be appropriate to include some of these actors in the health cluster coordination mechanism itself, where these are civilian actors explicitly operating on the basis of humanitarian principles. It is important to note that even such entities may regularly rely on their own national military forces for transportation and other logistical support when responding internationally and that this should be considered in determination of coordination

approaches. In other cases where there is a stronger link to a political or military agenda (including where the entities themselves are comprised of military personnel), the approach should more closely resemble the approach to coordination with military actors in the setting.

Private security providers have become part of the crisis response landscape. Humanitarian organisations frequently use the services offered by these companies, ranging from security training to facility protection services and more rarely, the armed escort of humanitarian convoys. International guidelines contain little guidance on the use of private security providers. When debating whether to use such services, humanitarian agencies should apply the general principle that interaction with the military must not affect the actual or perceived independence of humanitarian health action.

The scenario where national armies and civil defence and civil protection units are intervening in their own country, assisted by an international response effort, raises specific issues that go beyond the scope of the traditional civil-military coordination modalities. National armies are often leading or are the main actors of a national civil defence and civil protection system. International assistance may be deployed, upon request of the national government, to support the national response effort but the final decision on what to do and how to carry out the relief effort rests with the national authorities. In this framework, certain civil-military coordination principles (e.g. last resort, no direct assistance) are difficult to apply and to some extent not useful to guide relations with national military forces. Certain dilemmas remain, particularly when national military forces are also involved in responding to internal political crisis and unrest (e.g. northern Pakistan).

In recent years, there has been an increasing tendency to include humanitarian assistance as part of or in the service of broader agendas of a military or political nature. This trend has been formalised with the 'comprehensive approach' concept embraced by NATO, which aims at combining military, political and humanitarian activities in the overall goal of the stabilisation of a country. This concept – first operationalised with the provincial reconstruction teams (PRTs) in Iraq and Afghanistan – may become the model for future civil-military coordination. However, this blending of strategies and tactics serves to undermine the international humanitarian community's core humanitarian principles. The integrated mission concept developed by the UN follows a similar trend. Although there are significant attempts to protect the humanitarian space within integrated missions, the concept foresees the integration of different agencies and components into an overall political/strategic crisis management

framework. This can blur the lines between the UN's different political and humanitarian branches, with predictably negative results.

The military's involvement in the provision of indirect and direct health activities is multi-faceted:

- Armed forces deployed abroad traditionally offer some form of health services to the local population through their military medical units.
- Health activities are an important component of counterinsurgency strategies.
- NATO's 'comprehensive approach' includes health recovery activities as an integral part of its military intervention strategy (for example, in Afghanistan).

Evidence from the field suggests that most of these health actions go unreported and uncoordinated with the overall health national framework. The GHC is concerned that these health services may not be appropriate to the context and that ad hoc health actions might raise the expectations of the local population and create inequalities and inequities in the provision of health services.

The GHC reiterates the guiding principle that health activities should be based on assessed health needs and guided by humanitarian principles, not by objectives that are either political or military in nature. It recommends that health activities should not be used as a component of a "winning hearts and minds" strategy.

The GHC recommends that whenever military actors are involved in the provision of health services, any such action should follow the health priorities and plans approved by the national government/local health authorities, and adhere to the international humanitarian response plans.

Local actors and populations view international aid organisations more and more as part of a 'western agenda' and less and less as neutral and impartial agencies responding to humanitarian needs. As a possible consequence, the number of security incidents targeting aid workers has been on the rise since 1997, and attacks on medical workers and facilities are a common feature of armed conflicts. This is an element of the larger phenomenon of the shrinking of the humanitarian space, which means humanitarian agencies are less able to access affected populations and provide much-needed assistance.

The GHC is concerned that continuing coordination with military forces might further skew local actors' and populations' perception of the impartiality of humanitarian health actions.

<sup>1</sup> IASC Global Health Cluster (2011). Civil-military coordination during humanitarian health action. Provisional version – February 2011

# Operational research in low-income countries: what, why, and how?

Summary of research<sup>1</sup>

A Lancet published article puts forward a definition of operational research, articulates its relevance to infectious-disease-control programmes, and describe some of the enabling factors and challenges for its integration into programme settings and into changing policy and practice.

From a health programme perspective, a pragmatic definition of operational research is the search for knowledge on interventions, strategies, or tools that can enhance the quality, effectiveness, or coverage of programmes in which the research is being done.

## What is operational research?

Operational research involves three main types of method: descriptive (cross-sectional, if a strong analytic component is also present), case-control, and retrospective or prospective cohort analysis. Basic science research and randomised controlled trials should not be included as operational research. The randomised controlled trial determines efficacy of an intervention in a strictly controlled environment with inclusion and exclusion criteria, whereas operational research should assess effectiveness within routine settings. Both types of research play an important part in the generation of new knowledge: the randomised trial provides clear-cut data on the efficacy of an intervention in defined groups of patients, whereas operational research determines how such interventions are translated into benefit in the heterogeneous setting of routine care.

The key elements of operational research are that the research questions are generated by identifying the constraints and challenges encountered during the implementation of programme activities (prevention, care, or treatment), and the answers provided to these questions should have direct, practical relevance to solving problems and improving health-care delivery. A strong connection exists between good monitoring and evaluation of infectious-disease programmes and operational research.

Good quality data on cases and treatment outcomes can be used to do operational research, which in turn can help to improve the routine data collected in the field. Nothing is more encouraging to healthcare workers than to see their work in recording and monitoring data on treatment cards and registers being used to answer important questions, provided that this performance is recognised and applauded.

There are at least three reasons why operational research is relevant to health. To improve programme outcomes in relation to medical care or prevention, to assess the feasibility of new strategies or interventions in specific settings or populations, and to advocate for policy change.

<sup>1</sup> Basinga, P et al (2011). Effect on maternal and child health services in Rwanda of payment to primary health-care providers for performance: an impact evaluation. *Lancet* 2011, 377: 1421-28

## Box 1: Malawi National Tuberculosis Control programme

The experience of integrating operational research within the Malawi National Tuberculosis Control (NTP) programme is an example of how research elements can be successfully built into a national programme, and be of great value in shaping policy and practice.

Between 1996 and 2004, many studies were designed, planned, and budgeted within the NTP. The programme invested in a full-time operational-research officer and a data-management officer who worked alongside the programme manager and provided on-the-job training and supervision of research. Planned and continuing programmatic research was always an agenda item at the regular 6-weekly programme management group meetings. The NTP held an annual scientific review and dissemination

meeting, and operational-research findings were presented by local and international investigators to all stakeholders. A medical editor was recruited to give an annual workshop on paper writing skills and on how to get the research published.

All publications in national and international journals were collated each year, and the resulting booklet was distributed to health-care workers around the country at national meetings and during supervision so that everyone had potential access to the results of locally generated research. All these components were built into the NTP plans with explicit budget streams, and these helped to develop the capacity to ask pertinent questions and to carry them through to publication for dissemination.

The study question must be of importance to programme implementation for 'buy in'. Much of the internationally published research done in Africa has been generated by academic institutions and researchers, predominately reflecting their interests or based around basic science or questions of intervention efficacy. Although useful, this type of research needs to be balanced by increasing the work done by operational organisations (e.g. non-governmental organisations (NGOs)) that will have different perspectives. Different actors will naturally have comparative advantages for particular kinds of research that can benefit programmes. For example, an academic institution might be best placed to design and implement a randomised clinical trial or a vaccine study, whereas an implementing organisation might be best suited to take the lead in feasibility and acceptability studies. If research is disconnected from health-service delivery with little or no input from programme staff in the research design and process it may be being resented as an additional and often unwanted extra on existing busy and often overburdened services.

### Enabling factors and challenges

Factors that enable operational research and its translation into policy and practice include:

- Research questions are generated from within programmes
- Research planning, agenda setting, objectives, targets, and budgeting are included within programme plans and as agenda items in programme management meetings
- Research projects use simple designs and are focused to answer implementers' questions
- Close collaboration and partnership has been established between researchers and programme managers
- Research is done within existing systems and not done in parallel
- A competent research officer works alongside the programme manager
- Training, mentorship, and on-the-job supervision is sustained over time
- Sufficient programme capacity exists to host workshops, present, and discuss research findings, and ensure their translation into policy and practice
- Programme staff have access to scientific literature through subscribed journals or the internet
- Sufficient numbers of programme staff are available with the capacity to do operational

research, write up manuscripts, and publish relevant research

- Funding for applied research is available and individuals develop a desire to participate in research and are mentored
- NGOs and other stakeholders are recognised and have a contributory role in operational research
- Good quality, appropriate, and relevant research gets translated into policy and practice and thereby has a spin-off effect to stimulate more research

One challenge is that foreign academic institutions often have the funding, time, and mandate for research and thus the associated power in decisions about what gets done. Local institutions should also be supported with money and staff for operational research, thus allowing them the necessary independence to make decisions, take responsibility, and establish partnerships that are more equal in resources and decision-making power.

The authors suggest building a research agenda into district and national programmes, based on local needs, but primarily reflecting the research priorities of the country. Within a country, it is important to have a coordination mechanism to provide a clear strategy of who sets research priorities and how choices are made at national level.

A bibliographic analysis of tuberculosis research done globally between 1997 and 2006 showed that Africa, which has the highest tuberculosis case rate burden in the world, contributed only 7% of global research output.

Local programmes have a tendency to outsource research to academic institutions, which then set up parallel research systems or affiliated sites. Although this might be a highly efficient means to produce quality research and scientific publications, if there is no satisfactory mechanism for integration, collaboration, and communication with the programme, this approach might hinder the development of operational-research capacity by drawing national researchers away from national programmes. Furthermore, because research institutions and technical agencies (either international or national) normally have no mandate or responsibility for implementing research findings after their studies are completed, the results often end up being sent or presented to busy programme managers, who have no ownership of the research and who are there-

fore unlikely to direct the effort needed to translate the research into policy and practice.

A change to a partnership model would enable greater involvement, co-ownership, and responsibility of programme staff along with researchers and policy makers. For example, the research question should be developed by the entire team, including those involved with questionnaire development, collection and analysis of data, and dissemination of the results. Planning at this stage also requires a clear engagement with the people who make decisions on policy so that they are aware of what is being asked, supportive of the research, and interested to learn about the findings.

Capacity and time for research activities, such as writing study protocols or dealing with peer review are often lacking within most programme settings but are essential to see research to completion. However, if they are planned as an essential part of the programme, they can be accomplished (see Box 1 for an example).

The failure to publish research is not just confined to the low-income countries: a recent report found that only 53% of 79 research studies reported in conference abstracts were published in peer-reviewed journals after nine years. Common reasons for so-called research 'waste' include the wrong choice of research question, poorly designed studies, and failure to publish relevant research promptly or at all.

There is a perceived need to create a so-called critical mass of trained researchers within health programmes to ensure that sufficient numbers of researchers continue in post to sustain future research. The Japanese Research Institute of Tuberculosis, the Japanese Foundation for AIDS Prevention, the International Union Against Tuberculosis and Lung Disease, and the US Centres for Disease Control and Prevention are among some of the institutions that support international training on operational research.

There is also a need to assess whether current capacity-building initiatives are having an effect, such as tracking personnel after training (e.g. through databases) to document the outcomes, explore any barriers, and capture suggestions for improving the situation. Many researchers from low-income countries, even after obtaining PhDs, do not take up research when working back in disease-control programmes. This might be because they end up in senior-level management posts, the infrastructure to plan or do research is lacking, or there are simply no opportunities

### Creating opportunities

There are various ways in which these opportunities could be created. First, small grants could be offered to pursue locally applied research. Second, junior and senior operational research fellowships could be created for colleagues in low-income countries with active mentoring by international researchers, institutions, or NGOs.

Bureaucracy should be kept to a minimum with the main focus on deliverable outcomes that would include publications with specific

<sup>1</sup> Zachariah et al (2009). Operational research in low-income countries: what, why, and how? *The Lancet Infectious Diseases*, Volume 9, Issue 11, Pages 711 - 717, November 2009

benefits to programmes and communities. Targets for research output should be set (e.g. one or two research papers each year submitted to a peer-reviewed journal), with financial and technical support continued when targets have been met and termination of support if targets have been missed. Young national researchers should have the opportunity to present scientific abstracts and participate at regional and international conferences, and more attention should be paid to teaching the principles of how to write scientific papers and to mentoring.

Attention must also be paid to the problem of poor access to up-to-date scientific literature, and despite laudable initiatives (such as the Health InterNetwork Access to Research Initiative), this remains a barrier in low-income countries. Free and open access for all articles of interest to low-income countries is urgently needed. For example, Médecins Sans Frontières (MSF) has negotiated with publishers to allow free access to all articles written by its staff.

The distinct role for NGOs in operational research should be recognised for two main reasons. First, NGOs such as MSF often work in conflict settings, with marginalised and vulnerable populations, or with neglected diseases. Academics rarely have access to such settings, and national programmes might decide they do not have sufficient resources to study them. Research in these areas is, nevertheless, needed to better understand how to manage questions such as mental health issues in war zones, treatment and diagnosis of neglected diseases, or offering of HIV/AIDS care in slum settings. Secondly, NGOs are, by mandate, implementers and can thus be involved in the translation of research findings into policy and practice. If they have skills in research and advocacy as well as sufficient financial and human resources, then they probably have the potential to actively engage in operational research and help change practice.

However, NGOs are sometimes not the appropriate entities for designing or implementing research. They might lack the institutional support, culture, and skills for interacting with national programmes and decision makers. NGO focus might be on solving localised, short-term problems, they might have had little exposure to systems thinking and they might lack the training and capacity to do rigorous research. They might also have a rapid turnover of staff, which hinders the sustainability of research and the ability to build up trust and understanding with country partners. These points might explain why NGOs rarely undertake research, are rarely asked by country programmes to do so, and why the research they do undertake is sometimes badly done, with little or no programme impact.

The authors conclude that they have made the case for the importance of operational research as a necessary component of health programming in low-income countries. What is needed now is further development of operational-research capacity, allocation of specific resources, and the need for different participants such as international and national academic institutions, national programme managers, and NGOs to work together in promoting operational research.



Margaret Shonga, participating farmer, her husband Donald Gondwe and their baby, standing in a field of sorghum

## Effects of agricultural and nutrition education projects on child health in Malawi

Summary of published research<sup>1</sup>

A recent study set out to investigate whether children in households involved in a participatory agriculture and nutrition intervention had improved growth compared to children in matched comparable households. The study also explored whether the level of involvement and length of time in the project had an effect on child growth.

The Soils, Food and Healthy Communities project (SFHC) was initiated by Ekwendeni Hospital and aimed to improve child nutritional status amongst smallholder farmers in a rural area in northern Malawi. In villages surrounding Ekwendeni, a town in Mzimba district,

over half of the smallholder families experience food insecurity every year. Malaria is endemic and child malnutrition rates are similar to the national average at 48%. Agricultural interventions involved intercropping legumes and visits from farmer researchers, while nutrition education involved home visits and group meetings.

The study employed a prospective quasi-experimental approach comparing baseline and follow up data in intervention villages with matched subjects in comparison villages. Mixed model analyses were conducted on standardised child growth scores (weight- and height-for-age Z-scores), controlling for child age and testing for effects of length of time and intensity of village involvement in the intervention.

Participants in intervention villages were self-selected and control participants were matched by age and household food security status of the child. Over a six year period, nine surveys were conducted taking 3,838 height and weight measures of children under the age of 3 years.

The study found that there was an improvement over initial conditions of up to 0.6 in weight-for-age (WAZ) Z-score (WAZ: from -0.4 (sd 0.5) to 0.3 (sd 0.4)) for children in the longest involved villages, and an improvement over initial conditions of 0.8 in WAZ for children in the most intensely involved villages (from -0.6 (sd 0.4) to 0.2 (sd 0.4)).

The authors conclude that longterm efforts to improve child nutrition through participatory agricultural interventions had a significant effect on child growth.



Esnai Ngwira, participating farmer, and her children, standing beside her maize field grown after legume residue buried into the ground

<sup>1</sup> Bezner Kerr R, Berti P and Shumba L (2011). Effects of a participatory agriculture and nutrition education project on child growth in northern Malawi. Public Health Nutrition 14 (8), 1466-1472



WFP, N Darfur, Sudan

Children and their caregivers enrolled in the BSFP

## Study of causes of persistent acute malnutrition in north Darfur Summary of study<sup>1</sup>

In spite of national and international efforts to manage the devastating impact of the conflict in Darfur which began in 2003, children in different parts of the region have consistently demonstrated high levels of global acute malnutrition (GAM) often exceeding the WHO emergency threshold of 15%. This has been found in areas where the food security situation appears to be 'good' according to the regional food security monitoring system (FSMS) established by the World Food Programme (WFP).

WFP recently conducted a study to shed light on this situation. The main objectives of this study were to investigate the underlying causes of acute malnutrition in North Darfur State, specifically in Kabkabyia town where the study was conducted, and to suggest feasible and realistic recommendations to address these that would guide future interventions and programmes.

### Context

Kabkabyia was selected as it had experienced a high GAM rate (>15%) among children under 5 years for the past five years, while the FSMS indicated that the town was relatively better off in terms of food security compared to other areas in North Darfur.

Kebkabiya town is located in the southwest of North Darfur State approximately 165 km from El Fasher, the capital of the state. The town is divided into 16 quarters, which are themselves divided into several sub-quarters. Following the first major attacks on rural Kebkabiya and Jebel Si in July 2003, there was a huge influx of internally displaced persons (IDPs) into Kabkabyia town.

Currently, it is estimated that 119,793 individuals are living in the town, with IDPs accounting for almost 70-75% of the population. Up until the start of the conflict in 2003, Kebkabiya was known as a central trading point for agricultural products such as cereals,

vegetables, fruits, and oleaginous plants cultivated in Kebkabiya and Jebel Si. The town was also known as a trading point for livestock such as sheep, goats, cattle from nomads, and for non-food items from El Fasher city.

The unstable security situation in Kabkabyia in recent years has limited people's access to agricultural lands. Since the onset of the conflict in the region, WFP has been providing Kabkabyia residents, including the IDPs, with food aid in the form of a general food ration (GFD). This aid, which is distributed once every 60 days, initially met 100% of the kcal requirement of the IDPs. With an improved food security situation over several years, the GFD ration was reduced in 2010 to provide 50% of the requirements (1200 kcal). Other food aid interventions such as food for education, food for work, blanket supplementary feeding programmes (BSFP), and food rations for households with malnourished children, e.g. supplementary feeding programmes (SFPs), have also been implemented. The FSMS data indicated that the decreased GFD ration did not adversely affected household food security.

### Study site and group

El-Salaam area was selected as the study site in Kabkabyia town as it had the second highest population density and the highest GAM rate in the town (>21% according to a May 2010 survey). El-Salaam area is composed mainly of IDPs who live outside of camps but are not living with relatives in the town.

For the purposes of the study, a household was defined as a group of people who routinely ate out of the same pot and lived in the same compound or physical location. In order to satisfy the objectives of this study, selected households had to be located in El-Salaam area in Kabkabyia town and have a child between 6-23 months of age.

Selected households were then organised into three clusters based on children's nutritional status:

**Cluster A:** children suffered no acute malnutrition at the time of conducting this study, i.e. children were well-nourished with +1 WHZ or above.

**Cluster B:** children suffering from moderate acute malnutrition at the time of conducting this study with a WHZ between -2 to -3.

**Cluster C:** children suffering from severe acute malnutrition at the time of conducting this study based on their WHZ score assessment, which was <-3.

### Study findings

The households in all three clusters were found to eat at least three meals per day. Food aid was reported to be consumed by a larger number of people than indicated by the ration cards shown to the study team. As a result, food aid reportedly only lasted between 20-30 days instead of the planned 60 days.

All of the households in clusters B and C, and a few households from cluster A, experienced food shortage several times during the year. Food shortages were also frequently experienced in all households that did not cultivate land, which was more prevalent in clusters B and C than in cluster A. Most affected households responded to food shortages by eating less favoured foods that were cheaper and of lower nutritional value, reducing the number of meals and portion size, as well as borrowing food and money. In addition, household heads also worked to generate income.

The study found that children started breastfeeding a few hours after birth and that most of these children were still breastfeeding during the time of the interviews. Complementary feeding for all the children in this study started at the age of 6 months<sup>2</sup>.

All households in the three clusters spent most of their income (more than 50%) on purchasing food. Earned income was also spent on purchasing firewood and paying for medical services in addition to food to supplement the GFD. In clusters B and C in particular, data suggested that households' adults who could work, would only seek work when there was no food and/or money in the households.

Water sources for all households in the three clusters came mainly from the hand pumps and water tanks, depending on which water source was nearer to the households. Enough water for all the households was collected in plastic jerrycans everyday and each jerrycan contained about 20 litres of water. Water samples were taken for testing from all households included in this study. These samples were positive for contamination for different types of bacteria such as *Citrobacter*, *Klebsiella*, *E.coli*, *Salmonella* and *Vibrio*.

For most of the households, latrines were present outside of the household and were donated by aid organisations. Each latrine was used by 2-5 households. Mothers in all households mentioned that they would wash children's hands several times during the day and would bath these children regularly. Mosquito nets and blankets were not observed

<sup>2</sup> Methodology and age of children investigated not reported for this indicator.

<sup>1</sup> WFP (2011). Study report. Causality study on causes of persistent acute malnutrition in north Darfur (Kabkabyia) 2010-2011. Report prepared by Insaf Ibrahim for WFP Sudan.

in most of households, particularly for households in cluster B and C.

Most households in cluster A were found to have been engaged in agricultural activities on their own land during the last rainy season where they cultivated mainly millet. Households in clusters B and C did not cultivate land which made these households dependent on food aid and on purchase of food from the local market.

Cluster A households ate a wider variety of food items in the two weeks prior to conducting the interviews when compared to households in cluster B and C during the same period. In cluster A, food types consumed included cereals, sugar, cooking oil, dry and fresh meat, milk, biscuits, dry okra, fresh vegetables, and sometimes fruits. In comparison, households in clusters B and C were found to have rarely consumed fresh meat, vegetables and fruits.

Children in cluster A were between the ages of 7-22 months and were found to have been fed more frequently i.e. between 3-4 times, when compared to children in clusters B and C who were fed between 2-3 times a day. Children in cluster B and C were mainly fed asida and poor quality molah made of dry meat, dry okra and kawal.

Heads of households in cluster A were found to have more access to regular sources of income and were either receiving monthly salaries from regular employment or owned small business which provided regular sources of income all year as well as access to cultivation. The household heads of cluster B and C depended on seasonal employment opportunities. These household reported experiencing money shortage and subsequently food shortage frequently during the year.

Water consumption/uses in all households seemed to be adequate. Differences between the three clusters were mainly in water uses/quality/hygiene. Observation of water containers, especially water jerrycans, from all households in cluster A looked clean unlike most jerrycans from cluster B and C.

Interview results suggest that left-over food was not consumed by the targeted children in most of the cluster A households. The few households in cluster A which fed targeted children left-over, reported feeding children the leftover food only after reheating. They also reported food was consumed shortly after it was prepared/reheated. These 'good' food handling practices were not prevalent in the other two clusters, where left over food was often fed to the targeted children.

Mothers from all households in cluster A reported washing their hands with soap and water more frequently during the day, 7-10 times, compared to mothers in clusters B and C who used to wash their hands only between 5-6 times. Soap consump-

tion was reported to be more prevalent in households in cluster A than in households in clusters B and C.

All children in cluster A were found not to have not experienced any illness such as diarrhea, vomiting, fever or common cold within the last 30 days prior to conducting of the interviews for this study. On the other hand, all children included in Clusters B and C were sick with diarrhoea, vomiting and fever within the last 14 days prior to conducting of the interviews. Food consumption of children in these clusters during the illness period was described as very poor. Mother reported that these were children mainly dependent on breastfeeding during the bouts of illness. These findings were more evident in cluster C (severely malnourished children).

### Discussion and Recommendations

Although the sample size of households included in this study was small and therefore, findings cannot be generalized to the larger population in Al-Salaam area or Kabkabyia town these findings are still useful for planning purposes.

Findings suggest that agencies should consider job creation interventions, e.g. income generating activities, that would lift vulnerable populations out of poverty. Training on proper finance management at the household level should also be considered in an effort to change the noted culture of "I only need to look for work when there is no money or food in the house".

It is also important to look at the adequacy of food aid rations received by displaced people. The study finds a significant discrepancy between number of people living in a household with the number registered on the ration card, so that the ration does not last as long as planned. The ongoing re-verification exercise of the IDPs in Darfur should help in addressing such discrepancies and should also assist WFP in determining which household are more vulnerable than others and therefore allow for provision of food aid required accordingly.

There is also a need for more education and awareness raising programmes around issues of hygiene and sanitation, as well as more provision of soaps/detergents or water purifiers as necessary to the households.

The issue of soap shortage in most of the households with malnourished children should also be addressed. This can be done through increasing the soap ration received, which should be linked to the results of the proposed verification exercise in order to properly match the number of people actually living in the household with the number of soap bars to be received.

There also needs to be awareness raising activities for mothers and child caregivers regarding symptoms and management of child malnutrition with an emphasis on child feeding practices.

# Effects of performance payments to health workers in Rwanda

## Summary of published research<sup>1</sup>

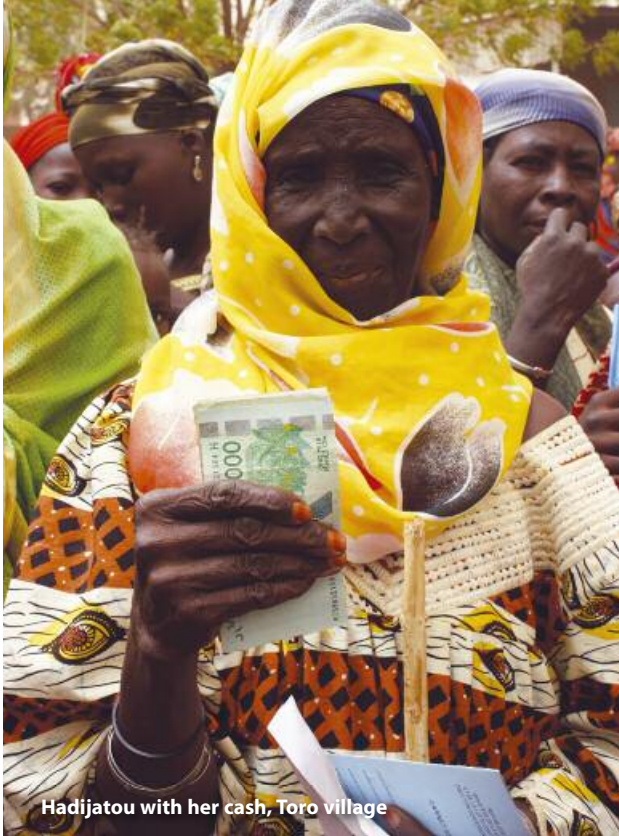
A study just published in the *Lancet* set out to assess the effect of performance-based payment of healthcare providers on the use and quality of child and maternal care services in healthcare facilities in Rwanda. Payment for performance (P4P) schemes provide financial incentives to healthcare providers for improvements in utilisation and quality of specific care indicators. They can affect the provision of health care in two ways: by giving incentives for providers to put more effort into specific activities and by increasing the amount of resources available to finance the delivery of services. However, P4P schemes can have a detrimental effect. For example, when P4P payments depend on completion of reports, providers might spend more time on administrative duties and less time ensuring that patients receive the best quality care. In this study, the researchers assessed the potential of a P4P scheme to increase use and quality of key maternal and child health services. The impact evaluation was done prospectively in parallel with the rollout of a national P4P programme in Rwanda.

One hundred and sixty-six facilities were randomly assigned at the district level either to begin P4P funding between June 2006 and October 2006 (intervention group, n=80) or to continue with the traditional input-based funding until 23 months after study baseline (control group, n=86). Randomisation was done by toss of a coin. The researchers surveyed facilities and 2,158 households at baseline and after 23 months. The main outcome measures were prenatal care visits, institutional deliveries (births), quality of prenatal care, child preventive care visits and immunisation. The study team isolated the incentive effect from the resource effect by increasing comparison facilities' input-based budgets by the average P4P payments made to the treatment facilities. The team estimated a multivariate regression specification of the difference-in-difference model, in which an individual's outcome is regressed against a dummy variable, indicating whether the facility received P4P that year, a facility-fixed effect, a year indicator, and a series of individual and household characteristics.

The model estimated that facilities in the intervention group had a 23% increase in the number of institutional deliveries and increases in the number of preventive care visits by children aged 23 months or younger (56%) and children aged between 24 months and 59 months (132%). No improvements were seen in the number of women completing four prenatal care visits or of children receiving full immunisation schedules. The team also estimated an increase of 0.157 standard deviations (95% CI 0.026-0.289) in prenatal quality as measured by compliance with Rwandan prenatal care clinical practice guidelines. The P4P scheme in Rwanda had the greatest effect on those services that had the highest payment rates and needed the least effort from the service provider.

Researchers concluded that P4P financial performance incentives can improve both the use and quality of maternal and child health services and could be a useful intervention to accelerate progress towards Millennium Development Goals for maternal and child health.

<sup>1</sup> Basinga, P et al (2011). Effect on maternal and child health services in Rwanda of payment to primary health-care providers for performance: an impact evaluation. *Lancet* 2011, 377: 1421-28



Hadijatou with her cash, Toro village

Concern, Niger, 2010/11

## 'Zap' it to me: short-term impacts of a mobile cash transfer programme

Summary of working paper<sup>1</sup>

In 2010, Concern Worldwide developed a humanitarian programme in response to the 2009/10 Niger drought and food crisis. In an attempt to prevent asset depletion and reduce malnutrition among drought-affected households, the programme provided unconditional cash transfers to approximately 160,000 households during the hungry season, the five-month period before the harvest and typically the time of increased malnutrition. Programme recipients were to receive an average of 22,000 CFA (US\$ 45) per month for five months, to a total of US\$ 215. In an effort to facilitate the disbursement of cash in remote areas, Concern decided to implement a pilot study across 116 villages in six communes of the Tahoua region.

Three interventions were chosen for the pilot programme. The reference was the standard manual cash intervention, whereby beneficiary households received

unconditional cash transfers of 22,000 CFA (\$US45) per month. The total value of the transfer over the five-month period was approximately two-thirds of the total annual gross domestic product (GDP) per capita. Payments were made on a monthly basis, whereby cash was counted into envelopes and transported via armoured vehicles to individual recipients. Rather than distributing the cash in each village, a central village location was chosen for groups of 4-5 villages. Programme recipients had to travel to their designated location on a given day to receive the cash transfer.

The two additional interventions were variants of the basic intervention. One of these aimed to reduce the costs of distributing cash to remote, sparsely-populated and in some cases, insecure rural areas. Programme recipients in the second group (zap) received their cash transfer via mobile phone (m-transfer). After receiving the electronic transfer, recipients had to take the mobile phone to a m-transfer agent located in their village, a nearby village or a nearby market to obtain their physical cash. Since less than 30 percent of households in the region owned mobile phones prior to the programme, Concern also provided programme recipients with mobile phones, as well as the zap account, and paid for the transfer charges. The second intervention thereby differed from the manual cash intervention with respect to the transfer delivery mechanism, as well as the provision of the handset and the m-transfer technology.

In an effort to disentangle the impact of the change in delivery mechanism from that of receiving a mobile phone, the third group (placebo) mirrored the manual cash intervention, but also provided a mobile phone. Like the manual cash group, programme recipients received \$US45 in physical cash on a monthly basis and had to travel to a meeting point to receive their cash. However, like the zap group, programme recipients also received a mobile phone (which was 'zap' enabled), yet did not receive their transfer via the mobile phone.

Prior to the introduction of the programme, Concern Worldwide identi-

fied 116 'food deficit' villages in the Tahoua region, i.e. those classified by the Government of Niger as having produced less than 50 percent of their consumption needs during the 2009 harvest. Of these, some villages were prioritised for the zap intervention based upon their population size and proximity to skirmishes near the Niger-Mali border, thereby reducing the sample size to 96 villages. The remaining eligible villages were randomly assigned between the basic (manual cash), placebo and zap interventions. In all, 32 villages were assigned to the cash group, 32 to the placebo group and 32 to the zap group.

Within each food deficit village, household-level eligibility was determined by two primary criteria: the level of household poverty (determined during a village-level vulnerability exercise) and whether the household had at least one child under five years. The number of recipient households per village ranged from 20 to 75 percent of the village population. In all villages, the cash transfer was provided to the woman.

A comprehensive household survey of more than 1,200 programme recipients was conducted in all 96 villages. The baseline survey was conducted in April 2010, with a follow-up survey in December 2010. The research team located over 98 percent of households for the follow-up survey. The household survey collected detailed information on household food security, demographics, asset ownership, agricultural production and sales, mobile phone ownership and usage, uses of the cash transfer and village and household-level shocks. A second dataset was collated on weekly agricultural price information from over forty-five markets for a variety of goods between May 2010 and January 2011, as well as the date of each cash transfer in each village. These data were used to test for different effects of the cash transfer delivery mechanism (zap or manual cash) on local market prices.

<sup>1</sup> Aker, J et al (2011). Zap it to me: The short term impacts of a mobile cash transfer programme. Centre for Global Development. Working Paper 268. September 2011.

Figure 1: Examples of communication materials used in the programme





The average per recipient cost over the life of the project was US\$12.76 in cash/placebo villages and US\$13.65 in zap villages, or US\$0.90 more per recipient. While there was a range of benefits from the zap intervention, the research focused on two in particular for the cost-benefit analysis: the monetary value of the reduced opportunity costs of programme recipients' time (a value of US\$0.91) and the increased cultivation of cash crops. Using average household okra production and the market price for okra during the programme period, the average value of this okra production in zap households would have been US\$5. This suggests that the cost-benefit ratio is greater than one, meaning that the additional costs of the zap intervention yielded an equivalent or higher monetary benefit for zap programme recipients. If the programme yields benefits in the longer-term, perhaps by allowing households to send and receive more informal transfers or access formal financial services, this could potentially yield a higher rate of return.

An intervention that provided a cash transfer via the mobile phone strongly reduced the costs of programme recipients in obtaining the cash transfer, and reduced the implementing agency's variable costs associated with distributing cash. This suggests that mobile telephony could be a simple and low-cost way to deliver cash transfers. In addition, those in the m-transfer group bought more types of food and non-food items, increased their diet diversity, depleted their non-durable assets at a slower rate and produced a more diverse basket of agricultural goods. These differences are primarily due to the m-transfer interven-

tion, and not to the presence of the mobile phone, suggesting that a programme that simply distributes mobile phones might not yield the same impacts. These effects appear to be due to the reduced costs of the programme and the greater privacy of the m-transfer mechanism, which are potentially linked with changes in intra-household decision-making.

The m-transfer approach may be limited in its application to all contexts. First, it will only be effective in cases where telecommunications infrastructure currently exists, which could limit its utility in remote areas. Second, in areas with high rates of illiteracy – as is the case in Niger – programme recipients might not be able to use the m-transfer technology on their own, implying that they might need help from other family members, friends or m-transfer agents. This could potentially limit the use of the technology by programme recipients for informal private transfers or in accessing other mobile financial services, but could be beneficial for the household as a whole. And finally, the short-term impacts of the programme might not persist in the longer-term. Despite these caveats, the widespread growth of mobile phone coverage, cheaper mobile phone handsets and m-money services in developing countries suggests that these constraints could be easily overcome. In addition, the benefits of the programme in a context such as Niger – a country with limited investment in power, roads and landlines, low literacy rates and one of the highest rates of financial exclusion in sub-Saharan Africa – suggests that the approach could thrive in less marginalised contexts.



Growth monitoring

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## Revisiting the concept of growth monitoring and its possible role in community-based programmes

### Summary of review<sup>1</sup>

Numerous countries still implement growth monitoring (GM) as their main community-based nutrition activity. A health survey in 2003 showed that 154 countries worldwide used growth charts, with two-thirds of the charts covering preschool-aged children. In the mid-1980s, several consultations suggested that GM should be designed with additional promotional activities to become growth monitoring and promotion (GMP). GMP was envisioned as a cornerstone activity that would help target at-risk children for secondary interventions, as a way of empowering caregivers and households to take an active role in preventing malnutrition of their children, and as a way to encourage the use of other services available through primary health clinics.

Differing opinions about the impact and outcomes of GM and GMP have led to different conclusions from evaluations and assessments of community-based programmes including GM. This has led to a relative lack of clarity and common ground in discussions about the value and place of GM and GMP in addressing the problem of undernutrition in children.

A recent review attempts to provide answers to questions about GM, such as its added value and possible place within community-based programmes.

The reviewed literature showed that the objectives and expectations of GM and GMP vary, and programme evaluations are performed based on different frameworks. Furthermore, multiple reasons for the lack of impact of GMP have been cited in evaluations. These include a focus on nutrition status rather than faltering growth, a misplaced emphasis on curative rather than preventive actions, enrolment of children in GMP programmes after (instead of during) infancy, the use of GM as an isolated activity instead of a cornerstone activity, the lack of individualised advice, the lack of positive feedback for mothers whose children are growing adequately, the lack of community participation, an oversimplification of the GMP process, and poor quality of implementation.

As a result of these evaluations, agencies behind large-scale implementation of GMP were criticized. At the same time, large programmes in Tanzania (Iringa), India (Tamil Nadu Integrated



Women in Abala Sani village at a mobile phone training session

Concern, Niger, 2010/11

<sup>1</sup> Mangasaryan, N, Arabi, M, and Schultink, W (2011). Revisiting the concept of growth monitoring and its possible role in community-based programmes. *Food and Nutrition Bulletin*, vol. 32, no. 1 © 2011, The United Nations University. <http://www.foodandnutritionbulletin.org/>

Nutrition Project), Madagascar, and Senegal showed that children whose growth is monitored and whose mothers receive nutrition and health education and have access to basic child health services have a better nutritional status and/or survival than children who do not.

The debate about GMP has remained ongoing. In 2003, a report by Save the Children UK questioned the evidence behind community nutrition projects in Bangladesh, Ethiopia, and Uganda. It also stated that “growth monitoring and promotion interventions are bound to fail unless they are explicitly linked to efforts to address the underlying causes of malnutrition.”

A systematic review of the evidence for the impact of GMP in 2007 provided a comprehensive view of various programmes worldwide and provided evidence that significant reductions in malnutrition can be achieved through intensive health and nutrition education and basic health-care without GM.

After the launch of the new growth standards by WHO in 2006, a momentum was created to revisit GM activities and rethink the best use of the years of experience. As countries have begun to adopt the new standards, many questions have been raised concerning the programmatic uncertainties of GM at the community level.

Many countries face a challenge in dealing with the question of whether or not to implement GM and GMP. Despite all the developments in nutrition programming in the past 10 years, GM still seems to be a convenient delivery mechanism for community interventions. However, national planners need better guidance on transitioning to alternative options that are not based on monitoring growth in the communities, if GM has not proven to be effective in contributing to programmes for prevention of undernutrition.

Part of the confusion about the place of GM in nutrition programmes appears to be due to lack of agreement on the definition and expected outcomes of GM and GMP. The authors of this review suggest the following clarifications:

Growth monitoring is a process of following the growth of a child compared with a standard by periodic, frequent anthropometric measurements and assessments. The main purpose of GM is to assess growth adequacy and identify faltering at early stages before the child reaches the status of undernutrition.

Community based growth monitoring is not itself an intervention that can treat growth faltering when it is identified. It is rather an activity which, in addition to making a child’s growth visible, may become an important point of contact with the caregiver and stimulate discussions at the community level. If implemented as a stand-alone activity, GM does not provide any benefits apart from knowledge about a child’s growth status.

GMP is defined as tailored counselling based on the GM results and follow-up problem solv-

ing with caregivers. This allows looking into growth monitoring-specific outcomes and benefits, as compared with general counselling and other interventions that could be delivered outside the GM session as well.

A community-based programme should include a number of interventions such as general counselling to caregivers (either individually or in groups) and delivery of different services within the context of the community-based programme. These interventions and services could be delivered during the same GMP session, using the opportunity of the contact with caregivers. These services, however, are not dependent on measuring the growth of children and can also be delivered outside the GM context.



Growth monitoring

UNICEF/NYHQ2011-0273/Dormino

Combining GMP and additional interventions needs to be planned carefully to ensure that the quality of both is maintained. In some settings, workers may become overburdened by additional tasks and focus most of their attention on delivery of services rather than effective counselling and problem-solving with mothers.

Evidence is accumulating on the types of community interventions that are effective, practical, and sustainable. These interventions are not necessarily linked to GM, which raises the question of whether there is a need for this activity if the community-based programmes can be designed and implemented successfully without monitoring the growth of each child.

The decision to include GM and promotion sessions in community-based programmes needs to be made at the national and sub-national levels after careful consideration of priorities, available resources, and the feasibility

of reaching a high quality of GMP activities. In many settings where a concrete nutritional problem is affecting most of the population, such as micronutrient deficiencies or low breastfeeding rates, a targeted intervention may be a first priority for reaching quick improvements before deciding on more comprehensive community-based programmes, which could include GMP.

Although it is not strictly necessary for inclusion in any community-based programme, under certain conditions having quality GMP can add desirable aspects to these programmes. The approach of regular monitoring of child growth provides the opportunity for better community actions to prevent undernutrition.

High quality GM can:

- Provide an opportunity to prevent undernutrition before it occurs. GMP helps community workers identify infants and children who have growth faltering (or are at risk for faltering) and promotes timely actions to improve the situation within a short time frame
- Assist in focusing attention and resources on children at risk.
- Motivate families and caregivers to change and improve practices.
- Help target and tailor counselling messages.
- Produce ancillary benefits. GM sessions provide opportunities for immunisation, screening and treatment for diarrhoea, malaria, and pneumonia, counselling on various health and nutrition topics and the provision of other community-level health or preventive services as needed.

These additional benefits that are pertinent to GMP do not receive enough attention during most of the evaluations of community-based programmes.

In general, the level of commitment from the health system required for successful implementation of GM and GMP has proven difficult to maintain at a large scale, with the exception of few well-supported and well-supervised national programmes. Supportive supervision of community health workers requires ample allotment of time and funding, which may not be realistic within a strained healthcare system.

Appropriate implementation of GMP is dependent on the motivation of health workers. Experience shows that community workers can be effectively motivated to accurately measure, plot, and diagnose growth faltering but are often undervalued, under supervised, and poorly paid. The ratio of trained staff to the target population may also be inadequate.

The quality of training of community workers requires significant resources and efforts. In an evaluation of nine projects (governmentally and non-governmentally implemented) in Africa and Asia that included GM, most of the settings had adequate infrastructure to support GM but training was incomplete, leaving only a small proportion of the staff able to adequately take weight measurements.

In addition, the low educational level of community workers in some settings impedes

their capacity to interpret and analyse growth measurement results, identify at-risk children, and analyse possible causes of growth faltering.

Although good coverage has been shown in small-scale programmes, reaching all targeted children is generally difficult to achieve, and attendance is often less than desired. The frequency of GMP attendance often declined in children of older age groups, and children who were most at risk attended less often than better-off children. Health managers worldwide attribute low attendance to a lack of interest by mothers after completion of vaccination, weak awareness campaigns to motivate mothers, and the inability of parents to respond to information provided during the sessions (due to illiteracy, inability to understand the growth chart, or lack of access to foods).

A review of GMP in seven countries concluded that GMP is not implemented appropriately and attributed its failure to a lack of adequate investment and to the fact that GMP is often implemented in isolation from other necessary nutritional actions. The key implementation problems were low coverage (often the poorest children had the worst coverage), no action or low-quality action taken based on the analysis of GM data, and no agreement on the human, organisational, and financial resources needed for successful GMP.

In general, GMP has been shown to be successful in cases where it was added to an existing well-managed and well-supervised health system, where health workers and community workers were adequately trained and recognised for their work, where accurate equipment and materials were available, where communities were involved in the GMP process, and where culturally appropriate communication was developed

Important questions to answer in evaluations of GM or GMP programmes could be:

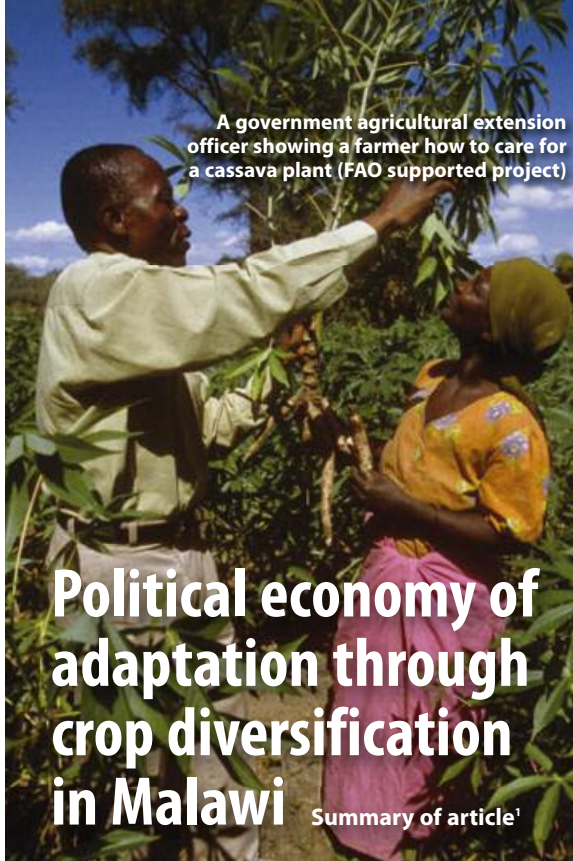
*“Does the measurement facilitate dialogue and counselling?”*

*“To what degree does information about child growth affect the quality of counselling?”*

*“To what extent can community workers provide quality tailored counselling based on growth status?”*

Such questions need to be answered by looking at different outcomes, including the caregiver’s awareness of the child’s growth status, knowledge about necessary care practices, confidence and satisfaction with the acquired information during counselling sessions and child care behaviours.

A government agricultural extension officer showing a farmer how to care for a cassava plant (FAO supported project)



## Political economy of adaptation through crop diversification in Malawi

Summary of article<sup>1</sup>

The seriousness of the problem of climate change and its negative effects on livelihoods is widely recognised in Malawi, even though no single coherent policy framework exists. However, there are several sector policies such as crop production (1990), national environmental management plan (1994), national forest (1996), national irrigation (2000), amongst others. In addition, Malawi developed and adopted the National Adaptation Programme of Action (NAPA) in 2006, which serves as a framework for climate change adaptation efforts in the country. The objectives of NAPA are to improve community resilience, restore forests, improve agricultural production and improve preparedness for floods and droughts.

A recent article examines the opportunities and challenge of climate change adaptation in Malawi using the case of crop diversification. It draws from an innovative experiment about policy engagement and influence between two sets of researchers: those working with the Research to Policy for Adaptation project and Participatory Action Researchers. The former are mainly experts in policy processes, whereas the latter are experts in climate change adaptation. The engagement between these two groups was guided by the conceptual framework for policy processes developed in the Knowledge Technology and Society (KNOTS) team at the Institute of Development Studies, UK.

The framework analyses policy processes from three perspectives: narratives and evidence, actors and networks, and politics and interests. The basic thrust of the framework is the way in which policies are talked about, and the associated values, power relations and politics that frame policies in a particular way. The framework draws attention to the fact that policymaking and processes cannot be reduced to universal recipes that are supposed to work irrespective of the time and place in which they are adopted. In other words, policies are more effective when they are informed by an understanding of power relations, incentives and change processes.

The key findings of this research included the following:

- While constantly making references to the ideals of crop diversification, the main preoccupation of the government is to achieve food security

because of its centrality in the country’s electoral politics. For the government, food security can be guaranteed by the use of high-yielding hybrid maize varieties.

- Seed companies are keen to promote hybrid maize seeds since they are their main product and through the subsidy programme, seed companies are guaranteed a ready market.
- Donors are interested in promoting a private sector-driven input supply system through the promotion of agro-dealers to fill the vacuum following the dismantling of the state-driven input supply system through liberalisation. This has made hybrid maize the dominant seed that is made available to farmers through the input subsidy programme.
- Most communities argue that crop diversification cannot be a success due to the cultural orientation that equates food to maize. Foodstuffs made from alternative cereals, such as millet and sorghum, are widely perceived as ‘inferior’ to the extent that households resorting to such foodstuffs are taken to be desperate.
- Most international humanitarian non-governmental organisations (NGOs) perceive crop diversification as desirable but not attainable as long as weather index insurance schemes are exploited as commercial ventures by the private sector. They condemn the insurance schemes as a barrier to crop diversification mainly due to their institutional arrangements. Farmers take loans from a designated bank, procure seeds from a specified company, and dispose of their produce to a designated buyer. Not only are the farmers bound up in a particular institutional arrangement that effectively curtails their freedom, but the seed companies involved are known to promote almost exclusively hybrid maize.

The major lesson from the study is that policy influence is not merely a question of generating robust scientific evidence and making it available to policymakers. It is as much about generating new evidence as it is creating strategic partnerships, coalitions and alliances. Policy engagement and influence entails engaging with policymakers for them to understand the implications of new or even old evidence as vital input into their decision-making processes. Therefore, the manner in which evidence is packaged, how it is communicated to policymakers, by whom and when, matters a great deal for researchers to effectively engage with the policy processes and influence the final outcomes. The main implication of the KNOTS framework is that processes of discussing, negotiating, approving and implementing policies are as important as the scientific content of the policies themselves.

The experience with crop diversification show that dominant stakeholders almost always have their way and that implementation of crop diversification has been constrained by a dominant narrative that equates food security with maize. The input subsidy programme, which is the single most important resource in the agricultural sector, has been captured by politicians primarily to advance their own political goals. Alternative narratives had had no significant effect on the mainstream narrative of crop diversification that equates food security with availability of maize. The case study sheds light on the dynamics of political, economic and social processes that either promote or block pro-poor change.

<sup>1</sup> Chinsinga, B., Mangani, R., and Mvula, P. (2011). The political economy of adaptation through crop diversification in Malawi. IDS Bulletin Volume 42, Number 3, pp 110-117, May 2011.

# Practical challenges of evaluating BSFP in northern Kenya

Summary of published study<sup>1</sup>

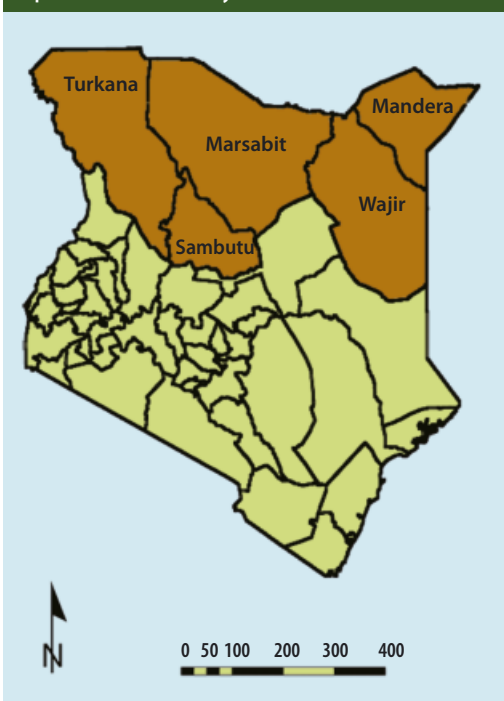


SCUK, Kenya, 2011

A mass or 'blanket' supplementary feeding programme (BSFP) was implemented by the World Food Programme (WFP) and partners in five northern districts of Kenya between January and April 2010. It was undertaken due to fears of an increase in the incidence of malnutrition as a result of seasonal food insecurity exacerbated by persistent drought. The five programme districts of Mandera, Marsabit, Samburu, Turkana and Wajir cover 45% of Kenya's total land area (Figure 1) but at the time, contained only 4.5% of the population of 28.87 million recorded in the 1999 census<sup>2</sup>.

An attempt to evaluate the impact of the food on children's anthropometric status was put in place in three districts. A recently published study set out to assess the quality of the data on the cohort of children studied in the evaluation and to propose methods by which it could be improved to evaluate future blanket feeding programmes. Reasons for the poor quality of the evaluation are identified.

Figure 1: Five districts of Kenya in which the blanket supplementary feeding programme was implemented in January 2010



## BSFP intervention

The primary stated aim of the programme was to protect the nutritional status of an estimated 300,000 children aged 6–59 months, or 20% of the 1999 census population<sup>3</sup>. All children <110 cm in height were eligible for a ration of food plus any taller children whose mother insisted that they were <60 months of age.<sup>4,5</sup>

Rations of food provided by WFP were distributed on four occasions, each about 30 days apart, beginning in January 2010. They consisted of 7.5 kg of corn-soy blended flour (CSB) and 0.75 kg of vegetable oil to provide an average of 1,000kcal/day/child. The food was distributed by non-governmental agencies (NGOs) at the sites of pre-existing feeding programmes and at some extra sites, to improve local access.

An evaluation was undertaken to try to detect evidence for an effect of the rations on the anthropometric status of children in three main ways:

- By comparing the anthropometric indices of newly recruited children at the second and third food distributions with children enrolled at the first distribution, to assess if their anthropometric status was getting worse during a period when food security was supposedly poor or deteriorating.
- By comparing the weight change of children who received two, three or four rations of food during the programme, in order to detect a dose-response relationship.
- By comparing the weight change of singleton children with children matched for age and sex in households of two or more children, based on the premise that if a ration was shared it would be less effective than if it was given to an only child, and assuming that the ration was not shared outside the household.

## Evaluation sites selection and process

The rations of food were distributed initially at 540 sites in the districts of Mandera (99 sites), Marsabit (55), Samburu (101), Turkana (162) and Wajir (123) (Figure 1) by a group of eight NGOs led by Save the Children, UK (SCUK).

An arbitrary number of 25 food distribution sites were randomly selected for study in each of two adjacent districts, Mandera and Wajir, 26

sites operated by SCUK and 24 by Islamic Relief. At the request of the National Nutrition Technical Forum, 25 sites were also randomly selected in Turkana district, which is in a different livelihood zone and contains a different ethnic group, the Turkana (most people in Mandera and Wajir are Somali). Four agencies were responsible for collecting data in Turkana: Merlin (10 sites), Samaritan's Purse (4), IRC (1) and World Vision (10). Because of a delay in funding, World Vision did not collect data at their 10 sites.

The staff of each NGO was responsible both for distributing the food and for collecting data for the evaluation. All members of staff were given one day's theoretical training by SCUK on the BSFP, community mobilisation, organising distribution sites and on the evaluation methods, including sampling children and administering questionnaires. The five NGOs then organised two days practical training for their field staff according to an agenda specified in the programme guidelines<sup>6</sup>. All the NGO staff were nurses or nutritionists who were supposedly practiced at making anthropometric measurements, so no specific training on anthropometry was arranged.

The aim was to recruit up to a 10% sample of children at the first food distribution at each study site and then at the same sites, recruit all new children who were brought to claim a

<sup>1</sup> Hall A, Oirere M, Thurstans S, Ndumi A, Sibson V, 2011. The Practical Challenges of Evaluating a Blanket Emergency Feeding Programme in Northern Kenya. PLoS ONE 6(10): e26854. doi:10.1371/journal.pone.0026854

<sup>2</sup> Kenya National Bureau of Statistics (2007). Statistical Abstract Nairobi: Kenya National Bureau of Statistics.

<sup>3</sup> Save the Children (2009) Blanket supplementary feeding programme monitoring and evaluation guidelines. Nairobi: Save the Children. p58.

<sup>4</sup> See footnote 2

<sup>5</sup> World Health Organization (2000) The management of nutrition in major emergencies. Geneva: World Health Organization. p236.

<sup>6</sup> See Footnote 3

<sup>7</sup> StataCorp (2010) Stata Statistical Software: Release 11.0. College Station, Texas, USA: StataCorp.

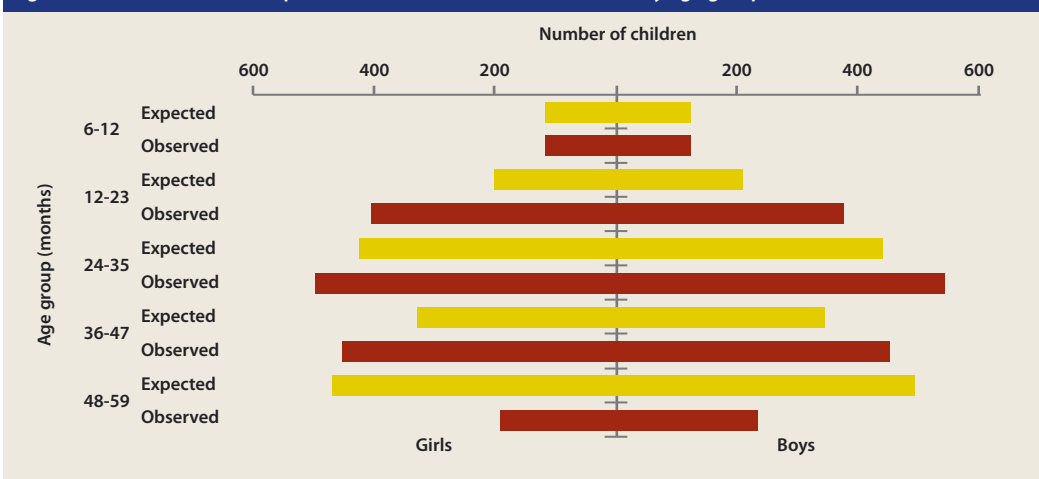
<sup>8</sup> ACF USA (2009) Anthropometric and retrospective mortality surveys in the Districts of Mandera, Kenya. Nairobi: Kenya: Action contre la Faim.

<sup>9</sup> See Footnote 3

<sup>10</sup> See Footnote 6

<sup>11</sup> WHO (2011) Macros to analyse growth data for the age group 5-19 years. Geneva: World Health Organization. Available: <http://www.who.int/growthref/tools/en/> Accessed 2011 Oct 9.

Figure 2: The observed and expected numbers of children (n = 3,555) by age group and sex



ration at the second and third food distributions, as they should not yet have received any supplementary food.

A power calculation using Stata 11<sup>7</sup> indicated that a sample size of 3,022 children could detect a 4% difference in the prevalence of wasting from 26% (the average prevalence reported in three previous surveys)<sup>8</sup> over the period of intervention. This allowed for a design effect of 2 due to the clustering of children around distribution sites, 25% drop-out, and assuming a power of 80% and a two-sided statistical significance of  $P < 0.05$ .

Each child was weighed to a precision of 0.1 kg on electronic scales (Uniscale, UNICEF) and measured to a precision of 0.1 cm, supine if  $< 87$  cm and standing if  $\geq 87$  cm on locally made stadiometers, according to Kenya Government guidelines<sup>9</sup>.

Each caregiver was given a ration card for the child with a unique identification number created from the site code and the child's serial number. These numbers were also recorded in a register book for each site and on the data forms for each child at each visit to collect a ration and were used to link data. Ration cards were given only at sites taking part in the evaluation.

The date of birth and date of visit were used to estimate each child's age in months at enrolment and z-scores of height-for-age, length-for-age and weight-for-height were calculated using a macro for Stata 11<sup>10</sup> published by the WHO<sup>11</sup>. This flags values of weight-for-age that are  $> 5$  and  $< -6$  S.D., values of height-for-age that are  $> 6$  and  $< -6$  S.D. and values of weight-for-height that are  $> 5$  and  $< -5$  S.D. because the underlying data are likely to be wrong.

### Assessment of evaluation data quality

In order to assess the quality of the data collected in the evaluation, five indicators were used:

- The name of the child recorded on both occasions on different data forms. The names were judged to be the same, different or possibly different.
- The age distribution of children aged 6 – 59 months, which should be similar to the distribution reported in the last district census.
- The number of z-score values that were flagged by the WHO anthropometry macro in Stata, and the difference in months between the age estimated at the first and last visits. For the purpose of analysis, a difference of  $\pm 3$  months was arbitrarily

taken to be acceptable.

- The difference in length or height of each child between the first and last measurements. An acceptable range was taken to be  $-1$  cm to  $+4$  cm. This is a combination of measurement error and rounding (which was evident in the data) of  $\pm 1.0$  cm; changes in measuring children from supine to standing of 0.7 cm, plus a possible gain in height of up to 2.7 cm rounded up to 3.0 cm. This height gain is the maximum possible gain for a nearly 5 year old boy who is 3 S.D. above the median in height according to WHO growth references. A change greater than 4 cm or less than  $-1$  cm should not have been possible.

### Findings of study

Of the 3,544 children enrolled, 483 (13.6%) did not return to collect a fifth ration. Of the 3,061 children who did return, 196 (6.4%) had a different name and 200 (6.5%) had a possibly different name, indicating that perhaps up to 13% of mothers had brought a different child to collect the last ration. There were three names missing.

Figure 2 shows the age distribution of 3,397 children aged 6–59 months whose age was recorded at enrolment compared with the expected age distribution based on the 2009 census in the same three districts<sup>12</sup>. The expected number of children aged 6–11 months was estimated by dividing by two the numbers recorded for children aged 0–11 months. Figure 2 shows that there were 89% more children than expected aged 12–23 months and 56% fewer children aged 48–59 months, suggesting

a bias towards younger children. Only 93 children (2.63%) were older than 60 months (not shown in Figure 2), which seems unlikely if the entry criterion to the programme was based on a height of  $< 110$  cm rather than age and should have included older but stunted children. There were no statistically significant differences in the mean reported age of children enrolled at the first, second or third food distributions.

The WHO macro to calculate anthropometric indices flagged baseline values of weight-for-height, height-for-age and weight-for-age for 237 children (6.67%). of these, 67 (2.56% of the total) were weight-for-height, suggesting that a measurement of weight or height was incorrect. The same values were flagged for fewer children at the fifth food distribution: 113 (3.18%) had any index flagged while 35 (1.17%) had the value of weight-for-height flagged.

Figure 3 shows the distribution of the difference in age in months recorded for 3,061 children at enrolment and at the fifth food distribution, an average of 97 days later (range 16–135 days), depending on when children were enrolled. Only 21.23% of children were recorded as having the same month of age, 23.72% were 1 to 3 months younger or older, 25.22% were 4 months or more younger, and 29.79% were four months or more older. In summary, 44.95% of children were within  $\pm 3$  months of the same age and 55.05% were  $\geq 4$  or  $\leq 4$  months different in age.

Figure 4 shows the distribution of the difference in height of 3,032 children measured at enrolment and the fifth distribution of whom 66.09% were within a range of  $> -1$  to  $< 4$  cm, 15.77% were  $> 1$  cm shorter, and 18.14% were  $\geq 4$  cm taller.

Of the 2,640 children who were considered by their name to be the same on both occasions, data on only 902 children (34.17%) were considered to be acceptable based on both their stated age ( $\pm 3$  months different) and length or height ( $> -1$  or  $\leq 4$  cm different) at the two instances they were seen. This meant that data on nearly two thirds of children were of questionable quality. Because of these discrepancies, no further analysis was done to assess the impact of the feeding programme.

<sup>12</sup> Kenya National Bureau of Statistics (2011) Kenya National Bureau of Statistics The 2009 Kenya Population and Housing Census. Volume 1C. Population distribution by age, sex and administrative units. Nairobi. 546 p.

Figure 3: The distribution of the differences in ages of children in months estimated at the first and fifth food distributions

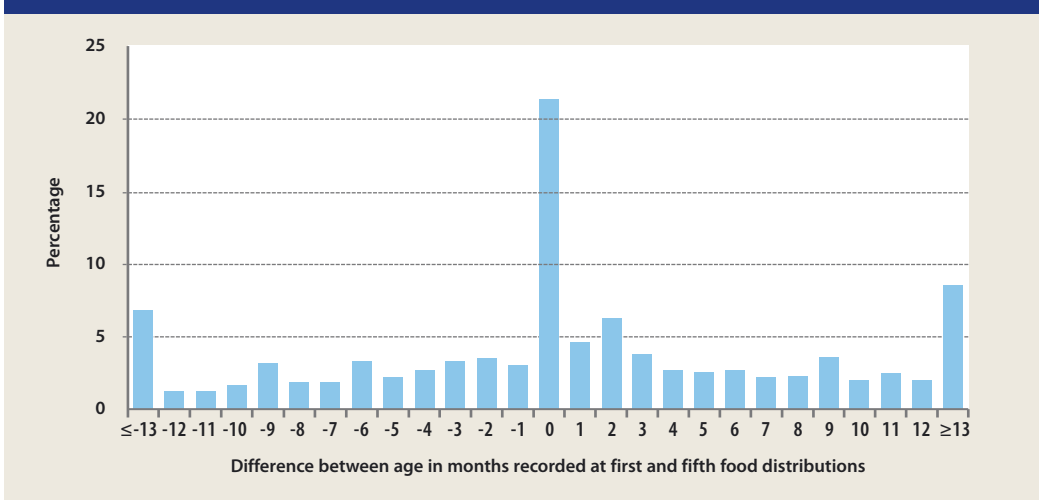
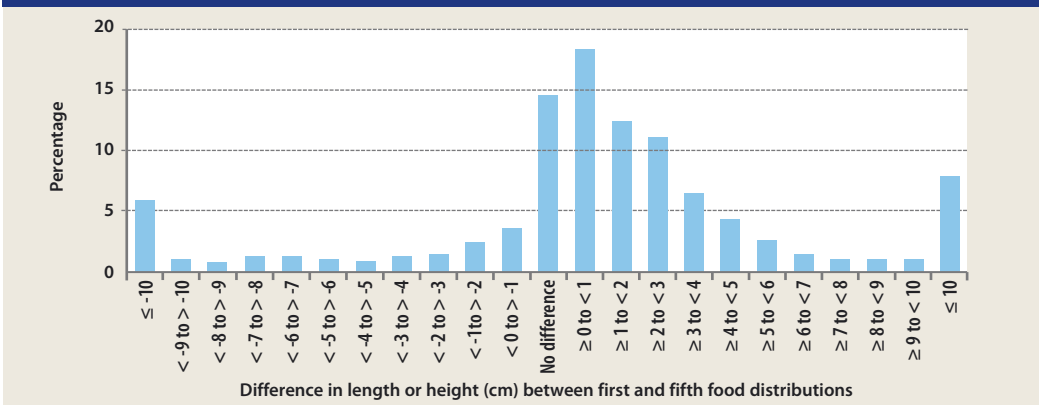


Figure 4: The distribution of the difference in height of children at the first and fifth food distributions



Any attempt to estimate the impact of supplementary food on weight gain requires that each child is measured twice, at the start and end of the programme to obtain paired measurements, and that accurate data on age is obtained if anthropometric indices other than weight-for-height are to be calculated. The data collected during the present evaluation in northern Kenya indicated that a large proportion of children were not the same at the first and fifth food distribution and that the age of many children was not given nor estimated consistently and so was probably inaccurate. There are a number of likely reasons for this, including the possibility that mothers did not bring the enrolled child to collect the fifth and final ration, systematic bias or errors in estimating age, inconsistent estimates of age on separate occasions, and errors in making anthropometric measurements, in recording data, and in data entry.

The age distribution shown in Figure 2 is unlike a typical age pyramid and suggests that many mothers, who made up 92% of the caregivers at enrolment, were either not giving or not estimating correctly the age of their child, perhaps to ensure that they obtained a ration of food. The fact that about 40% of all children were either shorter by 1 cm or more or taller by 3 cm or more suggests that a substantial proportion of caregivers did not bring the same child to collect the fifth ration, although some differences could be measurement errors made by busy staff.

It is to be expected that parents will make every effort to obtain a ration of food for their children during a food shortage and the many years of food insecurity in this part of Kenya have led to a degree of dependency on human-

itarian assistance. An eligibility threshold of <110 cm in height<sup>13</sup> was applied to try to eliminate a reason for parents to be untruthful about giving the correct age of their child. This did not seem to work, perhaps because community mobilisers did not understand or make it clear to parents, because mothers did not understand, or because mothers were mistrustful of a different criterion of eligibility for health services from the usual, which is age.

*Factors that compromised data quality*

Several things compromised data quality:

- The design and implementation was complicated by the request to evaluate the impact in a different a livelihood zone, among a different ethnic group, and by additional NGOs. This increased the sample size, increased the cost, and increased the number of agencies involved from two to six, with consequences for staff training and data quality. As this was the first attempt in Kenya to evaluate the impact of a blanket feeding programme using such methods, it might have been best to focus efforts in two contiguous districts among a single ethnic group and in one livelihood zone, to keep it as simple as possible.
- The pressure to begin distributing rations reduced the time available for training field staff of six NGOs to two days by eight different trainers, adding other factors that may have compromised data quality.
- The personnel doing the evaluation were also responsible for registering and distributing rations to about 500–2,500 beneficiaries at each site during the first food distribution, so the staff were overburdened.
- Supervising the collection of data at food distribution sites spread over an area of 150,000 km<sup>2</sup> posed an insuperable problem to the lead NGO. Wajir town is 1,100 km by road to the main town in Turkana. So after being quickly trained, the NGO staff were unsupervised by the lead evaluation agency.

**Lessons learned**

The experiences described here offer useful lessons that could be applied to improve the quality of data in future evaluations of blanket feeding programmes in Kenya and elsewhere.

First, the evaluation should be put in place as the intervention is being planned so that the evaluation is a part of the programme, not an external component. Both require preparation, swiftness and adequate funding.

Second, community mobilisers need to explain clearly and effectively to potential beneficiaries the criterion for eligibility: height <110 cm, not age <59 months - the usual thresh-

old for health programmes. Ideally this criterion would be used for all programmes because it is simple, objective and transparent, and would include stunted children older than 5y, who could also benefit from most interventions. The disadvantage of using height is that there is no easily calculated denominator to estimate both the numbers of eligible children and coverage, whereas a denominator based on age can be estimated from census data. As an estimate of coverage is an important indicator of the effectiveness of an intervention, a separate survey would be necessary at additional expense.<sup>14,15</sup>

Third, every study child ideally should be identified either using a digital photograph or perhaps using a fingerprint reader, either in a personal digital assistant (PDA) or connected to a laptop computer, to confirm their identity at subsequent contacts. Battery powered PDAs could also be used to collect, store and compare data in the field, so that widely differing anthropometric measurements could be flagged and checked immediately. Such devices require a capital outlay, a software programmer and field testing before deployment, which is expensive. But this could improve data quality and speed up the process of analysis and reporting, as well as increasing the validity of the evaluation. If suitable equipment is not available, then key data should be copied onto ration cards to act as a check, including the estimated date of birth and the first height and weight. Neither process would guarantee that the same child is seen on all occasions, but any substitute could be identified on the spot.

Fourth, the staff doing the evaluation should be different from the staff delivering the ration cards, food or other interventions, so that both jobs are done as well as possible in an often chaotic and busy environment in which agitated parents demand attention. A dedicated evaluation team would require additional funding, an issue not addressed here, but the compromised evaluation also represents a waste of resources, as well as the time of staff and mothers. The evaluation staff also require specialised training in anthropometric measurements, even if they have done them many times before, because both accuracy and precision are required and should not be assumed.

Finally, data analysis should be done as quickly as possible in the field, so that systematic errors such as rounding can be identified and rectified by re-training or reorganisation of procedures. If all data are entered in the field onto PDAs, the confirmation of each entry would duplicate the process of double data entry. Data could also be merged from different field teams and analysed quickly in the field using batch files written for statistical software. By reporting the problems and lessons learned from this evaluation of a BSFP, it is hoped that future evaluations will be better planned and implemented and may provide plausible evidence of a benefit to children's nutritional status.

<sup>13</sup> See Footnote 4

<sup>14</sup> Myatt M, Feleke T, Sadler K, Collins S (2005) A field trial of a survey method for estimating the coverage of selective feeding programmes. *Bull World Health Organ* 83: 20–26.

<sup>15</sup> Sadler K, Myatt M, Feleke T, Collins S (2007) A comparison of the programme coverage of two therapeutic feeding interventions implemented



SCUK, Kenya, 2011



Clients collect their prescribed HEPS at Wusikile Mine Hospital

# Examining the integration of Food by Prescription into HIV care and treatment in Zambia

By Kate A. Greenaway, Elizabeth C. Jere, Milika E. Zimba, Cassim Masi and Beatrice Mazinza Kawana



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There is increasing evidence that antiretroviral therapy (ART) outcomes and nutrition interventions are closely linked. Studies from sub-Saharan Africa have established that low Body Mass Index (BMI) at ART initiation is a significant predictor of early mortality and that malnutrition plays a substantial role in disease progression<sup>1,2,3</sup>. In late-stage HIV infection, unintended weight loss is common: up to 25 percent of clients experience dramatic, life-threatening weight loss.

FBP is a treatment approach that targets moderately and severely malnourished individuals with 'medicalised' doses of specific nutrition supplements. While empirical evidence about causal relationships between nutrition support, weight gain and improved treatment outcomes among ART clients is lacking, there is evidence that weight gain at three months on ART is strongly associated with survival<sup>4</sup> and that nutrition supplements have a positive effect on ART adherence<sup>5</sup>.

Zambia has a generalised HIV epidemic, where more than 900,000 Zambians are living with HIV (PLHIV), with 280,000 on ART<sup>6</sup>. Research conducted in 2007 revealed startlingly high rates of malnutrition among adult PLHIV starting ART: 33.5% had a BMI < 18.5 kg/m<sup>2</sup>, and 9% had a BMI less <16.0 kg/m<sup>2</sup> <sup>7</sup>.

## Catholic Relief Services FBP Pilot in Zambia

To address malnutrition in people living with HIV (PLHIV), Catholic Relief Services (CRS) Zambia worked in partnership with Zambia's National Food and Nutrition Commission (NFNC) to pilot a Food by Prescription (FBP) programme as an adjunct to a USAID-funded palliative care grant. The evaluation was undertaken to understand the practical implications of FBP implementation and to gather information on client outcomes.

The Zambia FBP model prescribes and dispenses specialised nutrition commodities in response to clinical malnutrition (Figure 1). Small daily 'doses', packaged in individual sachets, are intended to reduce intra-household sharing, institutionalise the concept that these foods are 'medicines', ease calculation of recommended daily allowance (RDA) and aid monitoring at the household level.

The model requires that nutrition assessment, education, counselling and support (including food dispensing) be synchronised with HIV care and treatment services. The

pilot tested the model in three types of settings: clinical facilities (eight), hospices (ten) and home based care (two). Procedures varied by setting to accommodate pre-existing systems and emphasising integration rather than establishment of parallel systems. Staff training, using the (draft) national FBP guidelines, was provided in the 22 sites.

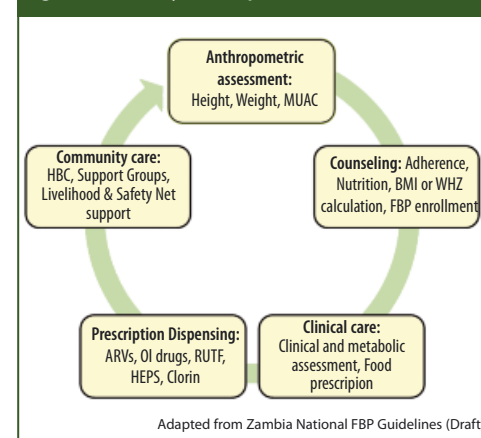
Clients were admitted to the FBP component of HIV care according to anthropometric criteria. BMI was most often used. Mid-upper arm circumference (MUAC) was used to assess pregnant and lactating women, as well as clients whose heights could not be taken. Children were assessed using weight-for-height z scores (WHZ). As dictated by the national protocol, adults with severe acute malnutrition (SAM) were prescribed both Ready to Use Therapeutic Food (RUTF) and High Energy Protein Supplement (HEPS) in sufficient quantity to meet 100% RDA. Those with moderate acute malnutrition (MAM) received HEPS to meet 50% RDA. Clients were re-evaluated regularly and discharged when anthropometric assessment indicated nutrition rehabilitation. At the time of the evaluation, the pilot had reached 5,360 clients.

## Methodology of pilot evaluation

To evaluate the pilot programme, purposive sampling was used to select 11 evaluation sites: six ART clinics, four hospices and one HBC site representing locality (urban or rural), supporting organisation and size of programme.

From the 1,671 clients enrolled at the 11 selected sites, the evaluation team planned for a purposive sample of ten discharged clients per site (total of 110). Difficulties in communication and logistics resulted in identification of 91 clients (84 adults and 7

Figure 1: Food by Prescription Client Flow Model



<sup>1</sup> Johannessen A, Naman E, Ngowi BJ, Sandvik L, Matee MI, Aglen HE, Gundersen SG, Bruun JN: Predictors of mortality in HIV infected patients starting antiretroviral therapy in a rural hospital in Tanzania. *BMC Infect Dis* 2008, 8(52).

<sup>2</sup> Stringer JS, Zulu I, Levy J, Stringer EM, Mwango A, Chi BH, Mtonga V, Reid S, Cantrell RA, Bulterys M et al: Rapid scale-up of antiretroviral therapy at primary care sites in Zambia: feasibility and early outcomes. *Jama* 2006, 296(7):782-793

<sup>3</sup> Zachariah R, Fitzgerald M, Massaquoi M, Pasulani O, Arnould L, Makambe S, Harries AD: Risk factors for high early mortality in patients on antiretroviral treatment in a rural district of Malawi. *AIDS* 2006, 20(18): 2355-2360.

<sup>4</sup> Madec Y, Szumilin E, Genevier C, Ferradini L, Balkan S, Pujades M and Fontanet A: Weight gain at 3 months of antiretroviral therapy is strongly associated with

survival: evidence from two developing countries. *AIDS* 2009, 23(7): 853-861.

<sup>5</sup> Cantrell RA, Sinkala M, Megazinni K, Lawson-Marriott S, Washington S, Chi BH, Tambatamba-Chapula B, Levy J, Stringer EM, Mulenga L, Stringer JS: A pilot study of food supplementation to improve adherence to antiretroviral therapy among food-insecure adults in Lusaka, Zambia. *J Acquir Immune Defic Syndr* 2008, 49(2):190-5.

<sup>6</sup> Ministry of Health and National AIDS Commission: Zambia Country Report: Monitoring the Declaration of Commitment on HIV and AIDS and the [sic] Universal Access Biennial Report, Lusaka; 2010.

<sup>7</sup> Koethe JR, Lukusa A, Giganti MJ, Chi BH, Nyirenda CK, Limbada MI, Banda Y, Stringer JS: Association between weight gain and clinical outcomes among malnourished adults initiating antiretroviral therapy in Lusaka, Zambia. *J Acquir Immune Defic Syndr* 2010, 53(4):507-513.

children). The guardian most conversant with the child's health/illness situation was interviewed.

Quantitative data was collected and analysed from client records, monthly reports and field visit reports. Variables of interest were age, sex, weight, anthropometry on admission and discharge, length of stay on treatment and reason for discharge. Data were edited and entered into Excel. Data were exported to Statistical Application Systems (SAS) for further cleaning and analysis. Analyses involved descriptive and inferential statistical analyses including frequencies and distributions of all variables.

Structured individual interviews were then held with 91 clients, ten administrators and 38 health care workers. Focus group discussions (FGDs) of five to ten participants, drew further information from clients (four groups) and service providers (five groups) using open-ended questions and scenario methods, led by a moderator and recorded by a note-taker. Qualitative data were analysed manually by the evaluation team, who read through the interviews to identify emerging themes.

### Results

**Integration – Clinical facilities:** The majority of ART clinics achieved integration of FBP and ART services as intended in Figure 1. Facilities with the weakest community outreach programmes had the highest number of defaulters.

Some facilities, having achieved competence with FBP implementation, extended services to satellite sites. These were significantly more difficult to manage but reduced congestion at the hospitals and greatly increased FBP enrolment.

**Integration – HBC:** HBC programmes provided a decentralised, 'one-stop' service model. Clients were assessed, counselled, prescribed and dispensed rations by a trained caregiver at the parish office. Home-based follow-up was provided by assigned HBC providers whose role was to support both FBP and ART adherence. HBC service providers and clients reported that integration was seamless.

**Integration – Hospice:** Service models varied considerably among hospices, with hybrids of centralised and decentralised models tried. Success with integration varied, possibly due to reliance on lay counsellors and volunteer caregivers (in contrast to technical staff employed by ART clinics) as well as less rigorous record-keeping (in many hospices), and less management oversight in some cases.

**Service provision:** Anthropometric assessment was often done selectively (on clients who appeared malnourished) rather than as a routine aspect of the standard of care. While weighing and recording weight is a standardised practice, BMI is rarely calculated and MUAC is seldom used. FGD respondents at all sites noted the need for additional training and supervision to ensure adherence to admission/discharge criteria and to improve skills and consistency in nutrition assessment.

Respondents consistently reported that active supervision positively influenced staff commitment to providing nutrition assessment and education, and improved accuracy of record-keeping. Many staff requested incen-

tives for providing FBP services. The pilot, however, was neither designed nor budgeted to accommodate incentive requests.

Only 11% of clients reported that they were linked to livelihood activities, illuminating the enormity of the gap in this aspect of FBP programming.

**Food storage and dispensing:** Lack of FBP commodity storage space was cited as a significant challenge. CRS generally disbursed commodities every two months to accommodate storage limitations. Some alternate storage locations, such as kitchens, did not meet storage standards for temperature and humidity. There was no consensus among service providers regarding the ideal location for food dispensing but agreement that each setting should evaluate its options with emphasis on creating the most seamless, efficient pathway for clients.

Overall, supply chain management was a significant challenge, with three primary difficulties noted:

1. Month-to-month new enrolment numbers varied considerably
2. Length of client enrolment varied
3. Short shelf-life of selected commodities reduced repositioning options.

**Monitoring and Evaluation:** The project sought to align with 'the 3 Ones'<sup>8</sup> by contributing to a single national reporting system, but was obliged to create a parallel approach because the existing system, SmartCare, did not allow for the capture of comprehensive nutrition data (e.g. BMI and WHZ). Lack of nutrition training, combined with the lack of tools and systems for data collection, have resulted in a nationwide gap in the detection, tracking and treatment of malnutrition among PLHIV, especially adults.

**Client weight gain and BMI:** All sites showed an increase in client BMI between admission and discharge. Among adult clients, the average BMI on admission was 17.6 kg/m<sup>2</sup> and the average BMI on discharge was 20.5 kg/m<sup>2</sup>. The overall average increase in BMI pre-FBP to post-FBP was 2.9 kg/m<sup>2</sup>. Most clients required three to six months of nutrition rehabilitation to qualify for discharge.

Of the 22% of clients already discharged from the programme at the time of the evaluation, 997 (84%) met discharge criteria, 127 (11%) died from various causes, 45 (4%) were unknown or lost to follow-up and 18 (1%) were removed from treatment because of medical complications.

**Client health status:** Clients were asked to rate their pre- and post-intervention health status using the Eastern Cooperative Oncology Group (ECOG) performance scale<sup>9</sup>. The percentage of clients who were 'fully active' went from 5% pre-FBP to 51%, post-FBP. Only 1% of clients remained 'completely disabled' post-FBP, compared to 17% pre-FBP.

### Limitations

Site records and quantitative datasets had numerous missing anthropometric data which limited the scope of analysis. Geographic distance, communications challenges, delayed project start-up and time constraints resulted in a disproportionate number of enrolled clients (thus fewer-than-planned rehabilitated and discharged) represented in the evaluation sample.

The short six-month project implementation period was sufficient to measure integration activity but necessitated pooling of clients across several sites in order to obtain a sufficient sample, which may have masked site-specific patterns.

It should be noted that weight gain, BMI and ECOG performance cannot be attributed exclusively to a FBP intervention. It is understood that nutritional status and activity level are likely to improve with ART only, or with some other combination of ART and nutrition.

### Conclusions and recommendations

Integration of FBP into existing HIV care and treatment was successfully adapted to facility, home-based care (HBC) and hospice service delivery settings. Integration did not interrupt existing service delivery and can be accomplished using available human and material resources. The 'medicalisation' concept was appreciated and understood by both clients and service providers and the selected rations were successful in treating malnutrition. Weight gain and body mass index (BMI) improved while percentage of discharges cured (i.e. nutritionally rehabilitated) exceeded standards. In addition, activity levels and perception of well-being improved dramatically.

The keys to success were on-going support for application of nutrition concepts and careful record-keeping, and the identification of site coordinators who brought both technical nutrition knowledge and a high level of commitment to the pilot project. However, on-going training is required in nutrition, record-keeping and reporting. Future implementers would benefit from formal incorporation of new (FBP) tasks through either scopes of work for key staff, or the full integration of FBP responsibilities into standard job descriptions. These additional tasks may have implications for remuneration. Furthermore, integration of FBP commodities into the medical stores procurement and distribution system would reduce duplication of effort and promote national ownership.

The national ART M&E systems must be expanded to capture nutrition data. To foster timely discharge, linkages to wrap-around food security and livelihood programmes should be designed from the early stages of project conceptualisation.

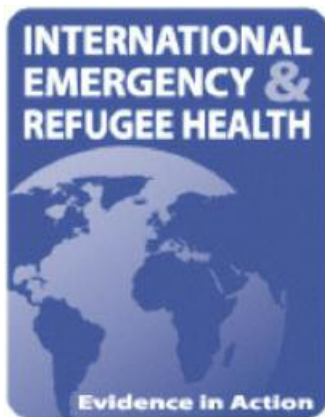
Children and pregnant/lactating women were under-represented, suggesting that Maternal & Child Health (MCH) and Prevention of Mother to Child Transmission (PMTCT) programmes should be more intentionally included in scale-up plans. With regard to the use of MUAC, it was suggested that it be used for screening only, applying an increased cut-off to trigger referral of potential clients for assessment by a clinician.

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<sup>8</sup> The '3 Ones' is a set of three key elements that underpin a coordinated national response: One agreed HIV/AIDS Action Framework that provides the basis for coordinating the work of all partners. One National AIDS Coordinating Authority, with a broad-based multi-sectoral mandate; and One agreed country-level Monitoring and Evaluation System. (UNAIDS, 2004)

<sup>9</sup> Oken, MM, Creech, RH, Tormey, DC, Horton, J, Davis, TE, McFadden, ET, Carbone, PP: Toxicity And Response Criteria Of The Eastern Cooperative Oncology Group. *Am J Clin Oncol* 1982, 5(6):649-655.





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<b>Director:</b>	<b>Dr Thomas Frieden</b>
<b>No. of HQ staff:</b>	<b>35 Atlanta based staff in the International Emergency and Refugee Health Branch</b>
<b>No of staff worldwide:</b>	<b>15,000 total employees, across more than 50 countries</b>

The ENN recently conducted an agency profile interview with Leisel Talley and Carlos Navarro-Colorado from CDC's International Emergency and Refugee Health Branch (IEHRB). CDC is a US federal agency dedicated to the prevention and control of disease, injury and disability. Leisel has worked for CDC for 11 years while Carlos is new to the branch, with a little over a year's time at CDC. The IEHRB branch has approximately 35 staff who cover a range of disciplines including infectious disease, malaria, child protection, war related injuries, WASH, immunisation, mental health, reproductive health, survey and surveillance methodologies and statistics. Oleg Bilukha (who couldn't make the interview and has worked for CDC for 11 years), Leisel and Carlos are the three individuals who spend most of their time working on nutrition in this multi-disciplinary team.

Leisel explained that IEHRB activities vary year to year depending on the number and type of emergencies. Their work may encompass direct support in emergencies, operational research and development of programmatic tools, providing technical advice, participating in technical forums and teaching (in universities, US government, US agencies or UN agencies). In order to provide direct support, CDC has to be invited into a country to work, i.e. by the US government, national Ministry of Health (MoH), international non-governmental organizations (INGOs) or UN agencies. Staff from the branch may be seconded during emergencies to agencies with whom CDC has agreements, especially at the beginning of an emergency before agencies can identify and recruit longer-term staff. Often, a senior epidemiologist is deployed together with an Epidemic Intelligence Service Officer (EISO) for mentoring purposes while strengthening CDC's response capacity. Since CDC is a US government agency, staff are provided as in-kind technical assistance to agencies and programmes.

Operational research is always conducted in partnership with other agencies. A current example is the ongoing evaluation of a blanket supplementary feeding programme in Turkana and Wajir, northern Kenya in partnership with WFP and several field partners. This involves following a cohort of children to determine the impact of the intervention and, through a case-control study, the determinants of malnutrition while enrolled in the programme. The IEHRB may be approached by agencies to conduct research or individuals in the branch may proactively approach agencies for a specific research project. For example, UNICEF recently approached IERHB to work with them on assessing the impact of Plumpy'doz in a Darfur feeding programme. IERHB is also working closely with the ENN on a study of defaulting

from emergency supplementary feeding programmes. The branch is currently working on a funding announcement that will allow a substantial volume of operational research on acute malnutrition. IERHB is hoping to use this opportunity to strengthen existing partnerships and forge new ones.

Leisel recalled that when she started working in the branch there were only seven staff, which made it difficult to respond to emergencies. Now that the branch has grown to more than 30 staff members, it has been able to expand into other areas like operational research, teaching and development of programmatic tools. It also means that they can be much more proactive about work and participate in relevant expert groups and discussions in most key areas of emergency public health.

Carlos explained how branch members have a solid understanding of public health principles and emergency relief, no matter what their professional background. Any of the three individuals mentioned may therefore find themselves working in areas outside of nutrition. For example, Leisel recently worked on sampling aspects of a survey of violence against children in Tanzania. Oleg routinely works on war-related injuries and Carlos has been involved in disease outbreak investigations in South Sudan and Kenya. The multi-disciplinary nature of the team means that everyone learns from everyone else. Carlos also felt that working in this type of multi-discipline team helps with professional development and leads to strong technical support, as well as locating nutrition under a broader public health umbrella.

At this point in the interview I remembered something that had always perplexed me about CDC. Why was it located in Atlanta in the state of Georgia? Leisel explained that when CDC was established early in the last century, malaria was still a substantial problem in the southern United States. Since Atlanta was the largest city with the best transportation in the region, it was viewed as the most appropriate location.

We then moved onto a discussion about the branch's role in the current Horn of Africa crisis, both in the field and from Atlanta. Leisel recounted how the Food Security and Nutrition Analysis Unit - Somalia (FSNAU) had contacted CDC in July 2011 asking for support to improve the quality of their nutrition data from Somalia and to validate the findings. Oleg has been involved in SMART training in Ethiopia for a number of humanitarian agency staff. Carlos was sent to the region fairly early on in the crisis and worked in the Dadaab camps in Kenya, mostly supporting the UNHCR public health office with nutrition and public health advice. He also helped remotely from Atlanta with the design of a nutrition survey in Dolo camp in

Ethiopia, as well as supporting analysis of community based management of acute malnutrition data in order to improve reporting and response. The whole branch has generally been very involved in the region supporting a number of activities, like measles and cholera surveillance, in coordination with in country CDC offices and programmes. However, the difficult and fluctuating security situation in the region has meant that a number of surveys that CDC was planning have had to be cancelled.

We also spoke about challenges that the branch faces. As with most agencies in the humanitarian sector, the current global financial crisis is cause for concern. CDC's budget is determined on an annual basis and the current economic situation may result in reduced budgets across the US government. This situation has not seriously affected the branch, though. There are also technical challenges such as trying to keep the right balance between methodological rigour of surveys, surveillance and impact assessment and the reality of what is needed and possible on the ground during emergencies. Another challenge, not unique to CDC, relates to how to evaluate programme outcomes when in most situations, randomised controlled trials are simply not viable. There is a spectrum of opinion within the branch about other means of proving impact and outcomes and a strong engagement in helping evolve epidemiological methods in emergencies. The high level of verification and quality control within CDC required to formally release results can be lengthy at times but ensures a very high quality of work.

I asked Carlos and Leisel where they hoped or expected the branch and in particular nutrition activities in the branch, to be in five years time. While there isn't a specific five-year plan, there is the hope that the new funding announcement will allow the branch to partner with a number of agencies to conduct operational research to improve the evidence base for nutrition-related interventions, thereby improving intervention effectiveness. This should contribute to the continuous development of the evidence base, building on CDC's unique combination of methodological expertise and public health applied work. In addition to this, they expect to build a critical mass of emergency trained epidemiologist within CDC that will facilitate responding to field requests.

What seemed obvious from talking with Leisel and Carlos was that the nutrition team have consistently high demands and expectations placed upon them and have to react rapidly to requests from partner agencies with no way of knowing when these requests will be made. It therefore seemed like a bit of intended understatement when Leisel concluded our interview by saying that "we were certainly very pleased with the recent expansion of the branch".

# Focus on coverage assessment



Jose Luis Alvarez Moran, Mali

Wide area survey during SQUEAC's stage 3 in Gassi (Mali)

**D**uring the past 10 years, the management of acute malnutrition has undergone a major paradigm shift that has changed the previous inpatient 'clinical' model of care into a community-based "public health" model of care. Since 2007, this new model, called Community-based Management of Acute Malnutrition (CMAM) has expanded rapidly and is now implemented in over 55 countries worldwide

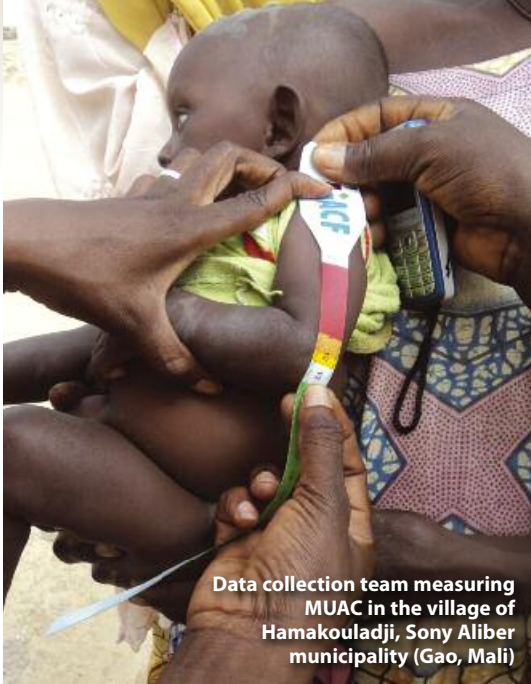
In the old clinical model, the main determinant of impact was the quality of the inpatient medical and nutritional care provided in the centres and hospitals. By contrast, in the CMAM model, the key determinants of impact are the degree to which interventions access people early in the course of their disease and the ability to reach as many of those affected as possible. This is a profound shift that requires an equivalent change in the protocols and indicators used to implement and monitor programmes. Previously in the clinical model, impact was achieved using in-depth medical and nutritional protocols and results were monitored using clinical outcomes indicators. Now, the simplicity and robustness of the CMAM treatment protocols are such that so long as the simple basics such as ready-to-use therapeutic food (RUTF) are available and those afflicted by acute malnutrition present early and in sufficient numbers, then impact is assured. In the new CMAM public health model, the focus on clinical guidelines has been replaced by protocols to ensure that those who are affected are admitted into programmes early and the clinical outcome indicators have been supplemented by the direct assessment and monitoring of coverage.

The Semi Quantitative Evaluation of Access and Coverage (SQUEAC) coverage assessment method is a new set of tools that draws together access and coverage, the two essential determinants of quality CMAM programming. SQUEAC combines an array of qualitative information about access and the perceptions of CMAM programmes with small sample quantitative surveys. These surveys test hypotheses generated during the qualitative work and establish levels of programme coverage in key geographical areas. This combination both identifies key issues affecting presentation and programme uptake, whilst also establishing the actual levels of coverage attained. Vitality, all this can be done in real time, allowing the tool to be of immediate practical use to tweak programme design and implementation in response to the information obtained.

The key to the success of SQUEAC is diversity, triangulation and iteration, that gradually builds up a picture of the "truth" about programme coverage, whilst at the same time, indicates what practical measures can be undertaken to improve access and coverage. The beauty of the technique is that it combines information that is often routinely collected but rarely used, with other data specifically collected by fast, low resource methods. Directly harnessing existing routine monitoring data to improve impact and program effectiveness greatly increases the cost efficiency of the additional time spent collecting new data, thereby decreasing the time and resource overheads required to implement SQUEAC.

SLEAC (Simplified LQAS Evaluation of Access and Coverage) was designed to fill a gap in the early SQUEAC methodology regarding the method's ability to assess overall programme coverage. This gap has now been addressed in SQUEAC and SLEAC has been adapted as a tool for assessing coverage over wide areas. As CMAM shifts from a donor-funded emergency intervention into a routine part of primary health care programming, the resources available to implement these programmes will inevitably decrease. In this environment, low resource methods to increase timely access, monitor coverage, and allow programme design to be proactively refined in view of these, are essential if CMAM is to maintain its effectiveness. In my opinion, SQUEAC is a major step forward towards achieving these goals.

*Adapted from foreword by Steve Collins. Technical Reference for SQUEAC and SLEAC Methods, 2012. FANTA.*



Data collection team measuring MUAC in the village of Hamakouladji, Sony Aliber municipality (Gao, Mali)

K. Greenway, Zambia, 2009

## Remote monitoring of CMAM programmes coverage: SQUEAC lessons in Mali and Mauritania

By Jose Luis Alvarez Moran, Brian Mac Domhnaill and Saul Guerrero



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Brian MacDomhnaill is an independent expert in monitoring and evaluation of health programmes. He has worked in Ghana, Brazil, Angola, Mauritania and Djibouti.



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Action Against Hunger (ACF) currently supports community based management of acute malnutrition programmes (CMAM) programmes in over 20 countries around the world, with a long-standing presence in the Sahel region of West Africa, including Mauritania, Niger, Mali and Chad. Most of these interventions are integrated CMAM programmes, operated by Ministries of Health and local partners with technical and logistical support from ACF teams on the ground. Monitoring the impact of these interventions, and their coverage in particular, is of paramount importance to the organisation. Increasing coverage was instrumental in the shift from inpatient care in the form of therapeutic feeding centres (TFCs) to outpatient models (CMAM) and remains one of the most widely accepted indicators of programme performance and impact. Whilst other indicators (e.g. cure rates, length of stay, average weight gain) provide an insight into the efficacy of treatment, only when combined with coverage do they provide an accurate and reliable indication of the needs met by a programme. Since December 2010, ACF has been increasingly relying on the Semi-Quantitative Evaluation of Access & Coverage (SQUEAC) to measure programme coverage and identify the factors affecting the performance of CMAM programmes<sup>1</sup>.

According to a recent UNICEF estimation, there are 55 countries currently implementing CMAM in one form or another<sup>2</sup>. The scale of CMAM programming, limited non-governmental organisation (NGO) resources, and deteriorating security conditions in many regions (including in the north-west and Horn of Africa) is increasingly forcing support organisations such as ACF to operate remotely with limited access to programme areas. The extent of the constraints varies, from limited access to areas within a district (e.g. ACF supported programme in Guidimaka, Mauritania), to limited access to parts of a country (e.g. ACF supported programme in Gao, Mali) to limited access to an entire country (e.g. ACF supported programmes in Somalia). All of these environments present challenges, in particular for the implementation of monitoring and evaluation activities with a strong field component such as SQUEAC.

### Monitoring coverage remotely

Experiences in using SQUEAC remotely have been limited, with the most notable experience provided by Valid International and Oxfam-Novib in Somalia<sup>3</sup> (see Box 1). Recently, ACF carried out SQUEAC investi-

gations in Mauritania (February 2011) and Mali (July-August 2011). In both cases, lack of security prevented the SQUEAC lead investigators from travelling to the programme areas. In the case of Gao (Mali), the lead investigator was unable to visit the district in which the programme operated but was able to visit a neighbouring district. In the case of Guidimaka (Mauritania), the investigator was able to visit the district but could not travel to most areas outside of the district capital.

The analysis presented here will draw largely from these two experiences. A brief synopsis of the SQUEAC methodology and its key features in more conventional settings is included in Box 2. The article focuses its attention on two general stages of using SQUEAC to monitor programme coverage remotely: planning and implementation. It will conclude with some lessons learned and provide practical suggestions for other practitioners wishing to undertake similar exercises in the future.

### ACF's remote experiences in Mali and Mauritania

CMAM programmes supported by ACF in Gao (Mali) and Guidimaka (Mauritania) are largely inaccessible to expatriate staff due to security threats posed by AQMI (Al-Qaida au Maghreb Islamique) in the region. Security threats do not prevent local teams from implementing programme activities, but monitoring supervision is more difficult since the local teams often need to travel to more accessible areas to meet with technical support and management staff. The decision to evaluate the coverage of both these programmes forced the organisation to explore different means of employing SQUEAC.

Both investigations faced similar accessibility problems and relied on the work of external SQUEAC lead investigators brought into the programme especially to carry out the investigations. The lead investigators had constant remote support from ACF's Evaluations, Learning & Accountability

<sup>1</sup> For more on the SQUEAC method and its use see Myatt, M. SQUEAC: Low resource method to evaluate access and coverage of programmes. (Field Exchange, Emergency Nutrition Network, Issue 33, June 2008, p.3) & Schofield, L. et al. (2010) SQUEAC in routine monitoring of CMAM programme coverage in Ethiopia (Field Exchange, Issue 38, April 2010, Emergency Nutrition Network, p.35).

<sup>2</sup> UNICEF & Valid International (2011) Global Mapping Review of Community-based Management of Acute Malnutrition with a focus on Severe Acute Malnutrition (Nutrition Section, Nutrition in Emergency Unit, UNICEF HQ-NY and Valid International, March 2011)

<sup>3</sup> Valid International. Personal Communication.

#### Box 1: Monitoring coverage remotely in Somalia: The Valid International experience

Valid International has supported the set-up, monitoring and evaluation of a community therapeutic care (CTC) programme in Mogadishu, Somalia for the past 2 years. The monitoring and evaluation support was built around the assessment of coverage using SQUEAC as a framework. Hence, components of the SQUEAC toolbox were put in place right from programme set-up. This allowed for a more organic SQUEAC process that followed the programme cycle of implementation.

This was deemed suitable in the context of programming in Mogadishu where access to the programme sites by external persons is an issue.

Institutionalising a routine system of coverage evaluation was the most suitable way and SQUEAC proved to be an effective framework. This allowed for a mechanism by which the use of different components of the SQUEAC toolbox at various periods or steps, rather than in 'just one go' typical of other investigations. This also allowed for remote external support to be provided appropriately and as needed.

This is the approach that Valid International is taking in contexts such as Mogadishu but is an approach that is ideal even in developmental and more stable conditions.

(ELA) Advisor based in London. In both countries, two teams were formed: a coordination team (including the lead investigator, the ACF Medico-Nutritional Coordinator, and the logistics department at capital level) and a data collection team (composed of the investigator's assistant and local enumerators recruited for the purposes of SQUEAC).

The type of training received by the lead investigators prior to their respective SQUEACs was different. The lead investigator for Mauritania received a three-day SQUEAC introductory training prior to departure, and remote technical support throughout the investigation period. The lead investigator for Mali received a 5-day, on-the-job training in-country,

**Box 2: SQUEAC: a summary**

In 2007, Valid International in collaboration with FANTA/AED, UNICEF, Concern Worldwide, World Vision International, ACF-UK, Tufts University and Brixton Health, developed the Semi-Quantitative Evaluation of Access & Coverage (SQUEAC). The SQUEAC methodology was designed as a low-resource method capable of evaluating programme coverage and identifying barriers to access. SQUEAC is not a survey method but a toolkit designed to provide programme practitioners with different means to evaluate the proportion of the target population covered by a nutrition programme.

Whilst the need to increase nutrition programme coverage was one of the central pillars behind the shift from centre-based treatment to community-based models, measuring programme coverage directly has often proven difficult. Existing tools, such as the Centric Systematic Area Sampling (CSAS) technique, were robust and reliable, yet by their very nature, resource-intensive and often costly. This effectively led to their use as evaluative tools rather than monitoring mechanisms.

SQUEAC investigations are generally carried out in three distinct stages :

*Stage One* identifies areas of high and low coverage and reasons for coverage failure using existing programme data (e.g. admissions, exits) and easy-to-collect data. Whilst much of this data analysis can be collected remotely, access to programme areas is normally required to allow for the collection of additional data (qualitative data in particular) used to triangulate existing information.

*Stage Two* is designed to test the hypotheses (about areas of low and high coverage and reasons for coverage failure) developed in Stage One. Testing can be carried out using small studies, small surveys and/or small-area surveys. All of these alternatives normally require access to the programme area.

*Stage Three* uses Bayesian techniques to estimate programme coverage. The technique relies on previously collected data to develop a 'prior'<sup>4</sup> about programme coverage. A wide-area survey is then carried out to collect data to develop a 'likelihood'<sup>5</sup> (which, together with the 'prior', helps provide a 'posterior'<sup>6</sup> or final estimate of programme coverage). Wide area surveys require access to all survey areas of the programme. Whilst Stage 3 can potentially be left out of the SQUEAC process, it is an essential component if overall coverage estimate is required.

There are no pre-set timeframes for a SQUEAC investigation, but under stable conditions in which information can be accessed and tested relatively easily, a full SQUEAC can last between 14-28 days. Whilst SQUEAC was designed to be implemented by programme staff directly, SQUEAC investigations are still commonly implemented under the supervision of SQUEAC lead investigators.

which included joint analysis of existing programme data and the development of preliminary hypotheses. The availability of previous SQUEAC experience was helpful in planning SQUEAC remotely, particularly for developing a hypothesis about coverage with limited access to the programme.

**Key lessons learned**

ACF's experiences in implementing SQUEAC remotely in Mali and Mauritania provided five key lessons:

**Advanced planning**

When undertaking SQUEAC remotely, forward planning is essential. This is partly due to time constraints. When working remotely, activities take longer, but since the exercise must be completed in a similar timeframe (to remain practical and cost-effective), time must be managed more strategically than in 'conventional' environments. ACF's experience showed that both the coordination and data collection teams must be well coordinated to ensure an optimal use of each team's time. For example, with advanced planning, the coordination team is able to carry out some parts of the analysis whilst the field team simultaneously collects field data. In that respect, the SQUEAC methodology is appropriate for such environments, as it is not always a linear process (between inputs and outputs) and is flexible enough to allow for multiple activities to be implemented, sometimes in parallel. Advanced planning is also essential to ensure an adequate recruitment process for reliable enumerators that can take significantly longer when undertaken remotely.

**Data collation**

The first stage of a SQUEAC investigation involves collating/collecting programme data to build a picture of what programme coverage is and where the areas of high and low coverage are likely to be. This process of data collation normally takes place during the SQUEAC investigation period, partly on the assumption that these data are readily available from programme reporting, databases and other information management systems. Collating all this information in remote programmes can be a long process, especially for integrated (MoH-led) programmes where information is often held at the Service Delivery Units (e.g. health centres). The experience from Mali shows that collating such information prior to the start of SQUEAC can ensure that Stage One focuses mostly on analysing the data (and requesting additional data) rather than on collating it. In this respect, having a multi-layered team (with coordination and a data collection team in the field) enables some elements of the analysis/collection of (last minute) data to be undertaken in tandem.

The Mali and Mauritania experiences show that some data can and should be collected in advance (see Box 3). Some of this information is consistently collected through routine monitoring data (including admissions, defaulters and

**Box 3: Key CMAM programme data to be collected/collated prior to the start of a SQUEAC investigation**

- Programme admissions (by month, by site, by home location)
- MUAC on admission
- Critical events calendar (i.e. annual calendar showing key events that influenced programme coverage positively or negatively)
- Seasonal diseases calendar
- Stock Break Calendar (i.e. annual calendar showing periods of disruption in RUTF supply)
- Referral effectiveness
- Volunteers activity data
- Programme exits

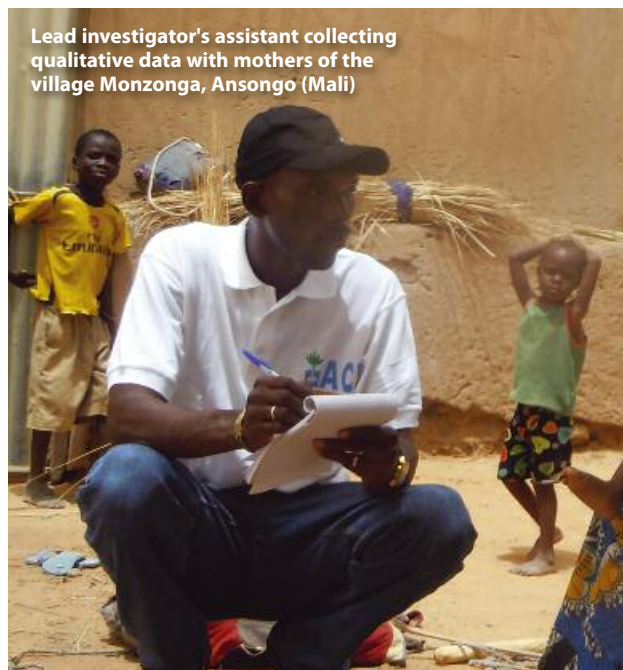
**Box 4: Key themes for qualitative data collecting in SQUEAC**

- Local aetiologies
- Community awareness
- Participation in the programme
- Barriers to access
- Perceived coverage
- Accessibility and insecurity

deaths) but other atypical and non-routine data require specific mechanisms to collect them. Integrating these last ones in the basic programme monitoring data would facilitate the implementation (and mainstreaming) of coverage investigations.

**Multi-layered team**

SQUEAC investigators will still need to determine what and how additional qualitative and quantitative data are to be collected, as well as means of analysis. In conventional SQUEAC investigations, these processes generally occur in the same place and are carried out by the same teams (enabling a more real-time, active/reactive process of data collection). In remote investigations, a separation of the two processes may be necessary, employing a multi-layered team approach. The model used in Mali replicated the two-tier CMAM implementation approach used by ACF to support the CMAM programme. In other words, most technical/strategic/analytical processes were carried out remotely by one team (the coordination team) while a second team (the data collection team) had access to the programme area and was in



Lead investigator's assistant collecting qualitative data with mothers of the village Monzonga, Ansongo (Mali)

<sup>4</sup> In Bayesian inference, the prior is a probabilistic representation of available knowledge about a quantity. In SQUEAC, the prior is a probabilistic representation of knowledge relating to program coverage. SQUEAC uses a Beta distributed prior.

<sup>5</sup> In Bayesian inference, the information provided by new evidence. The likelihood is used to modify the prior to arrive at the posterior. In SQUEAC, this is the information provided by a survey (the likelihood survey).

<sup>6</sup> In Bayesian inference, the posterior is the result of modifying prior belief using new evidence

charge of carrying out qualitative and quantitative data collection processes (see Figure 1). For this two-tier arrangement to succeed, regular communication (prior to and during) the investigation was crucial.

**Regular communication**

Even when a programme area is not equally accessible to all, it is important to bring all the teams working in a SQUEAC to an accessible location for discussion about the activities and processes involved (e.g. calculating weight for height, measuring mid upper arm circumference (MUAC), presence of oedema, etc.). Face-to face communication should occur at least once with the lead investigator. During these meetings it is important to involve everyone in the development of a map of the programme area. The development of a map jointly with the team not only ensures that the spatial dimension of the exercise is understood, but it is a critical step in ensuring that the lead investigator gets an opportunity to discuss and explore questions about the programme area. Working with a map will help in the implementation of SQUEAC and also assist the supervision of the teams.

Once SQUEAC begins, regular communication becomes essential. New technologies, such as internet, emails and mobile telephones, are able to provide a real-time link between those with direct access to the field and the coordination team working remotely. In Mali, other platforms such as radio proved helpful in enabling field teams to notify remote communities of their planned field visits. New technologies allowed for a timely transfer of information between field teams and coordination teams. More importantly perhaps, new technologies enabled both teams to remain in touch and in the process steer the process of data collection and data analysis.

Linking data analysis and data collection and steering the process of data collection is particularly important when it comes to collecting qualitative data. Qualitative data collection in SQUEAC can set out to assess factors that are known to influence coverage (see Box 4) but it must ultimately be an iterative process, adapted to newly emerging information and trends. Communication between those collecting qualitative data, and those responsible for

analysing it and identifying new lines of enquiry, is therefore essential, as is the triangulation of qualitative data.

**Supervision & motivation**

The process of qualitative and quantitative data collection in SQUEAC often merits close supervision to ensure that data are adequately triangulated (by source and method) and to ensure that sampling is comprehensive and exhaustive. In Mali and Mauritania, supervision could not be undertaken directly by the coordination team or the lead investigator due to a lack of access to (most) programme areas. Some of the issues already discussed (e.g. regular communication, advanced planning and recruitment of adequate field teams, etc.) combined with well managed workloads and clear roles and responsibilities can help minimise risks of remote coverage. The selection of a strong and reliable assistant(s) is an essential part of remote SQUEAC implementation. Spending sufficient time to transmit the methodology and the processes involved can ensure that the assistant(s) will be able to steer the teams in the right direction. Constant communication is also essential.

The experiences from Mali and Mauritania provide some examples of how proactively to strengthen supervision and motivation. In Mali, teams carried out daily phone conversations at the start of the day to discuss the daily plan of action and at the end of every day to follow up, strengthen the team motivation and address everyday field problems. In Mauritania, data collection teams returned to base whenever possible to debrief, relay data, and discuss challenges.

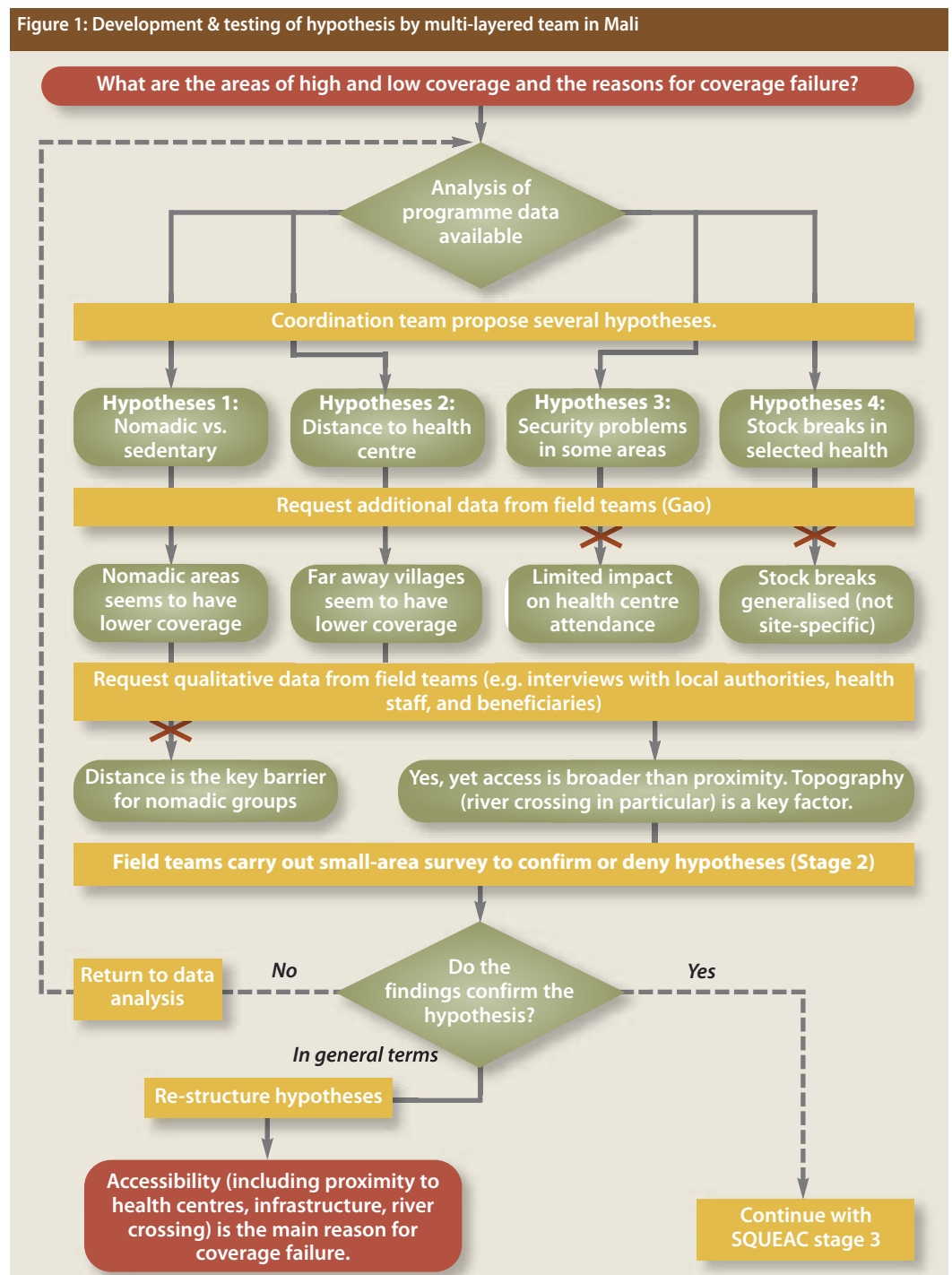
Proactively investing in recruitment and training cannot always ensure a successful outcome. In Mauritania, the data collected as part of the wide-area survey (Stage 3) was found, upon checking, to be unreliable. A decision was made to send a second team of enumerators to re-verify the data. This was only possible because of the contingency planning developed to accommodate the remote nature of the exercise.

**Conclusions**

ACF's experiences in Mali and Mauritania have shown that physical lack of access to programme areas is not an insurmountable barrier to monitoring the performance of the



K Greenway, Zambia, 2009



intervention. Implementing remote SQUEAC investigations is feasible and can provide sufficiently reliable data about programme coverage and the factors affecting it. Remote coverage investigations do not require additional time or resources if there is enough advance planning, support from the local base and a contingency plan has been provided. They do require that standard SQUEAC processes be accentuated or strengthened. These include: advanced planning, preparation of data for its analysis, separating data collection and data analysis processes, using new technologies to ensure regular communication between both sets of activities, and addressing the issue of supervision and motivation proactively and reactively as the investigation develops.

Like other aspects of remote technical support, implementing SQUEAC investigations remotely does require a greater degree of reliance on field teams. Trust is of the essence, but CMAM programmes can minimise potential risks by investing time in the selection of these teams and by allocating manageable daily workloads. Although SQUEAC was designed to be implemented by programme staff, the involvement of experienced lead investigators/technical advisors often proves valuable in the process of data analysis, by bringing a measure of objectivity to key processes (e.g. interpretation/weighing of findings when building a prior). In remote SQUEAC, the presence and input of external technical advisors can help bridge the gaps left by lack of access and limited data accessibility. As the experience from Mali showed, such input during the early part of the process (Stage One) was particularly helpful in ensuring that subsequent processes were adequately implemented. Finally robust data collection, always important for SQUEAC, is essential for remotely managed programmes. By introducing local teams to SQUEAC, it becomes easier for programmes to adopt SQUEAC-based monitoring frameworks that can facilitate future SQUEAC investigations and programme monitoring as a whole.

SQUEAC was developed as a way for nutrition programmes to monitor their own performance. For programmes operating in areas with limited access/mobility, the need for reliable self-evaluation tools is particularly pressing. Carrying out SQUEACs in such contexts is possible with only minimal changes to the methodology. The real challenge lies in creating the capacity within these programmes to collect, document, analyse and report routine data in a manner that enables them to carry out future exercises with minimum external support.

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Surveyor filling up the questionnaire in the village Zinda, Gabero municipality (Mali)

K Greenway, Zambia, 2009

## Causal analysis and the SQUEAC toolbox

By Mara Nwayo and Mark Myatt



Mara Nwayo is a nutritionist specialising in nutrition surveys and surveillance. She has nine years experience working in emergency and chronic emergency settings in Africa and is currently working for UNICEF in Sudan.



Mark Myatt is a consultant epidemiologist. His areas of expertise include surveillance of communicable diseases, epidemiology of communicable diseases, nutritional epidemiology, spatial epidemiology, and survey design. He is currently based in the UK.

The authors wish to thank the Sudan Federal Ministry of Health, Kassala State Ministry of Health, GOAL, and UNICEF's Kassala Office for help with organisation, facilities, accommodation, and logistics.

In this article we report our experiences using the SQUEAC<sup>1</sup> toolbox to undertake a causal analysis of severe wasting (SAM) in a rural area of Eastern Sudan. The work reported here took place during a trainers-of-trainers course in SQUEAC and SLEAC<sup>2</sup> coverage assessment methods. The course was organised by UNICEF and held in the city of Kassala in Eastern Sudan in September 2011. Course participants were drawn from United Nations (UN) organisations, non-governmental organisations (NGOs), and state and federal ministries of health. None of the course participants had prior experience with SQUEAC, SLEAC, or the CSAS<sup>3</sup> coverage assessment method.

A semi-quantitative model of causal analysis was proposed and tested. The elements of this model are outlined in Figure 1. It is important to note that many of the activities required to undertake the causal analysis are existing SQUEAC activities. The approach uses SQUEAC tools to identify risk factors and risk markers for subsequent investigation by case-control study. A matched case-control design was proposed and tested as this requires a smaller sample size than an unmatched design for the same statistical power. Matching was done on location and age. Cases were children aged between six and fifty-nine months with a mid-upper-arm-circumference (MUAC) below 115 mm and/or bilateral pitting oedema. Controls were nearby neighbours of cases and of similar age (i.e. within  $\pm$  three months) with a MUAC greater than 124 mm without bilateral pitting oedema. Data were collected on 35 sets of matched cases ( $n = 35$ ) and controls ( $n = 78$ ). The overall sample size for the study was, therefore,  $n = 113$ .

### Collection of causal data using the SQUEAC toolbox

Trainees had no difficulty collecting case-histories from the carers of SAM cases in the programme and from carers of non-covered SAM cases found in the community during SQUEAC small-area surveys. Trainees also had no difficulty collecting causal information from a variety of informants (e.g. medical assistants, community based volunteers (CBV), traditional birth attendants, traditional health practitioners, village leaders, etc.) using informal group discussions, in-depth interviews, and semi-structured interviews. They also had no difficulty in collating and analysing the collected data using concept-maps and mind-maps (see Figure 2). Trainees had little difficulty expressing findings as testable hypotheses. These are all core SQUEAC activities. Trainees selected potential risk factors and risk markers for further investigation with minimal intervention from the trainer.

### Translation of findings to data collection instruments

Some trainees had difficulty in designing instruments (i.e. question sets) to test stated hypotheses. The problem appeared to be in formulating unambiguous questions and in breaking down complex questions into small sets of simple linked questions. Future development work should explore whether role-playing might help with this activity. Trainees found little problem identifying, adapting, and using predefined question sets (e.g. for a household dietary diversity score and for infant and young child feeding (IYCF) practices) when these were available. Future development work should focus on building a library of pre-tested and ready-to-use questionnaire components likely to be of use. Trainees had little difficulty field-testing their data collection instruments and adaptations were made and tested in the field and again at the survey office.

### Case-finding and questionnaire management

Trainees quickly developed the skills required for active and adaptive case-finding (this was expected from previous SQUEAC trainings). Identification of matched controls was performed well under minimal supervision. The management of questionnaires for a matched case-control study was also performed well under minimal supervision.

Applying the case-control questionnaire to cases, identifying appropriately matched controls for each case, applying the case-control questionnaire to controls, and the management of study paperwork added a considerable data-collection overhead above that already

<sup>1</sup> Semi-quantitative Evaluation of Access and Coverage

<sup>2</sup> Simplified LQAS Evaluation of Access and Coverage (LQAS: Lot Quality Assurance Sampling)

<sup>3</sup> Centric systematic area sample

required by the SQUEAC likelihood survey<sup>4</sup>. It is estimated that surveyor workload for the likelihood survey may increase by 50% or more.

**Data-entry and data-checking**

Great difficulty was experienced and much time wasted working with EpiInfo for Windows. This software proved both difficult to use and unreliable. Data were lost on two occasions. Switching to EpiData proved necessary. This software proved much easier to learn and use. Future development work should use a simple and reliable data-entry system such as EpiData. This software can be run from a USB flash drive and does not require software to be installed.

**Data-analysis**

No attempts were made to teach the details of the techniques required for data management and data analysis. This component was not tested because the computers available were configured so as to prevent the installation of software (the intention had been to test this activity using a free student version of a major commercial statistics package). Data were analysed using the MSDOS version of EpiInfo (v6.04d) and the cLogistic add-in software. This command-line driven software may not be suitable for use by workers used to using more graphical software.

The process of data analysis (i.e. conditional logistic regression with backwards elimination of non-significant variables) was demonstrated to a local supervisor with some experience with the analysis of cross-sectional survey data (e.g. SMART<sup>5</sup>, IYCF, MICS (Multiple Indicator Cluster Survey)). He managed to replicate the demonstrated analysis using EpiInfo and cLogistic. He later demonstrated the analysis to the trainee group and independently reproduced the analysis using STATA. The results of the analysis (from cLogistic) are shown in Figure 3.

Further work is required to identify useful software and to develop a practical manual including worked examples. The manual could be a self-paced programmed learning course. This would allow both self-teaching and classroom-based teaching. The manual should cover data-entry and checking, data-management, data-analysis, and reporting.

**Summary**

The data collected in this exercise were sufficient to identify risk factors and risk markers (i.e. diarrhoea, fever, early introduction of fluids other than breastmilk – a marker for poor IYCF practices) that were significantly associated with SAM. This suggests that it is possible to use the SQUEAC toolbox to collect causal data using the level of staff selected for training as SQUEAC supervisors and trainers. Data analysis may, however, require staff with a stronger background in data-analysis.

Consideration should be given as to whether a case-series or set of case-reports collected from carers of cases in a community based management of acute malnutrition (CMAM) programme and non-covered cases found in the community during SQUEAC small-area surveys could provide a useful causal analysis. Collected data could be organised and presented using a mind-map (as in Figure 2). This would be simpler and cheaper than a case-control study and would probably be more robust than currently utilised methods which tend to use a single round of focus groups (typically excluding carers of SAM cases) and a ‘problem-tree’ analysis.

The work reported here supports the further development and testing of the proposed model for a causal analysis add-in to SQUEAC. This article is intended to inform the emergency and development nutrition community of our experiences with this model so as to allow us to judge the level of interest in further development of the method.

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<sup>4</sup> The survey conducted in the (optional) third stage of a SQUEAC investigation which, when combined with other data, provides an estimate of overall programme coverage  
<sup>5</sup> Standardised Monitoring and Assessment of Relief and Transitions. <http://www.smartmethodology.org/>

Figure 1 : The proposed model of causal analysis

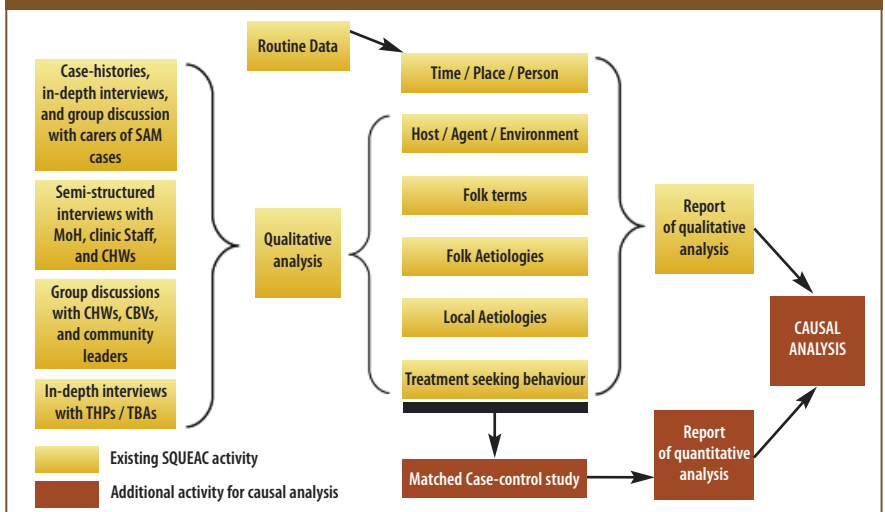


Figure 2: Mind map of potential risk factors and risk markers for severe wasting created using standard SQUEAC tools

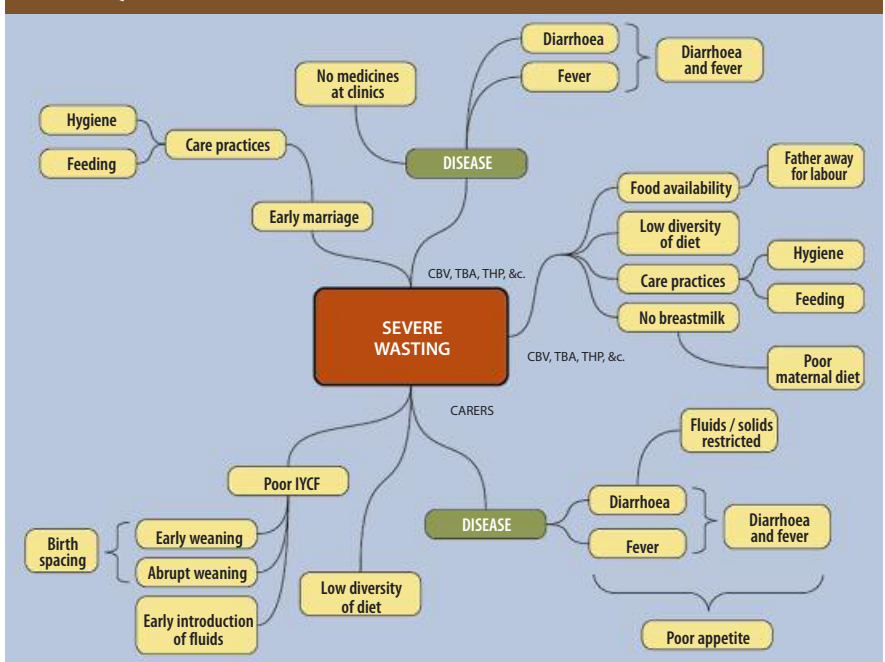


Figure 3 : Results of the analysis in cLogistic

Conditional logistic regression DIA + FEVER + FLUID

Score statistic = 24.0557 3 df (P = .0000)  
 Likelihood ratio statistic = 28.9999 3 df (P = .0000)

Dependent Variable = CASE

	Coefficient	Standard Error	Coef/SE	"P value"
DIA	1.5247	.5675	2.6866	.0072
FEVER	2.1704	.6589	3.2941	.0010
FLUID	-.3233	.1717	-1.8829	.0597

95% Confidence limits

	lower limit	Coefficient	upper limit	lower limit	Odds ratio	upper limit
DIA	.4124	1.5247	2.6370	1.5104	<b>4.5938</b>	13.9713
FEVER	.8790	2.1704	3.4617	2.4085	<b>8.7615</b>	31.8721
FLUID	-.6599	-.3233	.0132	.5169	<b>.7237</b>	1.0133

Likelihood ratios

	H0: coeff = 0	lr statistic (1 df)	P-value
DIA		8.6471	<b>.0033</b>
FEVER		15.6792	<b>.0001</b>
FLUID		4.3655	<b>.0367</b>

This analysis shows that diarrhoea (DIA) and fever (FEVER) are strongly and positively associated with SAM. The variable FLUID is the age (in months) at which the mother reports that fluids other than breastmilk were introduced into the child's diet. Increasing age is negatively associated with SAM (i.e. early introduction of fluids other than breastmilk increases the risk of SAM). Analysis of other data that were collected during the case-control study revealed that around 63% of carers whose child had a recent episode of diarrhoea had (inappropriately) restricted the intake of both fluids and solids. This analysis suggests the following interventions:

- Promotion of ORS
- Promotion of hand-washing and other hygienic practices
- Improved provision of antimicrobials at PHC facilities
- Increasing water availability (supporting hygiene promotion)
- Promotion of appropriate IYCF practices

# Using SLEAC as a wide-area survey method



A survey team assigned to a 'sea segment' in one of the districts

By Ernest Guevarra, Saul Guerrero, and Mark Myatt



Ernest Guevarra leads Valid International's coverage assessment team. He has formal training as a physician and a public health practitioner and invaluable informal training as a community worker from the communities with whom he has worked. He has worked in the Philippines, Uganda, Somalia and Sri Lanka.



Saul Guerrero is the Evaluations, Learning and Accountability (ELA) Advisor at Action Against Hunger (ACF-UK). Prior to joining ACF, he worked for Valid International Ltd. in the research, development and roll-out of CTC/CMAM.



Mark Myatt is a consultant epidemiologist and senior research fellow at the Division of Ophthalmology, Institute of Ophthalmology, University College London. His areas of expertise include infectious disease, nutrition and survey design.

The authors would like to thank the Sierra Leone Ministry of Health and Sanitation for managing the survey and for allocating key ministry personnel to conduct the survey, Statistics Sierra Leone for providing relevant data and appropriate maps used during the survey and UNICEF Sierra Leone for funding the survey. The authors' appreciation also goes to the people of Sierra Leone, without whose support and assistance this survey would not have been possible.

*SLEAC stands for Simplified LQAS' Evaluation of Access and Coverage. It is a quick and simple method for assessing coverage in a programme area such as a health district.*

In 2010, UNICEF approached VALID International Ltd. to design and conduct a national coverage survey of the government-run community based management of acute malnutrition (CMAM) programme in Sierra Leone. Discussions with UNICEF and the Sierra Leone Ministry of Health indicated that a spatially exhaustive set of SLEAC surveys (i.e. a SLEAC survey performed in every health district) augmented by one or two targeted SQUEAC investigations would provide the information needed by both UNICEF and the Sierra Leone Ministry of Health. The idea of using the two methods together in this way is to use SLEAC to identify district programmes achieving low and high coverage and to use SQUEAC to investigate the reasons for the observed levels of coverage. Two variants of this model are outlined in Figure 1 and Figure 2.

This article describes how we used the SLEAC method to perform a wide-area coverage survey of the national CMAM programme in Sierra Leone. It also describes the SLEAC method in general terms.

## The SLEAC method described: The simplified LQAS classifier

The SLEAC method classifies programme coverage for a service delivery unit such as a health district. A SLEAC survey does **not** provide an estimate of overall coverage with a confidence interval for a single service delivery unit. Instead, a SLEAC survey identifies the category of coverage (e.g. low, moderate, or high) that best describes the coverage of the service delivery unit being assessed. The advantage of this approach is that relatively small sample sizes (e.g.  $n = 40$ ) are required in order to make accurate and reliable classifications.

SLEAC uses the same simplified LQAS (Lot Quality Assurance Sampling) classification technique that is used in SQUEAC small-area surveys. The differences between how the simplified LQAS classification technique is used in SQUEAC and SLEAC are:

- The SLEAC survey sample is designed to represent an entire district rather than a small area.
- SLEAC surveys have no prior hypothesis regarding coverage. This means that SLEAC surveys require larger sample sizes than SQUEAC small area surveys.
- A target sample size for SLEAC surveys is decided in advance of data-collection. This is usually about  $n = 40$  severe acute malnutrition (SAM) cases.
- SLEAC surveys may classify coverage into three (or more) classes.

Analysis of data using the simplified LQAS classification technique involves examining the number of cases found in the survey sample ( $n$ ) and the number of covered cases found:

- If the number of covered cases found exceeds a threshold value ( $d$ ) then coverage is classified as being satisfactory.
- If the number of covered cases found does not exceed this threshold value ( $d$ ) then coverage is classified as being unsatisfactory.

<sup>1</sup> Lot Quality Assurance Sampling

Figure 1: The SLEAC surveys identify low coverage areas for investigation using SQUEAC

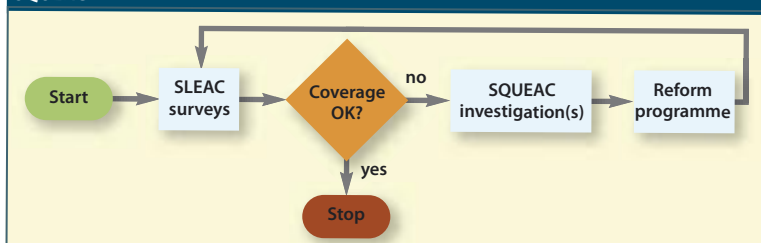
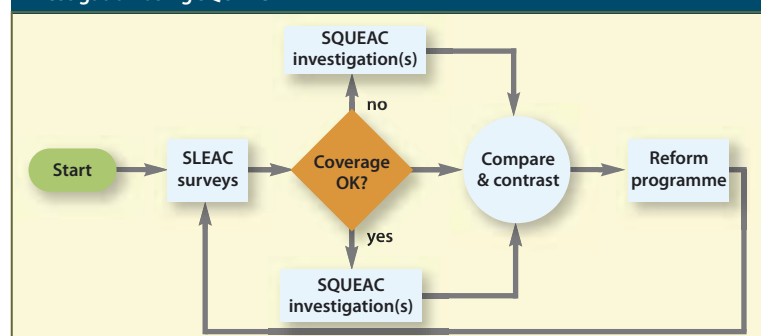


Figure 2: The SLEAC surveys identify low and high coverage programmes for investigation using SQUEAC





The threshold value ( $d$ ) depends on the number of cases found ( $n$ ) and the standard ( $p$ ) against which coverage is being evaluated. A specific combination of  $n$  and  $d$  is called a *sampling plan*. The following *rule-of-thumb* formula may be used to calculate a suitable threshold value ( $d$ ) for any standard ( $p$ ) and any sample size ( $n$ ):

$$d = \left\lceil n \times \frac{p}{100} \right\rceil$$

For example, with a sample size ( $n$ ) of 40 and a standard ( $p$ ) of 70% the appropriate value for  $d$  would be:

$$d = \left\lceil 40 \times \frac{70}{100} \right\rceil = \lceil 40 \times 0.7 \rceil = 28$$

It is unlikely that a *SLEAC* survey will return the target sample size ( $n$ ) exactly. If a survey does not return the target sample size ( $n$ ) exactly then the classification threshold value ( $d$ ) should be recalculated using the achieved sample size. For example:

Target sample size : 40  
Achieved sample size : 43  
Standard : 70%

$$d : \left\lceil 43 \times \frac{70}{100} \right\rceil = 30$$

Coverage is classified using the same technique as is used for *SQUEAC* small-area surveys. For example:

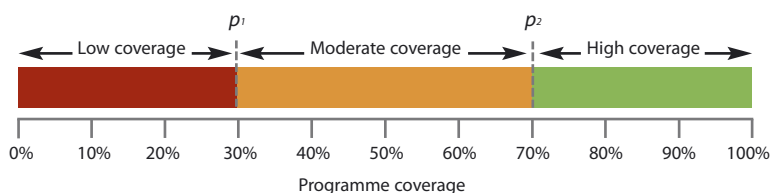
$n$  : 43  
 $d$  : 30  
Covered cases found : 34  
Coverage classification : Satisfactory (since  $34 > 30$ )

The simplified LQAS classification technique provides *binary* or *two-tier* classifications. The method is usually extended to provide more *granular* classifications in *SLEAC* surveys. Three classes are sufficient for most *SLEAC* applications. Three-tier classifications require two sampling plans which are created using the *rule-of-thumb* formula presented earlier.

For three-tier classifications there are two coverage proportions:

- $p_1$ : The upper limit of the 'low coverage' tier or class
- $p_2$ : The lower limit of the 'high coverage' tier or class

The 'moderate coverage' class runs from  $p_1$  to  $p_2$ . For example:



Two classification thresholds ( $d_1$  and  $d_2$ ) are used and are calculated as:

$$d_1 = \left\lceil n \times \frac{p_1}{100} \right\rceil \quad d_2 = \left\lceil n \times \frac{p_2}{100} \right\rceil$$

Classifications are made using the algorithm illustrated in Figure 3.

This three-tier classification works well with small sample sizes (e.g.  $n = 40$ ) provided that the difference between  $p_1$  and  $p_2$  is greater than or equal to about 20 percentage points.

Here is an example of the calculations required:

Sample size ( $n$ ) : 40  
 $p_1$  : 30%  
 $p_2$  : 70%

$$d_1 : \left\lceil 40 \times \frac{30}{100} \right\rceil = \left\lceil 40 \times \frac{30}{100} \right\rceil = 12$$

$$d_2 : \left\lceil 40 \times \frac{70}{100} \right\rceil = \left\lceil 40 \times \frac{70}{100} \right\rceil = 28$$

Figure 4 shows a nomogram for finding appropriate values for  $d_1$  and  $d_2$  given  $n$ ,  $p_1$  and  $p_2$  without the need for calculation.

Classifications are made using the algorithm illustrated in Figure 3.

Figure 3: Algorithm for a three-class simplified LQAS classifier

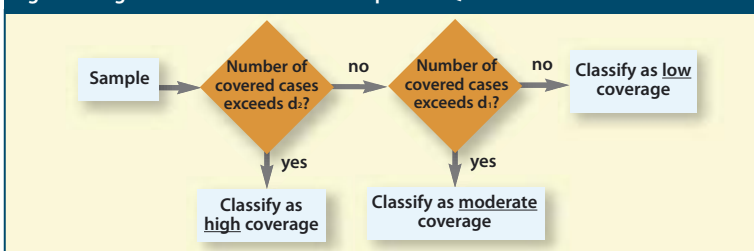


Figure 4: Simplified LQAS nomogram for finding appropriate values for  $d_1$  and  $d_2$  given  $n$ ,  $p_1$  and  $p_2$

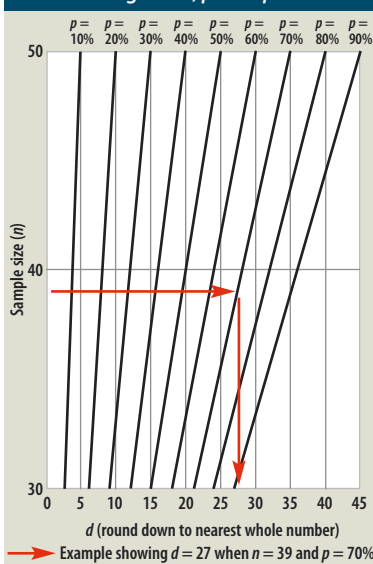


Figure 5: Mapping of the coverage class derived from the data shown in Table 1

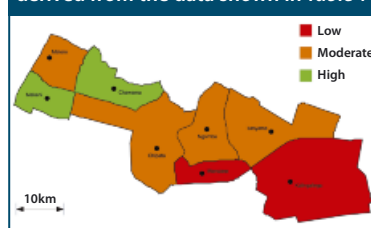


Figure 6: A coarse CSAS/quadrat sample of villages suitable for a SLEAC survey

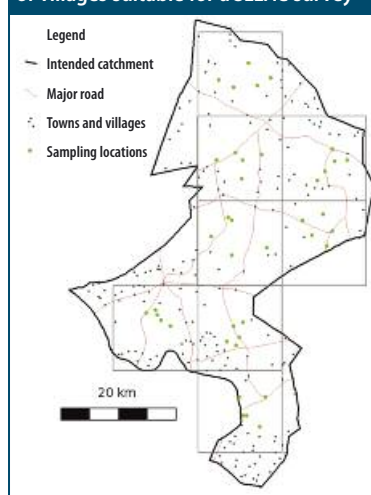
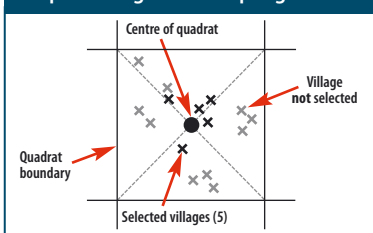


Figure 7: Selection of villages to be sampled using CSAS sampling



A case-finding tally from a SLEAC survey in one of the districts

CHIEFDOM	IN	OUT	RECOVERING
Sengbeh <sup>(1)</sup>	0	0	3
Dembella Sinkara <sup>(2)</sup>	0	1	0
Tolobala Dembala <sup>(3)</sup>	0	5	0
Sulima <sup>(4)</sup>	0	1	0
Niemi <sup>(5)</sup>	0	8	0
Diong <sup>(6)</sup>	0	7	0
Kasunka <sup>(7)</sup>	0	0	0
Nega <sup>(8)</sup>	0	3	0
Manga <sup>(9)</sup>	0	8	0
<b>Total</b>	<b>0</b>	<b>30</b>	<b>3</b>
W- Yagala <sup>(10)</sup>	0	0	0
W- Barfala <sup>(11)</sup>	0	0	3
<b>TOTAL</b>	<b>0</b>	<b>33</b>	<b>6</b>
			CASES IN PROGRAM
Coverage = $\frac{C}{N}$			TOTAL CASES

Figure 8: Villages selected using stratified systematic sampling

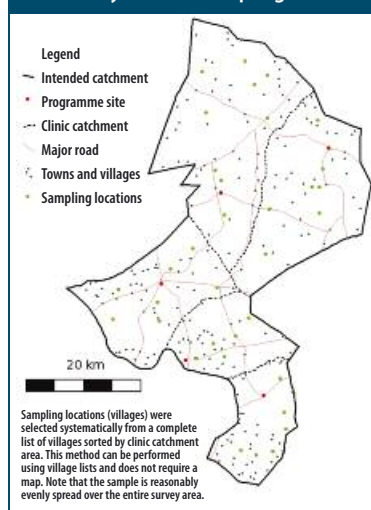
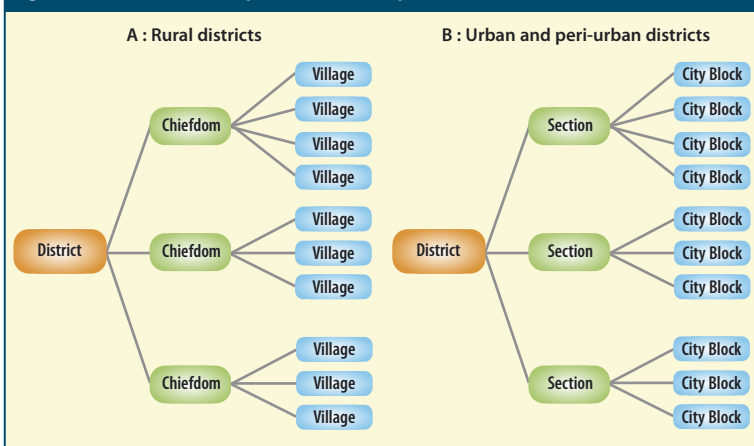


Figure 9: Structure of samples in rural and peri-urban/urban districts



**Box 1: Active and adaptive case-finding**

The within-community case-finding method used in both *SQUEAC* small-area surveys, *SQUEAC* likelihood surveys, *SLEAC*, and *CSAS* surveys is active and adaptive:

**ACTIVE:** The method actively searches for cases rather than just expecting cases to be found in a sample.

**ADAPTIVE:** The method uses information found during case-finding to inform and improve the search for cases.

Active and adaptive case-finding is sometimes called *snowball sampling*, *optimally biased sampling*, or *chain-referral sampling*. The following method provides a useful starting point:

Ask community health workers, traditional birth attendants, traditional healers or other key informants to take you to see “children who are sick, thin, have swollen legs or feet, or have recently been sick and have not recovered fully, or are attending a feeding programme” and then ask mothers and neighbours of confirmed cases to help you find more cases using existing cases as exemplars.

The basic case-finding question (i.e. “children who are sick, thin, have swollen legs or feet, or have recently been sick and have not recovered fully, or are attending a feeding programme”) should be adapted to reflect community definitions / aetiologies of malnutrition and to use local terminology. Markers of risk (e.g. orphans, twins, single parents, neglected or abused children, households without land or livestock, &c.) may also be included in the case-finding question. It is important to avoid, if possible, highly stigmatised terms (i.e. terms associated with poverty, child abuse or neglect, sexual libertinage, alcoholism, etc) as community members may be reluctant to slander their neighbours in order to help you find SAM cases. It is important to ask about children attending a feeding programme (or specific feeding programmes). Failure to do this may result in bias towards low coverage in your surveys.

It is important that the case-finding method you use finds all, or nearly all, cases in the sampled communities. Formal evaluations of the type of active and adaptive case-finding described here have found that the method does find all, or nearly all, cases in the sampled communities provided that appropriate local terms and appropriate key-informants are used. Interviews such as those outlined in Box 2 are useful in designing the case-finding question and selecting the most useful key-informants. Sampling stops only when you are sure that you have found all SAM cases in the community. Sampling in a community should not stop because you have reached a quota or met the sample size required by the survey. Such early stopping is not allowed.

Care needs to be exercised in the choice of key-informant. Community leaders are a useful point of entry but seldom make useful key-informants. They are most useful in helping you find and recruit useful key-informants. You should avoid relying solely on community health workers or volunteers who are attached to the programme as they may be unable or reluctant to take you to see children who are not in the programme.

It is important to realise that the active and adaptive case-finding method will fail in some settings. The method has been found not to work well in some refugee and IDP (internally displaced persons) camp settings, in urban locations where there is a high population turnover (e.g. around railway and bus stations, newly established or growing peri-urban ‘shanties, etc), and in displaced and displacing populations. These settings are typified by a lack or loss of strong extra-familial relationships, extended familial relationships, strong local kinship ties, collective loyalty, and simple (traditional) social structures. In these settings it may be very difficult to find useful key-informants or local guides, and snowball sampling will not work well for finding SAM cases when people do not know their neighbours well. In these settings it is sensible to search for cases by moving house-to-house and door-to-door making sure that you measure all children by taking a verbal household census before asking to measure children (this avoids sick or sleeping children being ‘hidden’ to avoid them being disturbed by the survey team).

If a survey does not return the target sample size (*n*) exactly then the classification thresholds (*d*<sub>1</sub> and *d*<sub>2</sub>) should be recalculated using the achieved sample size. For example, a set of *SLEAC* surveys classifying coverage in individual clinic catchment areas using a target sample size of forty SAM cases (*n* = 40) for each catchment area and the class boundaries *p*<sub>1</sub> = 30% and *p*<sub>2</sub> = 70% returned the data shown in Table 1. The target sample size was applied to each of the clinic catchment areas separately. This allowed coverage classifications to be made for individual clinic catchment areas. These coverage classifications could be presented as a map as in Figure 5.

*SLEAC* can estimate coverage over several service delivery units. Coverage is classified using *SLEAC* surveys in individual service delivery units. Data from the individual service delivery units are then combined and coverage for this wider area is estimated from the combined sample. The details of calculating a wide-area estimate from a set of *SLEAC* surveys are not covered in this article.

**The *SLEAC* method described: Sample Design**

*SLEAC* uses a two-stage sample design:

**First stage sampling method:** This is the sampling method that is used to select villages to be sampled. *CSAS* coverage assessments use the *centric systematic area sampling* or *quadrat* method to select villages to be sampled (Figure 6). A similar method is often used to select villages to be sampled for *SLEAC* surveys. The number of quadrats drawn on the map may be much smaller than would be used for a *CSAS* assessment (this is the same as using

**Box 2: Simple structured interview questionnaire to be applied to carers of non-covered cases**

**Questionnaire for carer of cases not in the programme**

Village : \_\_\_\_\_

Programme site : \_\_\_\_\_

Name : \_\_\_\_\_

1. Do you think that this child is malnourished?   
If YES ...

2. Do you know of a programme that can treat malnourished children?   
If YES ...

3. What is the name of this programme? \_\_\_\_\_

4. Why is this child not attending this programme?  
*Do not prompt. Probe "Any other reason?"*

- Programme site is too far away
- No time / too busy to attend the programme
- Carer cannot travel with more than one child
- Carer is ashamed to attend the programme
- Difficulty with childcare
- The child has been rejected by the programme

Record any other reasons ... \_\_\_\_\_

5. Has this child ever been to the programme site or examined by programme staff?   
If YES ...

6. Why is this child not in the programme now?

- Previously rejected
- Defaulted
- Discharged as cured
- Discharged as not cured

*Thank carer. Issue a referral slip. Inform carer of site and date to attend.*

**Table 1: Results of *SLEAC* surveys in eight clinic catchment areas using a target sample size of forty (*n* = 40) cases for each catchment area and the class boundaries *p*<sub>1</sub> = 30% and *p*<sub>2</sub> = 70%**

Clinic catchment area	Sample size	<i>d</i> <sub>1</sub> *	<i>d</i> <sub>2</sub> *	Number of covered cases	Classification
Chawama	38	11	26	29	High
Matero	32	9	22	18	Moderate
Makeni	43	12	30	36	High
Chipata	35	10	24	15	Moderate
Ngombe	42	12	29	14	Moderate
Kalingalinga	37	11	25	10	Low
Mtendere	39	11	27	5	Low
Kanyama	42	12	29	23	Moderate
<b>All</b>	<b>308</b>	<b>92</b>	<b>215</b>	<b>150</b>	<b>Moderate</b>

\* *d*<sub>1</sub> and *d*<sub>2</sub> calculated after data collection using achieved sample sizes

larger quadrats). The villages to be sampled are selected by their proximity to the centre of each quadrat (Figure 7). The number / size of quadrats should be selected so as to spread the sample of villages over the entire survey area. Another approach is to stratify by clinic catchment area and systematically select villages from a complete list of villages sorted by clinic catchment area (Figure 8). This approach may be used with any areas (e.g. administrative areas) for which complete lists of villages are available. This *first stage* sampling method should be a spatial sampling method that yields a reasonably even spatial sample from the survey area. Cluster sampling using population proportional sampling (PPS), such as that used for *SMART* surveys, is **not** appropriate. The approaches outlined here can provide a reasonably even spatial sample using village lists and do not require the use of maps. It is important to note that sampling should **not** stop when the survey has reached its required sample size. Sampling only stops after you have sampled **all** of the selected villages

**A within-community sampling method:** This will usually be an active and adaptive case-finding method or a house-to-house census sampling method (see Box 1). These methods find all, or nearly all, current and recovering SAM cases in a sampled village. Sampling should be exhaustive. This means that you only stop sampling when you are sure that you have found all cases in the community. Sampling should **not** stop when you have met a quota or the wider survey has reached its required sample size.

This is a two-stage sample because a sample of villages in the survey area is taken first (stage one) and then a 'census' sample of current and recovering SAM cases is taken from each and every one of the selected villages (stage two).

**The SLEAC method described: Sample size**

SLEAC uses a target sample size (*n*) which, together with prevalence and population estimates, is used to decide the number of villages (*n*<sub>villages</sub>) that should be sampled in order to achieve the target sample size. A target sample size of *n* = 40 cases from each service delivery unit in which coverage is to be classified is usually large enough for most SLEAC applications.

The target sample size (*n*) together with estimates of the prevalence of severe acute malnutrition (SAM) in the survey area and population data is used to calculate the number of villages (*n*<sub>villages</sub>) that will need to be sampled in order to achieve the target sample size:

$$n_{\text{villages}} = \left\lceil \frac{n}{\text{average village population}_{\text{all ages}} \times \frac{\text{percentage of population}_{6-59\text{ months}}}{100} \times \frac{\text{SAM prevalence}}{100}} \right\rceil$$

SAM prevalence refers to the average SAM prevalence in the catchment area of the service delivery unit. It is unlikely that SAM prevalence will be known or known with good precision. SAM prevalence estimates may be available from (e.g.) previous SMART surveys. SAM prevalence varies throughout the year (e.g. prevalence is usually higher before harvests than after harvests). This means that you should use the results from a nutritional anthropometry survey undertaken at the same time of year as the current SLEAC assessment.

Note that prevalence here is the estimated prevalence of the programme's admitting case-definition. This will usually not be the weight-for-height based 'headline' prevalence estimate reported by a SMART survey. The required estimate will usually be found in the needs assessment section of a SMART survey report.

If you do not have nutritional anthropometry survey results for the same time of year as the current SLEAC assessment then you should use results from the most recent nutritional anthropometry survey and adjust them using (e.g.) seasonal calendars of human disease, calendars of food-availability, agricultural calendars, long term admissions data from nutrition programs, and long term returns from growth monitoring programmes.

The formula for the calculation of the minimum number of villages that need to be sampled in order to achieve the required sample size shown above assumes that the case-finding method being used will find all, or nearly all, current and recovering SAM cases in sampled villages. If you are unsure of this then you should sample a larger number of villages.

Once these calculations have been made, sampling locations can be identified and the survey undertaken (e.g. as shown in Figure 6 and Figure 8). A standard questionnaire, such as that shown in Box 2, should be applied to carers of non-covered cases found by the survey. Data collected using the standard questionnaire can be presented using a Pareto chart (i.e. a bar-chart with bars ordered by and with lengths proportional to the frequency of the reported barriers).

**Background to the Sierra Leone national SLEAC survey**

The CMAM approach to treating cases of severe acute malnutrition (SAM) in government health facilities was piloted in four districts of Sierra Leone in 2008. The programme was expanded to provide CMAM services in selected health centres in all fourteen districts of the country in 2010. This report describes the application of SLEAC to the assessment of the coverage of this national CMAM programme. The work reported here took place in March and April 2011.

**SLEAC sample design**

SLEAC was used as a wide-area survey method to classify coverage at the district level. The district was selected as the unit of classification because service delivery of the national programme was managed and implemented at the district level.

The primary sampling units (PSUs) used in the SLEAC surveys were census enumeration areas (EAs). In rural districts, EAs were individual villages and hamlets. In urban and peri-urban districts, EAs were city-blocks or compounds. In rural districts, lists of potential PSUs were sorted by chiefdom. In urban and peri-urban districts, lists of potential PSUs were sorted by electoral ward (sections). This approach ensured a

near even spatial spread of the selected villages across rural districts and a near even spatial spread of selected EAs across urban and peri-urban districts. The structure of the district-level samples is shown in Figure 9.

A target sample size of *n* = 40 current SAM cases was used in both rural and urban districts. This is the standard SLEAC sample size for large populations.

The number of PSUs (*n*<sub>PSU</sub>) needed to reach the target sample size in each district was calculated using estimates of average EA population and SAM prevalence using the following formula:

$$n_{\text{PSU}} = \left\lceil \frac{\text{target sample size } (n)}{\text{average EA population}_{\text{all ages}} \times \frac{\text{percentage of population}_{6-59\text{ months}}}{100} \times \frac{\text{SAM prevalence}}{100}} \right\rceil$$

Average EA population was estimated as:

$$\text{Average EA population} = \frac{\text{District population}}{\text{Total number of EAs in the district}}$$

using data from the most recent (2004) Sierra Leone Population and Housing Census.

The percentage of the population aged between 6 and 59 months was estimated as 17.7%. This is a national average taken from the Sierra Leone 2004 Population and Housing Census. This estimate is used by Sierra Leone government departments, UN agencies, and NGOs.

SAM prevalence rates were taken from reports of SMART surveys of prevalence in each district that had been undertaken in the lean period of the previous year. The prevalence of SAM using MUAC and oedema was used since this matched programme admission criteria.

The Sierra Leone Central Statistics Bureau provided information on the total district populations and total number of EAs in each district. The Sierra Leone Central Statistics Bureau also provided lists of enumeration areas for the Western Area (urban and peri-urban) districts and large-scale maps (see Figure 10) of the EAs that were selected for sampling.

PSUs were selected using the following systematic sampling procedure:

**Step 1:** The lists of EAs were sorted by chiefdom for rural districts and by section for urban and peri-urban districts.

**Step 2:** A sampling interval was calculated using the following formula:

$$\text{Sampling interval} = \left\lceil \frac{\text{Number of EAs in district}}{n_{\text{PSU}}} \right\rceil$$

**Step 3:** A random starting PSU from the top of the list was selected using a random number between one and the sampling interval. The random number was generated by coin-tossing (see Box 3 for details).





Survey teams discussion how to organise a SLEAC survey in a new district

## Focus on coverage assessment

The PSUs selected by this procedure were sampled using a case-finding method tailored to the particular district:

- In rural districts, a district-specific case-finding question was developed from the base case-finding question:

*Where can we find children who are sick, thin, have swollen legs or feet, or have recently been sick and have not recovered fully, or are attending a feeding programme?*

This question was adapted and improved using information collected from traditional birth attendants, female elders, traditional health practitioners, carers of children in the programme, and other key informants to include local terms (in all local languages) and local aetiological beliefs regarding wasting and oedema. This question was used as part of an active and adaptive case finding method (see Box 1).

- In urban and peri-urban districts, house-to-house and door-to-door case-finding was used. This was done because it was felt that active and adaptive case-finding would not work well in these districts. Sampling was aided by the use of large-scale maps showing enumeration area (EA) boundaries (see Figure 10).

After all of the selected PSUs in a district had been sampled, the survey team met at the district headquarters for data collation and analysis. The simplified LQAS classification technique was applied to the collated data. Coverage standards:

**Low coverage:** Below 20%.

**Moderate coverage:** Between 20% and 50%.

**High coverage:** Above 50%

were decided centrally by MoH and UNICEF staff before the start of the surveys. These standards were used to create decision rules using the rule-of-thumb formulae:

$$d_1 = \lfloor n \times p_1 \rfloor = \left\lfloor n \times \frac{20}{100} \right\rfloor = \left\lfloor \frac{n}{5} \right\rfloor \quad \text{and} \quad d_2 = \lfloor n \times p_2 \rfloor = \left\lfloor n \times \frac{50}{100} \right\rfloor = \left\lfloor \frac{n}{2} \right\rfloor$$

where  $n$  is the sample size achieved by the survey,  $p_1$  is the lower coverage threshold (i.e. 20%), and  $p_2$  is the upper coverage threshold (i.e. 50%).

Coverage in each district was classified using the algorithm presented in Figure 3.

Table 2 presents the results of the surveys.

Figure 11 presents the same results as a map of per-district coverage.

A short questionnaire, similar to that shown in Box 2, asking about barriers to coverage was administered to carers of non-covered cases found. Data were tabulated from the questionnaires using a tally-sheet and presented as a Pareto chart (see Figure 12A and Figure 12B).

### The SLEAC implementation process

The process as described above was completed in eight weeks (44 working days) staffed by fifteen mid-level health management staff and a principal surveyor provided by VALID International Ltd.

### Box 3: Generating random numbers by tossing coins

Random numbers can be generated by tossing a coin. Tossing a coin has two outcomes (i.e. heads and tails) and the method of generating random numbers by tossing a coin works by using powers of two. Here are some powers of two:

Power of two	Value	Power of two	Value
$2^0$	1	$2^6$	64
$2^1$	2	$2^7$	128
$2^2$	4	$2^8$	256
$2^3$	8	$2^9$	512
$2^4$	16	$2^{10}$	1024
$2^5$	32	$2^{11}$	2048

Each power of two is double the previous number so, for example,  $2^{12} = 2048 \times 2 = 4096$ . To generate a random number between 1 and  $x$  by tossing a coin you must first find the smallest power of two that is greater than or equal to  $x$ . If, for example, you need to generate a random number between 1 and 28 you would use  $2^5$  (32) since this is the smallest power of two that is greater than or equal to 28. This power of two, five in this case, is the number of coin-tosses ( $t$ ) required to generate a random number between 1 and 32. Write down powers of two starting at  $2^0$  and stopping at  $2^{t-1}$ . For example:

1 2 4 8 16 ← Write down powers of  $2^0$  and stopping at  $2^{t-1}$ .

Toss a coin  $t$  times and record the result of the tosses below each power of two. For example:

1 2 4 8 16  
 ↓ ↓ ↓ ↓ ↓  
 H T H H T ← Toss a coin  $t$  times and record the result of the tosses below each power of two.

Replace each head result with its associated power of two and replace each tail result with zero. For example:

1 2 4 8 16  
 ↓ ↓ ↓ ↓ ↓  
 H T H H T  
 ↓ ↓ ↓ ↓ ↓  
 1 0 4 8 0 ← Replace each head result with its associated power of two and replace each tail result with zero.

Add up these numbers and then add one. This is the random number. For example:

1 2 4 8 16  
 ↓ ↓ ↓ ↓ ↓  
 H T H H T  
 ↓ ↓ ↓ ↓ ↓  
 1 0 4 8 0  
 ↓ ↓ ↓ ↓ ↓  
 1 + 4 + 8 + 1 = 14 ← Add up these numbers and then add one. This is the random number.

If a random number generated by this method is out of range (i.e. larger than you need) then you should discard that number and start again.

Table 2: Coverage classification by district

Province	District	SAM cases found ( $n$ )	Covered SAM cases ( $c$ )	Lower decision threshold ( $d_1$ )	Is $c > d_1$ ?	Upper decision threshold ( $d_2$ )	Is $c > d_2$ ?	Coverage classification
Northern	Bombali	30	4	6	No	15	No	LOW
	Koinadugu	32	0	6	No	16	No	LOW
	Kambia	28	0	5	No	14	No	LOW
	Port Loko	30	2	6	No	15	No	LOW
	Tonkolili	28	1	5	No	14	No	LOW
Eastern	Kono	16	2	3	No	8	No	LOW
	Kenema	34	8	6	Yes	17	No	MODERATE
	Kailahun	34	4	6	No	17	No	LOW
Southern	Bonthe	41	7	8	No	20	No	LOW
	Pujehun	27	6	5	Yes	13	No	MODERATE
	Bo	22	6	4	Yes	11	No	MODERATE
	Moyamba	40	6	8	No	20	No	LOW
Western	Rural	46	6	9	No	23	No	LOW
	Urban	20	2	4	No	10	No	LOW
<b>National Total</b>		<b>428</b>	<b>54</b>	<b>85</b>	<b>No</b>	<b>214</b>	<b>No</b>	<b>LOW</b>

Figure 10: Example of a large-scale map showing enumeration area (EA) boundaries used when sampling in an urban district



Figure 11: Map of per-district coverage

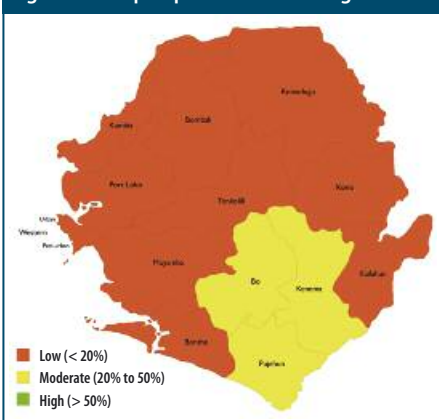
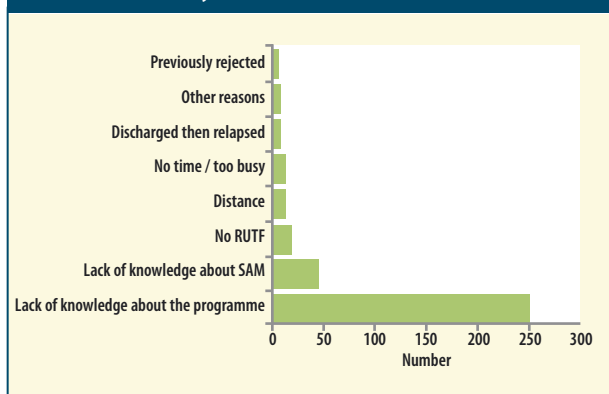


Figure 12A: Barriers to service uptake and access (tallies from one SLEAC survey)

BARRIERS TALLY SHEET

BARRIER	TALLY
LACK OF KNOWLEDGE	
RELAPSE (NOT RETURNED)	
OTP SITE TOO FAR	
NO RUTE	
DIDN'T RECOGNISE SAM	
OTHER	

Figure 12B: Barriers to service uptake and access (national tallies from all SLEAC surveys)



Three survey teams with five members each were used. The teams were divided into two sub-teams. A survey team was headed by a 'captain' who was in charge of managing the sub-teams, organising travel and survey logistics, and co-ordinating survey activities with the principal surveyor.

Each district was divided into three segments. Segmentation was informed by logistics with each segment being served by a road (when possible).

Each survey team was assigned to one of the three segments and provided with:

- A list of PSUs (sorted by chiefdom) to be sampled.
- A list of the locations of CMAM programme sites.
- A list of the names and home villages of chiefs and chief's assistants for each PSU to be sampled.

Each survey team started case-finding in the farthest PSU and then moved to the next-farthest PSU for case-finding and so-on. At the end of each day, the survey teams lodged in health centres, local guesthouses, or in villagers' homes. They restarted case-finding on the following day. This continued until all the PSUs had been sampled. The survey teams then came together at the district headquarters for data collation and analysis and results were shared with district-level health management staff.

Upon completion, the survey team was able to:

- Classify coverage in each district (Table 2)
- Map coverage by district for the whole country (Figure 11)
- List barriers to coverage ranked by their relative importance (Figure 12A and Figure 12B)

An overall coverage estimate was calculated but not reported. Figure 13 shows the calculation of the overall coverage estimate using spreadsheet software.

A single SQUEAC investigation was carried out in the peri-urban 'Western Rural' district. This district was chosen because a large number of cases were found in the SLEAC survey, coverage was low, and it was conveniently close to where the survey team was at the end of the SLEAC surveys. Figure 14 shows a concept map summarising the key findings of the SQUEAC investigation.

**Conclusion**

The work reported in this article supports the use of SLEAC for the assessment of coverage of CMAM programmes over wide-areas up to national scale. The application of the SLEAC survey method in Sierra Leone proved to be easy to set-up and supervise. The simplified LQAS technique for classifying coverage and the use of tally-sheets to analyse and present 'barriers' data allowed the survey team to analyse results of the survey for each district as soon as each SLEAC survey was completed. Feedback was immediately provided by the survey team to district Ministry of Health officials on their programme's level of coverage and the barriers to access and service uptake. Such 'real-time' analysis and reporting of results is unique to SLEAC and has the potential for real-time action and programme reform to be implemented. These findings demonstrate the usability of the method by Ministry of Health staff and make SLEAC the coverage assessment method of choice when evaluating the coverage of CMAM programmes at a regional or national level.

Figure 13: Calculation of a wide-area coverage estimate using a spreadsheet

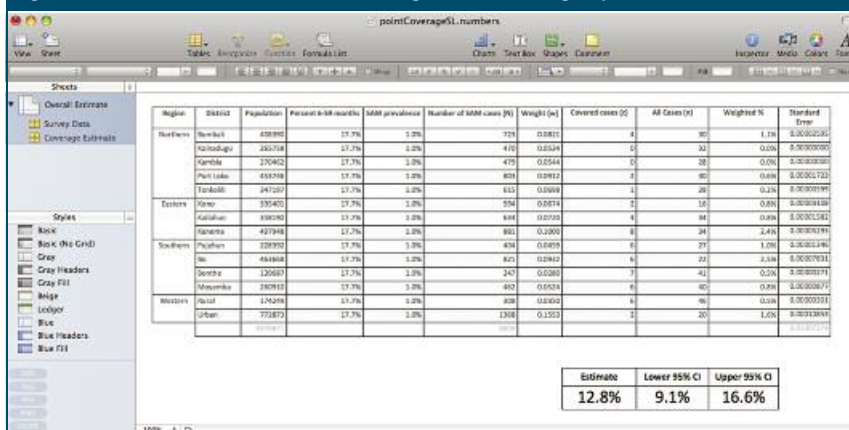
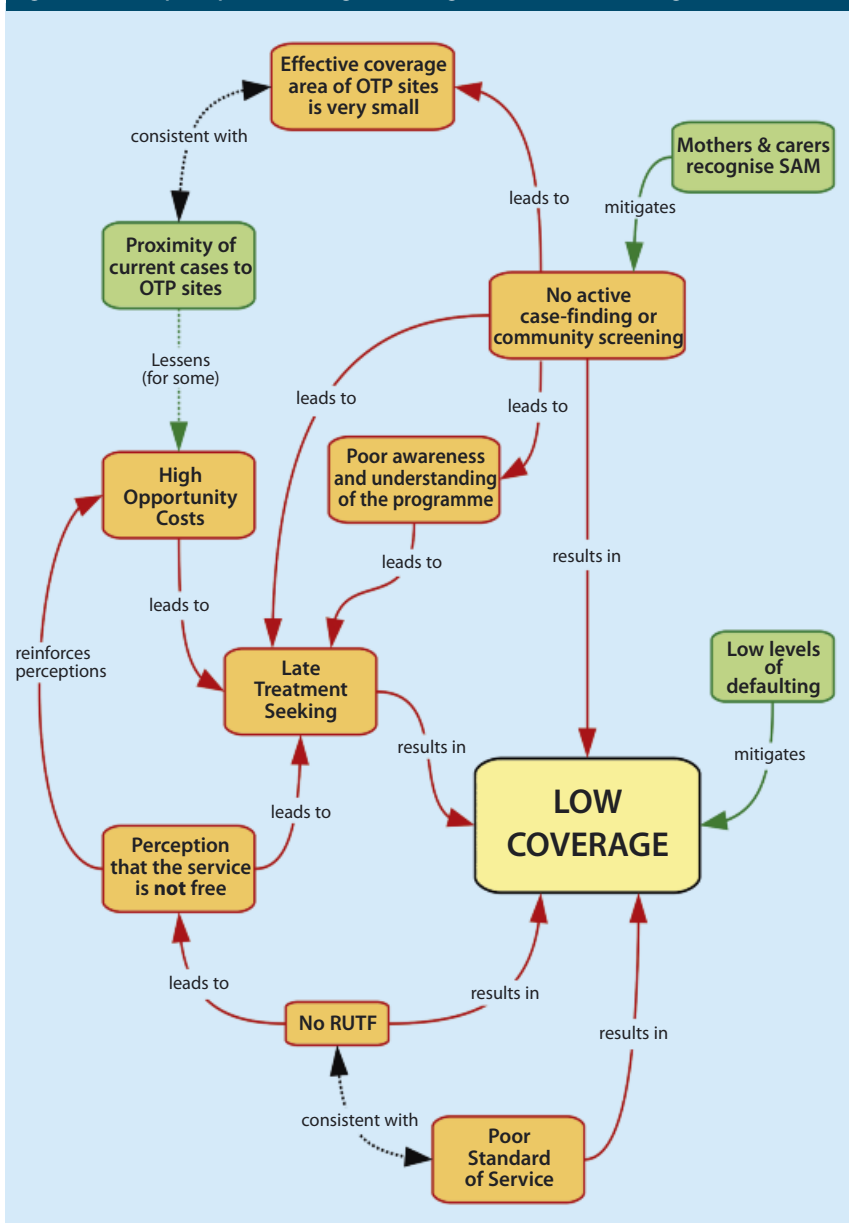


Figure 14: Concept map summarising the findings of the SQUEAC investigation



For further information, contact: mark[at]brixtonhealth.com

## Register now for coverage assessment workshop in Oxford

Valid International together with Mark Myatt is planning two sets of 2-day coverage assessment workshops from 27th to the 28th of March 2012 and 29th to the 30th of March 2012 respectively. The workshop is an introductory course to the various methods designed and used for assessing the coverage of the outpatient therapeutic care programme (OTP) and supplementary feeding programme (SFP) components of community-based therapeutic care (CTC) or community-based management of acute malnutrition (CMAM). These methods are Semi-Quantitative Evaluation of Access and Coverage (SQUEAC), Simplified Lot Quality Assurance Sampling Evaluation of Access and Coverage (SLEAC) and Simple Spatial Survey Method (S3M).

The first workshop is aimed at mid-level managers and technicians particularly (but not limited to) those based at headquarters of international non-governmental organisations. The second workshop is intended for donors / funders and United Nations organisations. The workshop will be held at Jesus College, University of Oxford, UK. Each workshop is limited to 20-25 participants.

At the end of the workshop, the participants would be able to differentiate between the different coverage methods and determine the programme contexts for which they are best suited. This will enable more informed decisions on planning and budgeting for appropriate coverage assessment methods for their programmes in different country contexts. The workshop is not meant to train participants on how to conduct coverage assessments.

Each 2-day workshop will start with an introductory session on the methods, their history and development and strengths and weaknesses. This will be followed by sessions that detail the features of the individual methods. The sessions will be led by a team of four highly-experienced practitioners headed by Mark Myatt, the lead developer of all the methods currently used for coverage assessment. The workshop agenda is currently being finalised and will be made available to participants in February 2012.

Participation in the two-day workshop costs £600. This includes workshop fees, workshop materials and lunch and refreshments for both days. Please note that participants will be responsible for their own travel costs to and from Oxford. Participants who wish to stay in Oxford will be responsible for their own accommodation. Various options including discounted rate at Jesus College as well as travel information are available online.

Registration will start on the 2nd of January 2012. For further information and/or to signify your interest, visit the workshop webpage at <http://www.validinternational.org/coverage> or contact Basia Benda, email: [basia@validinternational.org](mailto:basia@validinternational.org)



## Coverage assessment forum launched on en-net



En-net is launching a new Coverage Assessment forum area for discussion of methods used in the assessment of programme coverage of the outpatient therapeutic programme (OTP) and Supplementary Feeding Programme (SFP) components of CTC/CMAM. This forum will also serve as a platform for discussing the use of these methods in assessing coverage of other programmes.

The new forum area has five Technical Moderators on hand to provide support and advice to challenging questions: Ernest Guevarra, Lio Fieschi and Allie Norris of Valid International, Saul Guerrero of ACF-UK and Mark Myatt (Independent). The forum area will be overseen by the ENN Moderator, Tamsin Walters.

All questions welcome. Visit [www.en-net.org.uk](http://www.en-net.org.uk)

To support the forum, a Coverage Assessment sub-section of the ENN Resource Library has been established to locate key resources. Visit: <http://www.enonline.net/library> and select Technical Resources, then Assessment.

## Technical Reference for SQUEAC and SLEAC Methods, 2012

The Technical Reference for Semi-Quantitative Evaluations of Access and Coverage (SQUEAC) and Simplified Lot Quality Assurance Sampling Evaluations of Access and Coverage (SLEAC) Methods was developed by Action Against Hunger, Brixton Health, Concern Worldwide, Food and Nutrition Technical Assistance II Project (FANTA-2/FANTA-2 Bridge), UNICEF, Valid International, and World Vision International, and will be published by FHI 360/FANTA-2 Bridge with USAID funding in 2012.

The Technical Reference comprises dedicated sections on SQUEAC and SLEAC methods and a series of case studies that address:

- Assessing evidence and coverage in very high coverage programmes
- Assessing evidence and coverage in moderate coverage programmes
- Assessing evidence by wishful thinking (not a good idea)
- Sampling without maps or lists
- Using satellite imagery to assist sampling in rural settings
- Active and adaptive case-finding in rural settings
- Within-community sampling in an IDP camp
- Within-community sampling in urban settings
- The case of the 'hidden defaulters'
- Applying SLEAC: Sierra Leone national coverage survey (see field article in this issue of Field Exchange)

The appendices include additional technical information on SQUEAC and SLEAC, guidance on working with formulas, and a glossary of SQUEAC and SLEAC terms.

When completed, the Technical Reference will be available for downloading from the FANTA website: <http://www.fantaproject.org>

# Increasing Access to Ready-to-use Therapeutic Foods (RUTF)



By Jan Komrska

Jan Komrska is a pharmacist working at UNICEF Supply Division leading Nutrition unit and responsible for procurement of products related to nutrition interventions of UNICEF.

The author acknowledges the work of UNICEF Supplies Division reflected in this article.



Test products

Since 2007, the use of ready to use therapeutic foods (RUTF) to treat severe acute malnutrition (SAM) in young children has been endorsed by the United Nations and non-governmental organisations (NGOs), and received wide notice by the media. With the proven success of RUTF, more countries have adopted their use as part of community-based management of SAM (CMSAM), and demand for the products has soared. Since 2006, UNICEF, the world's major purchaser of RUTF<sup>1</sup>, has taken a series of steps to shape the market and diversify the supplier base. As a result of this effort, the market has grown from one qualified manufacturer in 2000 to 19 today. This number is expected to increase in the coming years, especially in countries where RUTF is used.

RUTF are high-energy foods fortified with vitamins and minerals, packed in individual portions providing energy intake of 500 kilocalories. They can be in the form of a soft paste or a crushable biscuit that is easy to swallow. Individual packaging allows easy handling and prevents contamination of the product between feedings. UNICEF requires RUTF to be manufactured by qualified suppliers in accordance with stricter quality standards than normal food products. The product most in demand and the subject of this article is RUTF in peanut paste form.

The first peanut paste RUTF was developed jointly by the French Institute of Research for Development and the manufacturer Nutriset in 1996 as a fortified peanut spread, now marketed under the name Plumpy'Nut®.

UNICEF Supply Division is responsible for procurement of specific products (including RUTF) for UNICEF country programmes and external partners, assuring transparency in using public funds and maintaining agreed product quality.

## UNICEF procurement of RUTF in the period 2000–2010

UNICEF began to procure RUTF in 2000, when Nutriset was the sole qualified supplier and annual demand was below 100 metric tonnes (MT)<sup>2</sup>. The first long-term RUTF supply arrangement (LTA) was established with Nutriset on a sole-source basis in 2001.

Under an LTA, Supply Division places orders with suppliers, based on requisitions from UNICEF country offices. Suppliers are responsible for manufacturing the product and delivering it to the nearest seaport for shipment by sea freight or, in urgent cases, to an agreed airport for air shipment. Further transportation

of RUTF to the beneficiary countries is assured by UNICEF-contracted freight forwarders. Therefore, RUTF prices referred in this article exclude shipping costs.

By 2004, demand began to rise as more countries began piloting the use of RUTF, and it became increasingly urgent for UNICEF to identify new sources of RUTF. During 2006, Supply Division began to work with manufacturers in countries where the product could be manufactured for local use, and approved suppliers in Niger and Ethiopia for local purchase in 2006 and 2007 respectively.

With the publication of the UN Joint Statement in 2007<sup>3</sup>, demand increased dramatically, outpacing global production capacity. The situation became critical in 2008, when a hunger emergency in the Horn of Africa caused a spike in demand in the second half of the year. Even after a second global supplier (Vitaset, located in Dominican Republic) had been approved, the 11,000 MT ordered by UNICEF, still largely from Nutriset, did not meet peak in demand.

As a result of this experience, Supply Division made three key decisions in 2008:

- to initiate competitive bidding for RUTF in order to open the market for new suppliers
- to begin conducting annual forecasting for RUTF with individual country programmes, and
- to conduct a study on RUTF supply chain performance in order to identify weaknesses and propose solutions.

These efforts were part of a larger procurement strategy developed by Supply Division through which UNICEF could leverage its buying power to influence the market, promote increased competition and ensure a diverse and sustainable supply base.

## Implementation of the Procurement Strategy

In 2008, in line with its procurement strategy, Supply Division launched the first competitive bidding exercise for the supply of forecasted 20,000 metric tonnes (MT) of RUTF, for the period 2009–2010. This exercise was preceded by a lengthy, multi-year process of advocacy for increasing production capacity with existing suppliers, identification of potential new global and local suppliers (usually existing food companies), and the development of manufacturing standards coupled with inspection of various manufacturing facilities.

For the majority of products, UNICEF typically would establish a LTA, based on the

results of competitive bidding, for a period of two to three years with the supplier making the lowest acceptable offer, and eventually a back-up LTA with the supplier making the second lowest acceptable offer. However this approach was not applicable in the case of RUTF, because it would not encourage any further market development and would leave UNICEF with one or two suppliers. Therefore, it was decided to distribute total forecasted quantity among all companies meeting UNICEF technical requirements for manufacturing facilities as well as product specifications.

Proposals were received from 13 companies and seven proved to be able to meet defined requirements for global supply of RUTF. LTAs were established subsequently with all seven suppliers, expanding significantly the supplier base (for more details see Table 1).

The second competitive bidding exercise for supply of forecasted 54,000 MT of RUTF for the period 2011–2012 was issued by the end of 2010. The forecasted quantity was based on the assumption of continued expansion of CMSAM to new countries and scaling up of existing programmes. Proposals were received from 27 companies out of which 12 met UNICEF requirements for global supply of RUTF. LTAs were established subsequently with all 12 suppliers listed in Table 2.

It is important to underline that RUTF products manufactured by UNICEF-approved manufacturers comply with the Joint statement specifications and they can be used by country programmes interchangeably.

A key part of the procurement strategy was to support the development of local production in countries where RUTF is used, particularly in Africa, in order to bring the supply closer to the beneficiaries and reduce delivery lead times.

After successful audits of the manufacturing sites by Supply Division's Quality Assurance

Table 1: UNICEF-approved RUTF Suppliers, 2005–2011

	2005	2006	2007	2008	2009	2010	2011
Global suppliers	1	1	1	2	6	7	12
Local suppliers	0	1	2	2	4	7	7
<b>Total</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>10</b>	<b>14</b>	<b>19</b>

<sup>1</sup> UNICEF is the largest, but not the only, purchaser of RUTF. Other major purchasers include MSF, the Clinton Foundation and different NGOs.

<sup>2</sup> 1 MT contains 72 cartons of RUTF. It takes approximately one carton to treat and save a child, so that each MT can save the lives of 72 children.

<sup>3</sup> WHO/WFP/UNSCN/UNICEF. Community-Based Management of Severe Acute Malnutrition. A Joint Statement by WHO, WFP, UNSCN and UNICEF, May 2007

staff in Niger and Ethiopia, further audits were conducted at manufacturers in Malawi, the Democratic Republic of the Congo, Mozambique, Madagascar and Tanzania and resulted in their approval for local purchases to UNICEF. The suppliers listed in Table 3 are authorised to sell RUTF to UNICEF's country programmes locally. As of 2010, about 23% of the RUTF purchased by UNICEF was sourced locally.

As programme demand and production capacity increased, so did the volume of UNICEF procurement, in terms of the number of MT purchased and the number of countries placing orders. After a steady increase from 2000 to 2008, procurement of RUTF decreased not because of declining needs but as a result of resource mobilisation challenges caused by the global economic crisis and availability of stocks in countries from 2008. However, orders have rebounded in 2010 and by mid-year had surpassed 2009 levels, reaching 20,690 MT as of year-end (2010) (for more details see Table 4).

**Forecasting**

The growing demand for RUTF, production capacity constraints and the volatility of prices of raw materials made forecasting of demand increasingly necessary. UNICEF first undertook global forecasting to collect information on needs for RUTF and other nutrition products in January 2009. This resulted not only in forecasting of global product needs (used for the bidding process) but also contributed to a better understanding of the scale of implementation of CMSAM.

The 2010 forecast indicated that UNICEF currently is implementing CMSAM in about 55 countries, where there are 6.1 million children with SAM. UNICEF country programmes intended to reach 1.8 million children (about 30 per cent), revealing a large gap in coverage, especially given the 20 million children estimated to be suffering from SAM worldwide.

**RUTF Pricing**

Peanut-based RUTF consists of milk powder (30%), sugar (28%), peanut butter or paste (25%), vegetable oil (15%) and vitamin and mineral premix (1.6%).<sup>4</sup> The product is packed in standard foil sachets. The milk and packaging material (aluminum foil) are the most expensive components, followed by the premix, peanut butter, sugar and oil.

Somewhat surprisingly, the entry of new suppliers into the market has not resulted in any dramatic drops in price, for a number of reasons. One possible reason might be that new suppliers do not have the large production volumes that usually result in lower prices, and are also faced with high-start-up costs.

*Prices of globally purchased RUTF*

The pricing structure in the LTAs is complex because of volume discounts, payment terms, currency used and other factors. The initial price paid by UNICEF for RUTF in 2001 was about €41.50 (56.80 USD) per carton. In 2006, as the average size of orders began to increase,

Nutriset proposed scaled prices for larger orders, and the price decreased gradually to about €35.20 (48 USD) per carton in 2011. However, this drop in price was masked by fluctuations in the rate of exchange between the euro and the United States dollar, because the price is fixed in euros, as proposed by Nutriset. The RUTF prices offered to UNICEF by other suppliers range from 48.00 USD to 56.50 USD per carton in 2010.

*Prices of locally procured RUTF*

Local producers import almost all of the ingredients and the packaging material, most of which are subject to import duties. Often the price offered initially is too high to justify local purchase on a cost basis alone, even considering the added cost of freight.

Supply Division carefully scrutinises the prices proposed by local companies in order to assure best value for money. They are compared to the landed cost of globally procured RUTF (price at the factory plus freight cost to the final destination) and when found too high, UNICEF attempt to negotiate a lower price.

The prices of locally produced RUTF vary significantly among the different suppliers. In 2010, the local prices ranged between 57.00 USD (in Madagascar) and 69.00 USD per carton (in Mozambique).

*Freight costs*

RUTF is a heavy and bulky product, with a course of treatment for one child (one carton) weighing about 15kg. The 16,000 MT of RUTF purchased off shore in 2010, filled 830 40-foot containers. Shipping the product by sea is the most economical option, but air shipment might be required when RUTF is needed for emergency response to natural disasters, drought or political instability. Air freight of RUTF increases the landed cost by 100 per cent whereas sea freight only by 10 per cent.

In 2008, nearly 35% of RUTF purchased by UNICEF had to be transported by air, at a cost of \$8.5 million, in order to reach the beneficiaries on time. By 2010, less than 1% of the RUTF had to be transported by air, costing less than \$400,000. The decrease in shipment by air is a result of RUTF supply chain analysis that suggested a number of tools to reduce freight costs. These included introductions of forecasting of country programming needs, development of supplier base in locations close to where the product is used and prepositioning of stock in areas closer to emergency-prone countries (e.g. Dubai for the Horn of Africa and Ghana or Cameroon for the Sahel region).

**Issues for future consideration**

As more countries adopt and/or scale up CMSAM to treat SAM, the need for RUTF will continue to increase. Supply Division will continue to refine its procurement strategy and work with UNICEF's Programme Division and

external partners to address a number of issues that could affect RUTF availability and accessibility for the final beneficiaries.

UNICEF sees the continued diversification of the supplier base, with more qualified manufacturers in countries and regions closer to the end-users, as an important concern. This will facilitate the eventual transfer of CMSAM and use of RUTF from UNICEF and NGOs to national authorities.

Building a strong network of smaller suppliers in countries with the highest incidence of SAM therefore remains a priority. The work is ongoing with potential manufacturers in Sierra Leone, Uganda and Rwanda in order for them to become part of UNICEF-approved manufacturers. However in the process of expansion of UNICEF approved-manufacturers, the focus on product quality and safety shall remain central.

**Conclusions**

The Supply Division strategy to increase the availability of RUTF and assure a sustainable and diverse supplier base has accomplished its main goals. In 10 years, the supplier base has grown from one global supplier in Europe to 19 global and local manufacturers in Africa, Europe and Americas. The seven local suppliers are in countries where RUTF is used, and more local manufacturers are expected to be approved in the near future. Even with this substantial growth in production capacity, quality standards have been maintained. Forecasting of demand has been systematised and orders can be filled promptly when they are placed on time. Supply Division continues to work with UNICEF country offices to refine forecasting of demand and to work with suppliers to manage global production. Air freight costs have been reduced dramatically as a result of these improvements, and stocks are being prepositioned in key regions to allow for rapid response when necessary.

As outlined above, the major future challenge is the potential increased demand for RUTF as countries adopt and expand CMSAM. Supply Division will continue to work with suppliers, country offices, UNICEF's Programme Division, and external partners on development of sustainable RUTF supply chain.

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<sup>4</sup> Mark J. Manary. Local production and provision of ready-to-use therapeutic food (RUTF) spread for the treatment of severe childhood malnutrition. Food and Nutrition Bulletin, vol. 27, no. 3 (supplement) 2006, The United Nations University

**Table 2: UNICEF-approved global RUTF suppliers**

Global supplier	Product Name
1. Nutriset (France)	Plumpy Nut®
2. Vitaset (Dominican Republic)	Plumpy Nut®
3. Diva Nutritional Products (South Africa)	Generic name***
4. Insta EPZ (Kenya)	Generic name
5. Challenge Dairy (United States)*	Generic name
6. Tabatchnick Fine Foods (United States)	Nutty Butta
7. Compact (India)	EeZee Paste™
8. Compact (Norway)	EeZee Paste™
9. Edesia (United States)	Plumpy Nut®
10. Nutrivita (India)	Plumpy Nut®
11. JB/Tanjaka Foods (Madagascar)**	Plumpy Nut®
12. Mana Nutritive Aid Products (United States)	Generic name

\*Dairy-based, not peanut-based, RUTF.  
 \*\*The first company located in programmatic country capable of exporting RUTF  
 \*\*\*Supplier agreed to remove branded name/Imunut from the labels

**Table 3: UNICEF-approved local RUTF suppliers**

Global supplier	Product Name
1. STA (Niger)	Plumpy Nut®
2. Hilina (Ethiopia)	Plumpy Nut®
3. Project Peanut Butter ( Malawi)	Plumpy Nut®
4. Valid Nutrition (Malawi)	Plumpy Nut®
5. Amwili (DR Congo)	Plumpy Nut®
6. JAM (Mozambique)	Plumpy Nut®
7. Power Foods (Tanzania)	Plumpy Nut®

**Table 4: UNICEF Global Purchases of RUTF, 2000-10 (in MT)**

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Countries ordering RUTF	1	4	6	7	8	17	26	41	48	45	52
Total	3	84	57	109	344	1,793	2,697	4,552	10,741	8,129	20,690



# UNHCR Technical Workshop on the Operational Guidance on the use of Special Nutritional Products

By Sarah Style and Andrew Seal



Sarah Style is an ENN consultant working on the UNHCR/ENN Anaemia Control, Prevention and Reduction Project.



Andy Seal is a lecturer and researcher at the UCL Centre for International Health and Development and a senior technical advisor to the ENN on the UNHCR/ENN Anaemia Control, Prevention and Reduction Project.



Table 1: Summary of Food Supplementation Products (FSP) and Fortified Blended Food (FBF) for use in children aged 6-59 months that are covered by the Operational Guidance

FSP / FBF	Target age group	Product descriptions
Micronutrient powder	6-59m	MNPs provide no energy (kcal) in the diet. They are usually packaged in individual sachets to provide a dose of selected vitamins and minerals in powder form, to be added to foods directly after cooking. MNPs have been shown to be efficacious in treating and preventing anaemia. Branded products include Sprinkles™ and MixMe
Low quantity LNS*	6-24m	Highly fortified peanut-based paste that contains vitamins and minerals in addition to providing energy. It is usually packaged in individual daily sachets and is to be eaten either directly from the sachet or added to complementary food. It has been shown to improve linear growth in young children. Product brands include Nutributter® <sup>2</sup>
Medium quantity LNS	6-36m	Highly fortified peanut-based paste that contains vitamins and minerals in addition to providing energy. It is usually packaged in individual weekly pots. However it will also be available in the form of daily sachets, which is the preferred form for distribution. It has been used in programmes to prevent increases in GAM in young children during periods of food insecurity. Product brands include Plumpy'doz®
FBF+ / ++	6-59m / 6-24m	FBF+ e.g. Corn-Soy Blend (CSB) is a food for young children and other vulnerable groups, as well as the general population. Its content of vitamins and minerals has been modified compared to previous formulations. It is recommended as a partial replacement for nutritionally inadequate local diets. FBF++ is a newly developed FBF for infants over 6 months and young children. It contains milk powder and has a higher energy density than other types of FBF.

In July 2011, UNHCR, in collaboration with ENN, held a five-day technical training workshop to introduce the recently finalised 'Operational Guidance on the Use of Special Nutritional Products to Reduce Micronutrient Deficiencies and Malnutrition in Refugee Populations'.

The Operational Guidance (described further in Field Exchange 41) deals with certain food supplementation products (FSP) (including micronutrient powders (MNP) and certain lipid-based nutrient supplements (LNS)) that are currently being used, or being considered for use, in blanket supplementary feeding programmes within UNHCR operations. These products are designed for use in programmes aiming to prevent malnutrition, with a particular focus on micronutrient deficiencies. The guidance has been developed to help country staff deal with the challenges and confusion in designing, implementing, monitoring and evaluating programmes using these new FSPs.

The workshop was designed to provide both training on the use of the Operational Guidance and the opportunity for sharing of information and experiences of using these products in refugee camps across UNHCR operations. The overall aim was to enhance best practice and contribute to participants being better able to meet the needs of the refugee populations with whom they work.

The specific objectives of this technical workshop were to:

- Provide standardised guidance on best practice in planning, implementing, monitoring and evaluating programmes using special nutritional products
- Improve the design, implementation and monitoring & evaluation of programmes using special nutritional products
- Build the capacity of technical health and nutrition staff from UNHCR and WFP in effectively managing programmes using these products in refugee situations.

Twenty health and nutrition staff from UNHCR and WFP attended the workshop, which was held in Mombasa, Kenya. Participants represented operations in 12 countries: Algeria, Bangladesh, Chad, Djibouti, Ethiopia, Kenya, Nepal, Rwanda, Sudan, Tanzania, Uganda and Yemen.

## Workshop activities and agenda

The workshop followed the general structure of the Operational Guidance beginning with Stage 1 on the first day (define the nutritional problem) through to Stage 6 (monitoring and evaluation)<sup>1</sup>. The workshop covered the key operational components relating to programmes using specific FSP intended for preventative purposes. See Table 1 for further product information.

A variety of different learning methods were incorporated throughout the workshop, including presentations, case studies, individual exercises, group work, testing of various tools in the Operational Guidance, and optional evening sessions. Participants were invited to present their experiences, learning, and the challenges on the ground concerning programmes using FSPs. At the end of the workshop, participants were allocated time with facilitators to discuss any questions or challenges that they were facing relating to their country of operation and the way forward, and how to incorporate the principals and best practice outlined during the workshop.

## Follow up

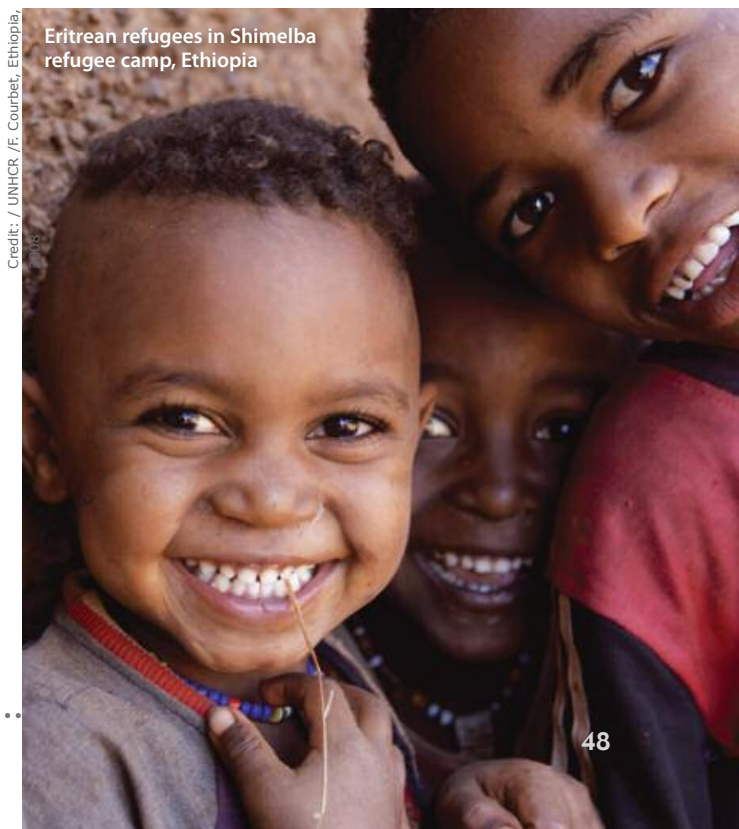
Workshop evaluation findings (daily feedback and final evaluation) were positive and constructive. The main challenge that participants identified for practice are budgetary constraints to purchase and manage products due in part to other competing operational needs. The main actions identified by participants to improve product related practice was to review their camp behaviour change and communication (BCC) strategy and to improve M&E systems including use of the M&E tools provided in the Operational Guidance. A clear expectation of the workshop was that all participants would conduct follow up training on their return to help build institutional knowledge.

<sup>1</sup> See news piece in Field Exchange 41 for schematic.

<sup>2</sup> This is the only product currently approved for use by UNHCR. Products are approved on a case by case basis. Similarly, only Plumpy'doz is approved as a medium quantity LNS.

Feedback from participants have been incorporated in the final version of the Operational Guidance which will shortly be available for public dissemination and download via <http://info.refugee-nutrition.net>

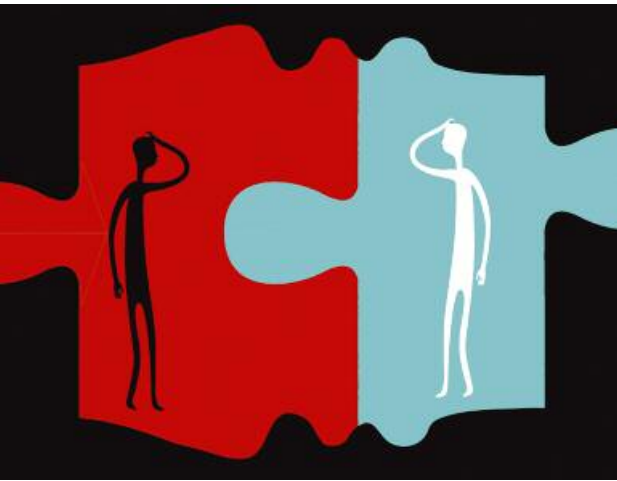
For further information, contact Caroline Wilkinson at UNHCR, Geneva, email: [wilkinso@unhcr.org](mailto:wilkinso@unhcr.org)



Eritrean refugees in Shimelba refugee camp, Ethiopia

Credit: / UNHCR / F. Courbet, Ethiopia

# infoasaid: communication in emergencies



When an emergency strikes, be it natural disaster or man-made, organisations working on the ground, together with the national authorities, rush to respond. Their actions are orientated towards getting in supplies, arranging logistics, and ensuring programmes such as Water, Sanitation and Hygiene (WASH), Health, Shelter and Nutrition can deliver on their commitments. Two-way communication, i.e. the sharing and receiving of information, with disaster-affected communities should and can be a cross-cutting part of humanitarian response and in itself, a form of aid.

Communication is essential to successful emergency programming in many ways. It can alert the population about the disaster and raise awareness on potential threats and thus mitigate risk. If it is two-way, it can improve programming by being more needs-based; if done well and effectively, it can improve coverage overall and at the same time, reach more vulnerable people. It can support the coordination effort by creating the space and the means for organisations and communities to work and talk together. It can also be an important and effective tool in addressing the psycho-social needs of a population who have experienced a disaster first hand.

*infoasaid* is a 2 year, DFID-funded project that is being implemented by two media development organisations - Internews and the BBC World Service Trust. The overall goal of the



project is to improve the quality of humanitarian responses by maximising the amount of accurate and timely information available to both humanitarian agencies and affected populations through enhanced information exchange between them in the critical first few days and weeks of an emergency.

The project has two main objectives:

- To strengthen the capacity and preparedness of aid agencies to respond to the information and communication needs of crisis affected populations.
- To partner with a number of aid agencies to help inform and support their communications response in a variety of emergency contexts.

In order to achieve objective one, *infoasaid* is developing a range of tools that will be available to the entire humanitarian community. These include:

- Media and Telecoms Landscape Guides for 22 of the world's most disaster and conflict-prone countries. These guides provide a comprehensive picture of the media and telecommunications landscape, information on media consumption patterns and a useful contact directory of media and telecoms operators. The guides are a practical tool for aid agencies to refer to when deciding which channels of communication to use in order to access different populations.
- A library of generic messages and accompanying guide. This has been developed in collaboration with a number of different clusters/sectors in humanitarian response, including WASH, Health, Nutrition, Food Security Protection and Education. The messages aim to provide information to affected populations about the scale and nature of the emergency, risks and threats and how to mitigate them and information about programme interventions. The accompanying guide explains the importance of context, culture, and delivery methods in each emergency situation. The messages are designed to be used as a reference tool and ideally, should be translated, piloted and adapted to suit the local context and to ensure comprehension before an emergency has occurred. The message library will soon be available for use in the form of a web based tool.
- Generic questions on information needs and access which need to be adapted and then integrated in agencies' needs assessment frameworks.
- An interactive e-learning course to raise awareness of, and provide basic skills on, communicating with disaster affected communities. The two hour module takes the learner through a number of different emergency scenarios.

In order to achieve objective two, *infoasaid* is partnering with a number of aid agencies to help inform and support the integration of communications into their emergency programmes. Partnerships have been signed

with Save the Children, Merlin, World Vision, ActionAid and the International Federation of the Red Cross and Red Crescent Societies (IFRC). *infoasaid* is currently piloting an intervention with Action Aid in Kenya around food security, using two new open source software platforms – Frontline sms and Freedom Fone. Scoping missions are also taking place in north east Kenya and Puntland with Save the Children to see how integrating communication interventions can improve their emergency response.

*infoasaid* also provides additional support in the following areas:

- Context analysis (analysis of the media landscape)
- Undertaking information needs and access assessments
- Development of communications plans and strategies
- Development and dissemination of key messages to affected populations
- Linking aid agencies with media development organisations, the tech-community and the local media



- Piloting new technology innovations
- Design and roll out of small scale pilot projects
- Undertaking learning reviews post-response, in order to learn lessons and document good practice

*infoasaid* informs its advocacy efforts through its field based experiences and the learning gleaned through the reviews undertaken post response. *infoasaid* hopes to consolidate its learning in the form of a Humanitarian Practice Network (HPN) Paper that it will develop and launch in collaboration with the Overseas Development Institute (ODI) in mid-2012. *infoasaid* is also providing technical and financial support to the 'Communicating with Disaster Affected Communities (CDAC) Network' with the view to strengthen the Network and enable it to take forward the work that *infoasaid* is currently doing.

For more information on *infoasaid* visit: [www.infoasaid.org](http://www.infoasaid.org) or contact Anita Shah, Head of Project, email: [anita.shah@infoasaid.org](mailto:anita.shah@infoasaid.org)

# Experiences of the Nutrition in Emergencies Regional Training Initiative



Part of the group work in the Uganda training

By Abigail Perry, Jessica Meeker, and Andrew Seal, UCL Centre for International Health and Development (UCL-CIHD)



Abigail Perry is a nutritionist with extensive experience in development and emergency work. She worked as a Research Associate at UCL and was the coordinator and lead trainer for the Nutrition in Emergencies Regional

Training Initiative (NIERTI) project between 2009 and 2011



Andrew Seal is a Lecturer in International Nutrition at UCL where he conducts research and training on various aspects of nutrition in emergencies. He was the project manager for the work described here and is

continuing the work with NIERTI partners to take forward this initiative



Jessica Meeker is a graduate of the LSHTM Public Health Nutrition course, coming from a previous career in IT consultancy management. Whilst working as a Research Assistant at UCL, she conducted

much of the research on Nutrition in Emergencies competencies

The NIERTI project started in the Autumn of 2009 and has just concluded. The project was funded by an OFDA award to the Emergency Nutrition Network (Agreement No. DFD-G-00-09-00289-00) and implemented by UCL-CIHD.



Part of the field work in the Uganda training

The upward trend in the frequency and magnitude of humanitarian disasters is set to continue and ongoing economic instability, escalating food and fuel prices, climate change and urbanisation are predicted to amplify humanitarian needs<sup>1</sup>. This projection of increased vulnerability has implications for development; losses associated with humanitarian disasters are thwarting progress towards meeting development goals<sup>2</sup>. Central to efforts to protect communities and reduce vulnerability is the development of capacity to prepare for and respond to crises effectively<sup>3</sup>. The 2005 Humanitarian Response Review noted that the lack of capacity in the humanitarian sector hampers the quality and appropriateness of emergency response. The review provoked more detailed examination of humanitarian capacity, including a 2007 report focusing on 'nutrition in emergencies' (NIE)<sup>4</sup>. This review, completed on behalf of the IASC Global Nutrition Cluster (GNC), identified two key NIE capacity gaps: (i) inadequate 'resident' capacity and (ii) lack of nutritionists able to handle the demands of emergencies.

A number of projects have since emerged that have attempted to address this gap. In 2008, a standard set of technical documents, known as the Harmonised Training Package (HTP) were developed<sup>5</sup>. More recently, the GNC has initiated a capacity development project for cluster coordinators. In addition, two projects have been developed with support from the Office for Disaster Assistance (OFDA) to the ENN<sup>6</sup>; one focusing on in-service and pre-service training in NIE (implemented by NutritionWorks) and the other on the development of professional short courses. In this report we discuss the key findings from the second of these projects, the Nutrition in Emergencies Regional Training Initiative (NIERTI).

## NIERTI objectives

The overall goal of the NIERTI was to increase the availability of regular, high quality training in emergency nutrition. Two principles underpinned the development of the training model. First, we viewed capacity development in the broadest sense and thus as a process that requires investment in three levels of capacity: (i) the individual, (ii) the organisation and (iii) the enabling environment<sup>7</sup>. Keeping this in mind, we elected to focus on strengthening the capacity of relatively senior national and international individual practitioners. This group represents the 'tip' of the human resource capacity pyramid. Although investment is needed in NIE capacity at every level, building this cadre will improve organisational capacity and create an enabling environment for effective capacity development among the other cadres. Second, the training would be implemented in partnership with academic institutions. Our aim was to develop a model that has

financial and market sustainability and that can be owned and maintained by partner institutions, rather than being dependent on (unpredictable) external funding. The three partner institutions were the American University of Beirut in Lebanon, the University of Makerere in Uganda and the Asian Disaster Preparedness Centre in Thailand. All three institutions were already running nutrition courses as well as the Public Health in Complex Emergencies short course<sup>8</sup>. The NIERTI sought to work in partnership and strengthen and develop their training capacity in NIE.

## Development of the training model

### Cost

Financial sustainability was identified from the outset as a key factor in the success of this initiative. As such, we worked closely with our partners to develop realistic budgets that ensured all the costs associated with running the courses would be covered by course fees alone. The fee level for each course was based on estimated cost and anticipated participant numbers. The budgets were reviewed and revised following each course to ensure that on one hand, course fees are kept at a minimum and access is maximised, and on the other, that the courses are financially sustainable.

### Content

Three courses of varying duration (6, 10 and 12 days) were developed and pilot tested. This process enabled us to determine the optimal duration and balance of topics. A set of learning objectives was developed for each course module. This helped to shape the content and to select appropriate course exercises. The technical content was based on the HTP, supplemented where necessary with exercises developed specifically for the initiative. Each module consisted of a technical reference document (compiled in a course manual for participants), generic PowerPoint presentations and practical exercises.

Previous reviews of NIE capacity development and interviews with NIE practitioners highlighted the importance of including activities that enable participants to apply knowledge. As a

<sup>1</sup> UN General Assembly Economic and Social Council (2011) Strengthening the coordination of emergency humanitarian assistance of the United Nations. Report of the Secretary General, Geneva, July.

<sup>2</sup> UNDP (2004). Reducing disaster risk: a challenge for development. UNDP, New York.

<sup>3</sup> Capacity for Disaster Risk Reduction Initiative (2011) Basics of capacity development for disaster risk reduction.

<sup>4</sup> Gostelow L (2007). Capacity development for nutrition in emergencies: beginning to synthesise experiences and insights. NutritionWorks / IASC Global Nutrition Cluster.

<sup>5</sup> NutritionWorks, ENN, GNC (2011). Harmonised Training Package revised modules, v2. <http://www.ennonline.net/htpversion2>

<sup>6</sup> See ENNs 5 year strategy that reflects capacity development on NIE as one of ENNs priority activities, <http://www.ennonline.net/pool/files/reports/enn-5-year-strategy-2010-to-2015-final.pdf>

<sup>7</sup> See footnotes 3 and 4

<sup>8</sup> <http://www.phcctraining.org/>

result, a 1-day emergency simulation exercise was developed in consultation with a range of NIE experts. The simulation was reviewed and revised following each course. Field-based exercises relating to the management of acute malnutrition and nutrition surveys were adapted from the HTP and tested during the course in Uganda.

**Evaluation**

Modules were delivered by experienced facilitators and feedback was obtained using a variety of evaluation approaches. All materials were piloted at least twice and reviewed and revised from one course to the next based on comments from course participants, our partners and course facilitators. Module-specific and end-of-course evaluation forms were administered to participants. Feedback from each partner organisation and the course facilitators was obtained verbally and via email. Follow-up of course participants was done approximately 3 months after each course ended.

**Assessment**

A multiple-choice questionnaire was developed and tested to assess the progress of participants. Each of the 40 questions was designed to correspond to one of the three levels of learning, based on a modified version of Bloom’s taxonomy (knowledge, combined comprehension and application, and problem solving)<sup>9</sup>. The MCQ was pilot tested before being administered to course participants. The test was given at the start and end of the course and scores were reviewed and analysed by participant and topic.

**Results**

**Course uptake**

Overall, 131 applications were received for the three courses run during the pilot phase. The first course (held in Lebanon) was restricted to practitioners from the Middle East and only 19 applications were submitted. Fifty-six applications were received for each of the two other courses (held in Uganda and Thailand).

A total of 67 people attended the courses. The majority of participants worked either for an international non-governmental organisation (INGO) (28%) or a UN agency (34%). The rest worked for government ministries (9%), academic institutions (8%), local NGOs (6%), donor organisations (6%) or were self-employed (9%). Sixty-six per cent of participants worked in nutrition, 15% in health, 9% in general emergency programme management and 8% in food security. One participant worked in logistics.

One third (33%) of participants were working in Western Asia (including Middle Eastern countries), 18% in Northern Africa (predominately Sudan), 13% in Eastern Africa, 12% in Southern Asia, and 6% each in Western Africa, South-east Asia and Australia. The rest had a regional/global remit. Overall, 73% of participants were national staff (i.e. working in the country where they are from).

Table 1: Overview of the NIERTI courses run to date

Location	Lebanon	Uganda	Thailand
Partner	American University of Beirut	University of Makerere	Asian Disaster Preparedness Centre
Duration	6 days	12 days	10 days
Number of participants	17 (+2 students)	20	28
Modules covered	Introduction to NIE	Introduction to NIE	Introduction to NIE
	Causes of malnutrition	Causes of malnutrition	Causes of malnutrition
	Humanitarian system	Humanitarian system	Humanitarian system
	Humanitarian standards and M&E	Humanitarian standards and M&E	Humanitarian standards and M&E
	Rapid assessments	Rapid assessments	Rapid assessments
	Nutrition surveys	Nutrition surveys	Nutrition surveys
	-	Surveillance and early warning	Surveillance and early warning
	-	Food security and livelihoods	Food security and livelihoods
	Food assistance	Food assistance	Food assistance
	Micronutrient interventions	Micronutrient interventions	Micronutrient interventions
	-	Advocacy	Advocacy
	Management of severe acute malnutrition	Management of severe acute malnutrition	Management of severe acute malnutrition
	Management of moderate acute malnutrition	Management of moderate acute malnutrition	Management of moderate acute malnutrition
	Infant feeding in emergencies	Infant feeding in emergencies	Infant feeding in emergencies
	Emergency preparedness	Emergency preparedness	Emergency preparedness
	Emergency simulation	Emergency simulation	Emergency simulation
	Professional development	Professional development	Professional development
	-	Pre-/post-test MCQ	Pre-/post-test MCQ
	-	Field training (nutrition surveys)	-
	-	Field training (management of SAM)	-
	-	Field training (management of MAM)	-

An overview of each of the courses run during the pilot phase of the NIERTI is given in Table 1.

**Cost**

The first of the three courses (held in Lebanon) was subsidised since it was the first ‘pilot’ course. The fee was US\$500 for 6 days (excluding accommodation) and the cost of course facilitators was covered by the project funding. This course has not been included in the following analyses because it is not representative of the actual costs of running NIE training. The next two courses had a fee of US\$ 2,500 including meals and accommodation. The course in Uganda was 12 days and the Thailand course lasted 10 days. This equates to US\$208 per person per day for Uganda and US\$250 per person per day for Thailand. As a comparison, the 5-day course in NIE run by the University of Westminster (London, UK) costs the equivalent of US\$ 1,100 (based on current exchange rates), excluding accommodation and meals other than lunch. This equates to US\$ 220 per day or US\$ 2,640 for 12 days.

Of the 48 people who attended the full-price courses in Uganda and Thailand, 83.3% were funded by their employer, 10.4% were sponsored by another organisation and 6.3% were self funded. Feedback from participants indicated that the course was viewed as good value for money. Of the 222 enquires that had been received about the initiative by the end of August 2011, 23 were requests for funding support. None of these individuals subsequently

attended a course. Sixteen people who were offered a place on a course reported that they were unable to attend because of a lack of funding.

The most expensive components of the courses were the facilitators followed by accommodation/meals for participants. Expenditure on facilitators was US\$ 1,227 per participant in Uganda and US\$ 661 per participant in Thailand. In both cases this does not include a fee for the lead facilitator or for an additional facilitator who taught several modules, both of whom work for UCL CIHD. The cost per participant in Thailand was lower because we had more participants and were able to secure facilitators who were based locally and who were not in a position to accept a fee (which cannot always be guaranteed). Even so, the course in Thailand only just covered all costs using fees and in Uganda we incurred a loss that was buffered using project funding. The cost of accommodation, meals and the training venue was \$72 per participant per day in Uganda and \$110 per participant per day in Thailand.

**Evaluation**

The response to each course was positive. Overall, 56% of participants strongly agreed and 42% agreed that the course they attended met the goal to prepare them to respond to the nutritional needs of people affected by emergencies. The improvement in



Simulation exercise: Inter-agency coordination, Thailand course

A Perry/NIETN, Uganda, 2011

<sup>9</sup> Anderson LW et al. (eds.) (2001). A Taxonomy for Learning, Teaching, and Assessing: A Revision of Bloom’s Taxonomy of Educational Objectives. New York: Longman.

performance and ability of participants is difficult to quantify; however there were some signs that the courses had a positive impact. The average score for the MCQ increased from 52.0% at the start of the course in Uganda to 63.5% at the end. In Thailand the average score increased from 52.5% to 65.5%. Only 29 of the 67 participants responded to the follow-up email. Among these 29, there were numerous examples of positive actions resulting from attendance on the courses. The majority of responders had provided training to their own staff or to others. A group from Lebanon had developed a country-specific emergency preparedness plan for nutrition. Others had been identifying ways to strengthen the management of moderate acute malnutrition as part of CMAM.

Based on feedback from the course evaluations, an 11-day 'standard' NIE course has now been developed and this will be the model that will be implemented by each of the training partners. This course includes the emergency simulation exercise but the field-based training is designed as an optional add-on to the standard course, depending on the opportunities available and the logistic feasibility at each training site.

### Discussion

On one level, the overall goal of the NIERTI to increase the availability of high quality training in NIE has been met. There are also indications that the training model will be sustained by our partner organisations. The courses have gained a positive reputation among the NIE community and, at the time of writing, all three institutions have taken steps to implement their next course. Each institution has started to investigate ways to strengthen their own capacity and to institutionalise the training. This includes engaging regional practitioners to develop a network of known NIE facilitators and incorporating the course (or elements of the course) into post-graduate training. There also appears to be a reasonably steady market for the courses. Despite increased focus on the development of NIE capacity, we are only aware of one other specific course in NIE that is run on a regular basis. Other training initiatives that have emerged over the past few years are still predominately ad-hoc or one-off events hosted by international agencies. In light of the extent of the capacity gap in nutrition and the high turnover of staff within the humanitarian sector, investment in occasional training, while being very useful, will not be sufficient.

The process of setting up the NIERTI has highlighted a number of issues that will need to be considered if we are to make further progress in addressing the lack of capacity in the sector. These have been grouped into three major themes: the cost of capacity development, providing practical training in NIE and standardisation of training.

#### *The cost of capacity development*

The NIERTI course fee is undoubtedly prohibitively high for some individuals and agencies. However, the fees provide an indication, and perhaps an under-estimation of the real cost of running a course of this nature in the current climate. The cost of accommodation/meals seems quite high but in fact it is extremely difficult to find alternatives at a lower cost in Uganda, other than in hostel-type settings. The

facilities in Thailand were excellent value for money and it is difficult to achieve similar at a lower cost.

The other main contributor to the cost of the courses is also challenging to solve. The main reason why NIE training is expensive is because of the reliance on relatively few NIE practitioners who need to be flown in to teach on courses. We were not able to run the NIE courses using only staff from the partner organizations. None of the available facilitators had experience of working in emergency contexts and all felt that practical experience was an essential prerequisite. As such, external facilitators had to be employed. Significant effort went in to identifying experienced facilitators based in each region. However, the NIE community is still relatively small, the work commitments of potential facilitators are unpredictable, experienced staff are in high demand and expect to be paid a fee that is commensurate with their experience, and relatively few NIE practitioners have sufficient teaching experience. The latter point is particularly important; although course participants appreciated the extensive experience of the facilitators while the ability to transmit information and to manage teaching sessions effectively was also valued highly.

The most obvious solution to this is to build the capacity of national practitioners and academic staff. This approach would reduce costs and could promote sustainability. Development of the capacity of academic staff will require exposure to emergency nutrition programmes. A recent piece of research looking at pre-service training in NIE found that academic staff can be isolated from the work of NGOs and UN agencies<sup>10</sup>. This gap needs to be bridged in order to enable academics to gain hands-on experience. Training in the sector is still more commonly undertaken by agencies rather than higher education institutions. Although this approach can improve capacity within the humanitarian sector, it has the potential to further weaken the academic system that could provide a sustainable approach to strengthening capacity in the longer term (8).

The other constraint to strengthening national academic capacity is the continuing issue of low salaries, high staff attrition and conflicting demands among academic staff in developing countries<sup>11</sup>. In order to establish academic institutions as providers of high quality nutrition training, this problem will need to be addressed. This might also help to attract experienced NIE practitioners in to the academic sector.

#### *Providing practical training in NIE*

Two key themes emerged from the evaluations and course participant follow-up. First, participants emphasised the importance of the problem-solving course exercises, field-based training and the emergency simulation for enabling them to put into practice the theory

covered. Second, participants felt that post-course internships, work placements and mentoring would have enabled them to consolidate their learning further. The role of practical training in NIE was emphasized in the 2007 capacity review by Gostelow. The field-based training included in the course held in Uganda was well received but this is a difficult activity to maintain. Running field training in an emergency programme can be disruptive and the nature of emergency response does mean that from one year to the next it is difficult to guarantee that relevant programmes exist or are accessible in the country/region where training is being held. Field training also lengthens the duration of courses, which increases both the time and financial commitment for participants.



Training session on infant and young child feeding in emergencies, Beirut, 2010

A Perry/NIERTI, Beirut, 2010

One solution to this is to include classroom-based teaching as part of an integrated work-based training programme that includes field exposure. In 2010, the Consortium of British Humanitarian Agencies (CBHA) launched a competency-based training programme for humanitarian staff, which includes field placements. More recently, Save the Children UK and Concern Worldwide initiated 1 and 2-year emergency nutrition internships, which include placements at head quarters as well as at field sites. Another option would be to develop partnerships between academic institutions that can provide theory training and humanitarian agencies operating in relevant countries. Practitioners could attend training and then opt for a shorter and more affordable work placement in their country of origin. This arrangement would also help to bridge the gap between the academic and operational agencies in these countries. For practitioners already working within the humanitarian system, a relevant work placement could be one of the pre-requisites for attending the theory training.

#### *Standardisation of training and the need for professional competencies*

A recurrent issue that emerged during the development of the NIERTI was the lack of common understanding of the competencies required by NIE staff. Although experienced practitioners have a reasonable sense of what

<sup>10</sup> NutritionWorks (2011). In-service and pre-service training in NIE. <http://www.enonline.net/meetings/servicetraining>

NIE personnel need to know and be able to do, there is a great deal of subjectivity in this. As a result, the NIE courses that exist (including those provided by the NIERTI) feature different combinations of topics, are of varying duration and involve either no assessment or assessments that tend to measure knowledge gained rather than the ability of participants to function effectively. This makes it extremely difficult to ascertain whether participants of NIE courses have the necessary competencies, and whether the courses themselves are providing effective training.

One way to address this would be to adopt a more systematic, competency-based approach. Other sectors in the humanitarian community have recently moved towards competency-based training, assessment and recruitment. A set of core humanitarian competencies is now being used by the CBHA and the child protection and logistics sectors use standard competency frameworks to measure the ability and performance of staff.

*Preliminary work on developing a competency framework for the NIE sector*

As an addition to the NIERTI, we have taken initial steps to developing a competency framework for the sector using the Child Protection in Emergencies (CPIE) framework as a guide. The CPIE competency framework is now used as the basis for recruitment, training and staff development by a number of humanitarian agencies. The benefits of this are perceived to be very positive; one staff member commented that it had improved recruitment processes and training and has increased staff motivation and career progression (K. Bisaro, personal communication).

Research into the identification of competencies for NIE was designed to be as comprehensive as possible, and was conducted by reviewing existing competency frameworks, NIE-related job descriptions, academic and training course content, and by conducting interviews with key stakeholders and NIERTI course participants.

The competencies regarded as essential for an international emergency nutritionist have been extracted and compiled into a basic framework, which we will be publishing shortly. To increase the usability of the framework, specific

behavioural indicators have been developed for each competency at three progressive levels. These facilitate its use for creating job profiles, conducting assessment during recruitment and training and for staff to identify areas for professional development.

We now have the foundations for a competency framework for NIE. However, there are still a number of actions required before this could serve as a functional tool.

1. More detailed mapping of career paths and job profiling is required to clarify which competencies are required at each level
2. The framework needs to be reviewed by the sector to identify gaps and to agree each of the indicators.
3. Finally, the framework will need to be approved and adopted by GNC member agencies.

*What next for the NIERTI?*

The NIERTI will continue to support partner organisations to run NIE training courses based on the materials developed and tested during the pilot phase. We would also like to incorporate competency-based training and assessment as part of broader efforts to professionalise the humanitarian sector. Having a standard framework for measuring the competencies attained by NIE practitioners would help to improve quality and performance in the sector. In the meantime, we are keen to maintain the quality of training provided under the NIERTI umbrella, which will in turn ensure continued demand and financial sustainability. This will provide the opportunity for our partner organisations to continue to strengthen their own capacity to provide NIE training. Any deterioration in the reputation of NIERTI courses would have a negative impact on existing course providers and would jeopardise the future of the initiative. To try and ensure that quality is maintained, we will continue to control the use of NIERTI training materials. Any organisation that wishes to run a course based on these materials will be free to do so, as long as they can guarantee they will be delivered to a high standard.

For further information, and to request access to the materials, please email: [nierti@nietraining.net](mailto:nierti@nietraining.net).

# Minimum Reporting Package (MRP) on Supplementary Feeding Programmes

In order to evaluate the quality and impact of nutrition interventions, agencies need effective monitoring and reporting systems in place for programmes. A retrospective analysis of emergency supplementary feeding programmes (SFPs) published in 2008 by the Emergency Nutrition Network (ENN)<sup>1</sup> highlighted inadequate reporting standards and raised concerns over the quality of the interventions themselves. Based on the study's recommendation and funded by the US Office for Disaster Assistance (OFDA), the ENN together with Save the Children UK (SC UK), led the development of a monitoring and reporting guidelines and software, guided by a steering group of interested agencies. This Minimum Reporting Package (MRP) for SFPs was subsequently piloted in four countries<sup>2</sup>. A new phase of rollout has now begun, funded by ECHO and led by SC UK. Initiated in the second half of 2011, this 18 month project will see MRP rollout with approximately ten ECHO implementing partners and involving up to 30 SFPs. An additional module to integrate reporting for severe acute malnutrition (SAM) programmes is also being developed to facilitate reporting where both SFP and SAM treatment are managed under one intervention.

The overall goal of the MRP is to improve monitoring of the performance of SFPs implemented by NGOs and WFP (and WFP partners where relevant), to enhance programme management and agency accountability. Given the different capacities of implementing agencies and contexts within which they work, the MRP has been configured for two levels of usage: essential reporting (adhering to Sphere Standards) for basic users and optional advanced reporting for agencies requiring more information. The MRP also allows reporting on programme characteristics (e.g. specific country/area/ programme context) and population-based statistics (e.g. coverage and malnutrition rates) to aid interpretation of programme performance indicators. Field implementation can be tailored to each organisation's capacity, adapting to context-specific challenges in communication and staff training, including allowing for MRP use in systems that are mainly paper-based at field level.

A further goal of the ECHO MRP project is to improve understanding of the overall efficacy and effectiveness of SFPs through conducting a final analysis of the performance data of all programmes utilising the package during the project period.



Simulation exercise: Cluster coordination, Thailand course

A. Perry/NIETN, Uganda, 2011

Specific MRP objectives are:

- to provide guidance for reporting monitoring information from SFPs by providing standardised criteria and a standardised reporting system
- to facilitate the process of reporting by providing standard data collection tools and a user-friendly database
- to promote quality improvement and lessons learning in SFPs through real-time reporting of programme statistics and data comparisons within agency programmes, as well as across agencies as appropriate

The MRP includes:

- MRP guidelines with standard definitions of variables and indicators (includes SAM for practical use by agencies required to report on both SAM and moderate acute malnutrition (MAM))
- Software/database (the 'eMRP')
- eMRP database user manual (step-by-step guide)
- Data collection forms

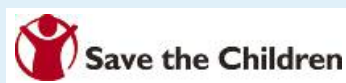
Key expected benefits of the MRP are

- Increased timely monitoring and reporting capacity of implementing partners and thus higher quality performance and impact
- Enhanced accountability to beneficiaries and donors
- Facilitation of programme supervision and cross programme/agency comparisons
- Lessons learned through an end-of-project analysis

The MRP project will continue to be supported throughout 2012 by a team of four SCUK staff along with advisors and consultants. Moving forward, the team will provide training, mentoring, and real-time support as needed to agencies using the MRP, including a helpdesk and monthly report feedback

Although this 18-month project necessarily has short-term goals, the MRP could have longer term, more sustainable applications. It is foreseen that MRP use and application by agencies will continue after the ECHO project ends in December 2012.

For further information, please contact Jennifer Martin, email: [j.martin@savethechildren.org.uk](mailto:j.martin@savethechildren.org.uk).



<sup>1</sup> Measuring the Effectiveness of Supplementary Feeding Programmes in Emergencies, Carlos Navarro-Colorado, Frances Mason and Jeremy Shoham, Humanitarian Practice Network Paper 63, September 2008. ODI

<sup>2</sup> Download report at: <http://www.enonline.net/pool/files/research/mrp-report-final.pdf>

# Improving patient assessment: The 'MOYO' Weight-for-Height Chart

By Marko Kerac and Andrew Seal, UCL Centre for International Health & Development, UK



We are pleased to include with this edition of Field Exchange, a complementary copy of the 'MOYO chart'. Named after the MOYO<sup>1</sup> Nutrition Ward, Blantyre, Malawi where it was originally developed, this is a low cost job aid that helps health workers correctly assess and interpret a child's weight-for-height.

## Background to development

Field Exchange readers will be familiar with the challenges that inspired the chart: a busy nutrition centre, overworked but often underexperienced front line staff, the need to ensure consistent, high quality patient assessment and referral to appropriate treatment. In such settings, optimising each step of the patient care pathway is critical.

The MOYO chart came about as we realised that traditional weight-for-height lookup charts were sometimes part of the problem rather than part of the solution. Adapting and repackaging them into a more user-friendly slide chart format seemed to make a difference<sup>2</sup>. Following some further refinement, we went on to formally test our new design in a randomised controlled trial in Ethiopia. This showed that the MOYO chart was preferred over traditional charts and enabled significantly ( $p=0.011$ ) more accurate assessment of nutritional status<sup>3</sup>. In settings where weight-for-height is still used, it achieves these benefits by guiding health-care workers through the process of:

- determining whether to measure standing height or recumbent length
- rounding the length/height measurement appropriately
- allowing easy identification of weight-for-height z-score and correct diagnosis of SAM (Severe Acute Malnutrition) or MAM (Moderate Acute Malnutrition).
- determining an appropriate target weight for discharge (either -2 WHZ or -1 WHZ).

## Insert in Field Exchange 42

Two versions of the MOYO chart are currently available, both using 2006 WHO growth standards:

- Boy/Girl split sex chart (as recommended by WHO<sup>4</sup> and included with Field Exchange 42)
- Joint sex chart (responding to field demand but awaiting formal testing)

Plentiful white space is available on the chart so that bulk buyers have scope to customise the chart to include local protocols or other locally important text/graphics.

## Availability

Following this initial distribution via Field Exchange - made possible thanks to a grant from UCL (University College London) Futures Fund - further copies of the MOYO chart are available to buy via the health education charity Teaching Aids at Low Cost (TALC). Unit costs will depend on order size. One hundred per cent of profits from sales of the chart are retained by TALC to support its wider educational objectives. Chart customisation (e.g. with local protocols) is available on request for bulk buyers - contact TALC to discuss your needs: web: [www.talcuk.org](http://www.talcuk.org), email: [info@talcuk.org](mailto:info@talcuk.org), tel (UK): +44(0) 1727 853 869

We hope you find the chart useful and thank the many people whose comments and suggestions have been critical to its development. Any further feedback to help with future versions is always very welcome: contact Marko Kerac, email: [marko.kerac@gmail.com](mailto:marko.kerac@gmail.com) or Andy Seal, email: [a.seal@ucl.ac.uk](mailto:a.seal@ucl.ac.uk)

<sup>1</sup> 'Life'/'Health' in local language, Chichewa

<sup>2</sup> Kerac, M, A. Seal, H. Blencowe, and J. Bunn. Improved assessment of child nutritional status using target weights and a novel, low-cost, weight-for-height slide chart. *Trop Doct*, 2009. 39(1): p. 23-6.

<sup>3</sup> Sikorski, C., M. Kerac, M. Fikremariam, and A. Seal. Preliminary evaluation of the Moyo chart—a novel, low-cost, weight-for-height slide chart for the improved assessment of nutritional status in children. *Transactions of the Royal Society of Tropical Medicine and Hygiene*, 2010. 104(11): p. 743-745

<sup>4</sup> WHO child growth standards and the identification of severe acute malnutrition in infants and children. A joint statement by the World Health Organization and the United Nations Children's Fund. May. 2009 (accessed 19 Sept 2010)]; Available from: [http://www.who.int/nutrition/publications/severe\\_malnutrition/9789241598163/en/index.html](http://www.who.int/nutrition/publications/severe_malnutrition/9789241598163/en/index.html).

# E-learning course on Social Safety Nets

The UN Food and Agricultural Organisation (FAO) and the World Bank have just released a new e-learning course on Social Safety Nets to meet decision makers' need for understanding the role safety nets play in reducing poverty and building food security.

The course is aimed at decision makers who may not be technical experts, but need to understand the best options for implementing social safety nets in their specific context. The course highlights key issues to be considered for making the right decisions. It is also useful for anyone wishing to gain a solid overview of Social Safety Nets. Case studies provide examples of good

practices. Nutrition is referred to in a few examples and case studies.

The course is available for free at: <http://www.foodsec.org>

This website also provides access to many other resources provided by the EC-FAO Programme on Linking Information and Decision Making to Improve Food Security. These include standards, tools and methodologies, e-learning courses and training materials, and food security country briefs. The programme is based at the FAO and funded by the European Union's Food Security Thematic Programme.

## En-net update

By Tamsin Walters, en-net moderator



Twenty-seven questions were posted on en-net in the three months up to Christmas, eliciting 102 replies. In addition, 17 job vacancies have been posted.

Recent discussions have included: how to deal with unsolicited donations of breastmilk substitutes (BMS) during the Horn of Africa crisis, measuring undernutrition and vulnerability in older people, the use of different cut-offs for assessing undernutrition in different contexts and countries, how to report uncured registered cases at the end of a community-based management of acute malnutrition (CMAM) programme within indicators of programme performance, and target weight setting for HIV-positive moderately acutely malnourished children in outpatient therapeutic care.

Two recent questions have sought evidence and guidance on how mid upper arm circumference (MUAC) changes during the treatment of acute malnutrition. These build on previous discussions concerning appropriate exit criteria for CMAM programmes that predominantly use MUAC for admission. A recent study, published in the *Nutrition Journal*, was conducted in Kenya to quantify MUAC changes among dehydrated children some of whom were malnourished, <http://www.nutritionj.com/content/10/1/92>. The authors were able to quantify that a one percent (1%) change in weight, was associated with a 0.40 mm change in MUAC.

Examination of data from programme record cards from Community therapeutic care (CTC) programmes during the CTC research programme and in the initial roll-out of CTC / CMAM show a range of median MUAC gains (0.25 mm per day to 0.50 mm per day). However, these are averages of averages over an entire treatment episode. The rate of change is not consistent over the entire treatment episode and an uncomplicated case of severe acute malnutrition (SAM), typically follows a growth curve with rapid gains early in the treatment episode.

A MUAC study currently being undertaken in Malawi by Valid International is also looking at MUAC and weight changes during treatment of SAM, with results expected later this year. A body of data is building around these issues that could lead to improved future guidance for programme management.

To join the discussion, go to <http://www.en-net.org.uk/question/602.aspx>.

In the *Cross-cutting Issues* forum area a call for contributions has been posted for the recently launched ALNAP survey to inform the upcoming 'State of the Humanitarian System' Report. A link to the survey can be found at <http://www.en-net.org.uk/question/604.aspx>. Don't miss this chance to include your views and ensure that the voices of the emergency nutrition community are well-represented. The survey only takes 7-10 minutes to complete.

Two new forum areas have recently been launched on en-net: Coverage Assessment, <http://www.en-net.org.uk/forum/16.aspx> (see news piece in this issue of Field Exchange), and Upcoming Trainings, <http://www.en-net.org.uk/forum/15.aspx>. ENN has received several requests for training on nutrition in emergencies, particularly from within Africa and we hope this forum area will provide a useful place for advertising courses and bringing people together with an interest in developing capacity to respond.

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

<sup>1</sup> Mwangome, MK, Fegan G, Prentice AM and Berkley JA. Are diagnostic criteria for acute malnutrition affected by hydration status in hospitalized children? A repeated measures study *Nutrition Journal* 2011, 10:92

<sup>2</sup> Mark Myatt analyses

## Attractive scholarship for EDAMUS Masters programme

A Consortium of universities offering the EDAMUS Masters degree on 'Sustainable Management of Food Quality' has been granted the Erasmus Mundus label by the European Union. This means a number of attractive scholarships are now available to students coming from both European and non-European countries. The programme is coordinated by the University of Montpellier 1 (France), in collaboration with a large international partnership of academic institutions.

Students from developing countries can apply for a 2-year scholarship to the Masters course (24,000 euros per year). Within the second year of this Master Course, there is a specialisation in 'Nutrition in Developing Countries'.

There are 10 scholarships offered in 2012 for the course beginning in September 2012. It is anticipated there should be 10 scholarships in 2013 and each year following, for 5 years.

The deadline for applications is January 30th, 2012 (receiving date) for students demanding an Erasmus Mundus scholarship and April 1st, 2012 for the others.

For further information, visit: <http://www.master-edamus.eu/>

## Government of Sudan CMAM Training Course on Inpatient Management of Severe Acute Malnutrition: Training Materials (2011)

In 1999, the World Health Organisation (WHO) published the Management of severe malnutrition: A manual for physicians and other senior health workers and in 2002 the Training course on the management of severe malnutrition. FANTA-2, in collaboration with national partners in Sudan, adapted and built on the WHO documents, the 2009 Government of Sudan Community-Based Management of Severe Acute Malnutrition manual, and other materials to develop training materials for inpatient management of SAM designed for physicians, nurses, and nutritionists in hospitals in Sudan. While the training course focuses on inpatient care, the training materials are compatible with the Community-Based Management of Acute Malnutrition (CMAM) approach and the Sudan context.

Course materials include a set of training modules, three training guides, a set of job aids, forms, and checklists, a book of photographs and several videos used in the training, related slide presentations and several documents to help with planning and additional reading. All files can be downloaded from: [http://www.fantaproject.org/publications/sudan\\_CMAM\\_IC\\_2011.shtml](http://www.fantaproject.org/publications/sudan_CMAM_IC_2011.shtml).

Support for development of the training materials was provided by the United States Agency for International Development (USAID) Bureau for Democracy, Conflict, and Humanitarian Assistance, Office of U.S. Foreign Disaster Assistance, and the Bureau for Global Health, Office of Health, Infectious Diseases, and Nutrition.



# UNHCR standardised nutrition survey guidelines and training

By Melody Tondeur and Andrew Seal



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Dadaab nutrition surveys, August-September 2011

Sarah Style, ENN/UNHCR, Kenya, 2011

Nutritional outcomes continue to be of concern in most refugee contexts. UNHCR recommends the measurement of anthropometric status, anaemia and other associated indicators (including water, sanitation and hygiene (WASH) and mosquito net coverage) on an annual basis in order to monitor situations and to react in a timely manner to any deterioration.

A 2009 review of UNHCR nutrition surveys worldwide highlighted a lack of standardisation in methodologies, in the type of information collected and in data presentation.

In order to measure trends over time in the same region, as well as across regions and populations, surveys need to be replicable and the same definitions, geographic boundaries, and methodologies need to be used from year to year. To help overcome these challenges, UNHCR encourages the adoption of the internationally recognised SMART<sup>1</sup> methods for survey design and anthropometric measurements.

However, surveys conducted by UNHCR and its partners typically collect data on a much wider set of indicators to allow for the monitor-

ing of programme performance and key risk factors for malnutrition. UNHCR has also been introducing a number of innovative interventions to control and reduce anaemia in refugee populations, including the use of micronutrient powders and lipid-based nutrient supplements, and strengthening existing efforts on malaria control and deworming. The need to monitor progress with these interventions, as well as collect data for other key indicators, resulted in an initiative to develop the UNHCR Standardised Nutrition Survey Guidelines (SNSG). This work was undertaken in collaboration with ENN and UCL, with modules on the measurement of anaemia, WASH, anti-malarial bed nets, food security, and IYCF being developed over a period of two years.

The UNHCR survey guidelines are divided into two main sections. Section 1 is a quick reference guide in the form of a Fact Sheet, focusing on the key practical steps involved in a standardised nutrition survey. Section 2 contains the standardised survey modules outlining the information to follow for training, data collection, analysis and reporting, and focuses on the recommended core indicators. The guidelines can be used as a reference document for designing and implementing a nutrition survey or as a tool for training survey workers on conducting the standardised nutrition survey.

The guidelines are designed to cover most emergencies and all stable, protracted camp situations (except urban settings). In the future, these guidelines will be updated and improved as lessons are learnt on their application and usefulness, and the field of survey methodology evolves.

A number of tools are available to assist at each step of the survey process. For example, there are spreadsheets for supplies planning and producing trend graphs. All the tools and guideline documents can be downloaded from: <http://www.unhcr.org> or from <http://info.refugee-nutrition.net>

These guidelines are designed specifically for camp settings, however they can be adapted to other contexts. Comments and questions can be directed to: [HQPHN@unhcr.org](mailto:HQPHN@unhcr.org)

## Training on survey guidelines

UNHCR and ENN in collaboration with the Centres for Disease Control and Prevention (CDC) implemented two 8-day long regional training workshops in Kenya (Naivasha, October 2010) and Hungary (Budapest, UNHCR training centre, May 2011) for key nutrition technical staff and UNHCR's implementing partners.

The workshop objectives were to:

- Improve the quality and reliability of nutrition survey data collected in refugee operations.
- Establish standardised data collection, analysis and reporting for refugee operations.
- Build capacity of technical staff from UNHCR and implementing partners for conducting standardised nutritional surveys.

The expected training outcomes were that participants know how to use the SMART tools appropriately and how to assess anaemia, WASH and mosquito net coverage indicators, are able to use standard methods to implement nutritional surveys, gather reliable data, and analyse and report on results, and can identify areas of improvement for nutritional survey implementation among refugee populations.

Candidates were prioritised based on criteria using a questionnaire developed by Action Contre la Faim Canada (ACF-Ca) and adapted by ENN and UNHCR that included experience in nutrition surveys, training, data collation, report writing and working in refugee populations. A total of 29 participants from 13 countries from UNHCR offices, six non-governmental organisations (NGOs) and one government agency were selected.

The training covered SMART (SMART Standardised Training Package), Epi Info (and the ENA/Epi Info hybrid software) and the UNHCR Standardised Nutrition Survey Guidelines (SNSG). Evening sessions were offered on a daily basis and covered the day's topics.

Participants were evaluated on the SMART component of the training only, using the SMART

Standardised Training Package tests. The post-test was more complex than the pre-test (more information on the SMART methodology concepts and the ENA software) that limits interpretation. Results suggest the SMART knowledge of the group either stayed at a similar level or increased slightly. A formal evaluation of the rest of the training was not conducted. Instead informal evaluations were conducted at various points during the training. Daily evaluations completed by participants helped to refine the agenda and review the training experience. Daily quizzes helped to assess individual and group lesson learning and knowledge retention, and allowed participants to identify areas of weakness to work on.

Based on daily evaluations and an end of training focus group discussion, the level of overall satisfaction with the training was found to be high. Participants felt they had acquired knowledge, but would have liked more time and practical exercises on those sessions which were considered technically complex, e.g. on sample size and sampling, plausibility check, report writing, analysis with ENA and Epi-Info, the mortality survey and the standardisation test. In the Budapest training, participants felt that infant and young child feeding (IYCF) should be added as a topic in future similar training events. A survey module on IYCF is currently being finalised (Dec 2011). A post-training assignment was sent to participants from the Budapest training and is currently being analysed (Dec 2011).

Follow-up is needed to ensure that trainees apply what they have learned. This has since been pursued in refugee camps in Algeria, Ethiopia and Kenya in 2011 where the ENN has provided technical support and capacity building for the implementation of the standardised nutrition surveys.

For more information, contact Caroline Wilkinson or Allison Oman, email: [HQPHN@unhcr.org](mailto:HQPHN@unhcr.org)

<sup>1</sup> Standardised Monitoring and Assessment of Relief and Transitions. <http://www.smartmethodology.org>

# Putting nutrition products in their place: ACF position paper

Summary of position paper<sup>1</sup>



Mania Pérez Negro, ACF-Spain, Lesotho

Action Against Hunger | ACF International has recently produced a position paper on the role of products in the treatment and prevention of global acute malnutrition (GAM). The paper focuses on the treatment of severe acute malnutrition (SAM), looks at the prevention and treatment of moderate acute malnutrition (MAM) and considers the role of nutritional products as part of broader strategies to build resilience to, and prevent, under-nutrition. The paper is written to be accessible to field staff requiring guidance on whether or not to use a certain type of product, and also to provide clear guidance on ACF's position for policymakers. The following is a summary of the key points in this paper.

## The role of management within protocols addressing SAM

Action Against Hunger | ACF International recognises that there are multiple factors that contribute towards recovery of patients from SAM. Whilst therapeutic products, including Ready to Use Therapeutic Foods (RUTF), have been a proven key element of success, it is important to note at the outset that the supply of a product is accompanied by other components. A medical protocol is used to tackle underlying infections and to respond to new or worsening symptoms appropriately. Within outpatient care, weekly follow-up is essential, with criteria of how to respond to patients who are not recovering properly. Inpatient care requires continuous observations by qualified medical personnel. Continual emphasis is placed on the role of appropriate infant and young child feeding (IYCF) within sustainable recovery. A number of ACF missions have found it helpful to introduce focus groups, individual counselling and home follow-up of non-responders and defaulters as ways of improving recovery rates and reducing the proportion of defaulters. In ACF's experience, even if the supply chain of RUTF is disrupted temporarily, the continuation of good management procedures that emphasise these other programme elements can help ensure successful outcomes.

## RUTF local production and validation

ACF procures RUTF directly from a variety of suppliers. However, many projects receive in-kind contributions from UNICEF, which may be sourced from further suppliers. ACF is in the process of validating several suppliers and is designing its own approval protocol following UNICEF and Médecins Sans Frontières (MSF) validation mechanisms. ACF would support the establishment of an independent approval

board so that it is not only the main RUTF customers who are the quality regulators.

ACF see the potential advantages of procuring RUTF from local suppliers based in developing countries using local food products wherever possible, and is therefore fully supportive of this approach. ACF will be pursuing a validation process with local suppliers where product efficacy, safety and quality have been demonstrated.

## RUTF and patents

ACF acknowledges that the global demand for RUTF will continue to increase, particularly as RUTF usage becomes integrated into existing health systems. No single producer can be relied upon, due to constraints in production capacity and in the global supply chain. ACF therefore welcomes the steps Nutriset have taken recently to make the patent agreement more accessible to local producers. ACF does not consider patents as inherently wrong, recognising the role they can play in protecting RUTF quality and local producer viability, so long as measures continue to be put in place to ensure a sustainable global supply chain of RUTF.

## RUTF acceptance

ACF encourages governments to evaluate the wealth of existing data that supports use of RUTF in the treatment for SAM. ACF supports widespread uptake of the community based management of acute malnutrition (CMAM) approach by health facilities and communities through government management, and the local production of RUTF to meet the demand. The scale-up of CMAM should be alongside (and not replace) initiatives that look at all forms of malnutrition.

## Cost of RUTF

Since the cost of many RUTF products is highly linked to fluctuating milk powder prices, ACF welcomes continued research into lower cost alternatives using locally available products. ACF also recognises that locally-made RUTF products may not be inexpensive, due to lack of subsidies for key ingredients as found in some developed countries. However, ACF feels the added benefit to the local economy brought about by local factories should be factored into any cost-benefit analysis when choosing products, and suggests that quantitative research into such local benefits is continued and published. ACF believes that for now, RUTF is the most effective treatment for SAM when used with proper management and medical protocols, and should be continued despite the higher product costs in comparison to other

nutrition interventions. ACF advocate for the scale-up of the treatment of SAM.

## Coverage and funding of SAM treatment

ACF fully supports the scaling up of CMAM activities for the treatment of SAM. RUTF production and the CMAM approach needs to be dramatically increased if all children with SAM are to be reached. ACF believe that the only way to achieve substantial coverage is through supporting governments to integrate the CMAM approach into existing health facilities where possible.

## RUTF and impact on breastfeeding

ACF fully supports and agrees that exclusive breastfeeding for infants less than 6 months of age is essential for optimum child health. ACF actively promotes this best practice, as well as advocating for sustained breastfeeding for children aged 6-24 months and beyond. As a treatment for SAM, ACF does not consider that the use of RUTF undermines breastfeeding, but acknowledges that careful follow-up should monitor this risk. If international protocols are followed, then no RUTF should be given to infants below 6 months. For children aged 6-24 months, breastfeeding is actively encouraged before the child is offered RUTF.

## Potential negative impacts of rapid weight gain following RUTF treatment

There is research indicating an association between rapid childhood weight gain of thin children and later chronic disease. It is not clear whether the short period of weight gain seen in SAM children would have any negative consequences later in life, particularly if the child returned to a normal weight after recovery. Rapid early weight gain and then continued obesity for childhood would seem to be a greater cause for concern, although more research is needed to verify this. ACF will continue to treat SAM children with RUTF as part of the management protocol due to the elevated risk of immediate mortality, but acknowledges the clear need for further research.

## Summary of ACF position on products designed for the treatment of MAM

Regarding the use of products for treating MAM (which is not the only available approach):

- ACF acknowledges that programmes involving traditional corn soya blend (CSB) have not been highly effective,

<sup>1</sup> AAH/ACF International (2011). Products are not enough: Putting nutrition products in their proper place in the treatment and prevention of global acute malnutrition. Summary Paper, November 2011

and that the general trend coming out of recent research shows ready to use supplementary foods (RUSF) may be a viable and potentially more effective alternative.

- Much of the research involving RUSF has come out of Malawi and Niger, and ACF welcomes further research in different settings to help validate RUSF for international use. ACF will also continue with its own research on the topic.
- CSB++ is a promising product that has been re-designed to take account of many of the nutritional limitations of traditional CSB. Lack of field-based evidence surrounding CSB++ makes it difficult to take a position on it at this stage, but ACF welcomes further research on it.
- Fortified blended foods with the addition of oil can be effective if efforts are made to minimise defaulting. ACF recommends continuing use of such products due to their lower cost and often local availability. If CSB++ is not available, and fortified oil is not available to accompany other fortified blended products, then effectiveness will be compromised. In this scenario, ACF recommends the use of a RUSF.
- ACF notes the potential effectiveness of RUTF in treating MAM but does not support this practice. If given a choice between RUTF and RUSF for the treatment of MAM, ACF recommend using RUSF due to the importance of keeping a sustainable pipeline of RUTF for those who most need it and its sometimes lower cost. It is important to avoid any potential confusion in the community regarding the use of RUTF as part of treatment and not as a food which should be shared or sold.
- Good management of programmes, including close follow-up of children, and counselling in relation to caring and feeding practices is just as important as the choice of product. Further research is needed on this topic.
- ACF stresses the need to remember that products given for the treatment of MAM should be given in conjunction with the international medical protocol and close follow-up.

### Summary of ACF position on products designed for the prevention of acute malnutrition

ACF regards IYCF best practices as crucial in the effort to prevent malnutrition. Every effort should be made to ensure that the introduction of products does not undermine breastfeeding, and any focus on a product intervention should always be accompanied by adequate IYCF work. This should include the promotion of, and support to, appropriate caring practices and understanding what the barriers are to good IYCF and caring practices.

There are many approaches to preventing acute malnutrition, of which the provision of products is just one option. Preventing malnutrition requires a multi-sectoral approach and therefore, even if products are used, they should only form one part of the response.

Where it has been determined that a direct nutritional intervention is required, a food-based approach should be used where possible to prevent acute malnutrition because of its lower cost, better sustainability and cultural appropriateness. However, in contexts of displacement or natural disasters where food supplies have been cut off, products may be the only viable option to prevent a high caseload of patients with acute malnutrition. In this scenario, Ready to Use Complementary Foods (RUCF) could be used. ACF consider that RUTF or RUSF should not be used in prevention due to their overlap with treatment of SAM and MAM.

ACF acknowledges that there is not enough evidence in the field of products and preventative malnutrition and is continuing to conduct its own research in the field.

### Overall summary

The solution to the management of acute malnutrition does not lie with products alone. Nutrition causal analysis should be used to determine which integrated approach should be used. Products can play a supporting role, but need to be considered as part of a wider package of support. Indeed, periods when there are temporarily reduced or interrupted supplies of therapeutic products emphasize the importance of continued medical monitoring and management to contribute to successful outcomes for the affected individuals and their families.

Treatment of SAM requires the use of therapeutic milks and RUTF in accordance with the CMAM approach.

The management of MAM is less clear-cut. There is often an artificial divide between treatment and prevention, and approaches designed for one can have an impact on the other.

If a direct nutrition intervention involving supplementation of diets is required, the choice between products and a food-based approach depends on the context and take into consideration nutrition requirements, nutritional quality, time frame, sustainability, programme setting, available funding and cultural acceptability.

The field of nutrition products is rapidly evolving. ACF will continue to conduct relevant research to help inform programme policy. A continual review of ACF positions will be needed as more products become available and as more research findings are shared.

For more information on ACF's position, contact: Sandra Mutuma, email: [s.mutuma@actionagainsthunger.org.uk](mailto:s.mutuma@actionagainsthunger.org.uk)

*ACF are not alone in having to consider how and when to use various products in programmes that prevent or manage MAM in different contexts. We would welcome your thoughts and experiences on this topic and have opened an en-net discussion around this at <http://www.en-net.org.uk> under 'Prevention and treatment of moderate acute malnutrition'. Letters to Field Exchange on this topic are also welcome. Send to: [marie@enonline.net](mailto:marie@enonline.net)*

## Conference on government experiences of CMAM scale up, Ethiopia, 2011

The Emergency Nutrition Network (ENN) in collaboration with the Government of Ethiopia led a conference to capture government experiences of scale-up of Community-based Management of Acute Malnutrition (CMAM) in Addis Ababa, 14-17th November, 2011. The Conference was co-funded by Irish Aid, UK Aid (DFID) and CIDA.

The purpose of the conference was to provide a 'live' forum for the discussion of issues relating to national scale-up of CMAM from a government perspective. Senior government representatives from 22 African and Asian countries participated in the conference, in addition to representatives from UN agencies, non-governmental organisations, academia, bilateral donors, foundations and individual experts. A total of 144 delegates attended.

The first three days focused on CMAM scale up. Nine countries with experience of scale up (Ethiopia, Pakistan, Niger, Somalia, Kenya, Ghana, Sierra Leone, Malawi, Mozambique) shared experiences for discussion based on carefully constructed case studies. The India delegation shared particular considerations around CMAM scale-up and an additional 12 countries shared their experiences. Day 4 considered the findings of the CMAM experiences in the context of the Scaling Up Nutrition (SUN) movement.

Detailed country case study write up, a synthesis paper highlighting common themes and findings from the country case studies and conference proceedings, and a meeting report are being finalised and will feature in a special edition of Field Exchange 43. Meanwhile, film footage of many of the speakers, presentation summaries and background information are available at: [www.cmamconference2011.org](http://www.cmamconference2011.org)





P. Acharya/WFP, Sudan

Field Article

# Improving blanket supplementary feeding programme (BSFP) efficiency in Sudan

By Pushpa Acharya and Eric Kenefick



Pushpa Acharya is currently working as Head of Nutrition for the World Food Programme in Sudan. She has a PhD in Human Nutrition from the University of Massachusetts. She has over 21 years of professional experiences with national governments and UN agencies.



Eric Kenefick is current Head of Programme for WFP in Sudan. He has spent the past 15 years working for WFP and UNICEF in vulnerability analysis and M&E. He is a graduate of Tulane University's School of Public Health and Tropical Medicine.

The project is implemented by the State Ministry of Health. The commitments of the Director of Nutrition Ms Sit Eldat Ahmed Al, and Ms Khalda Khalafalla – WFP Kassala, were critical in the smooth functioning and success of the programme. Dr Amal Abdalla – WFP Sudan – coordinated the project and provided the technical guidance without which the intended results would not have been achieved.

Prevalence of acute malnutrition across Sudan is high and ranges from 11 to 29%<sup>1</sup>. Specific causes of acute malnutrition are largely unknown. High rates are observed during both non-lean and lean seasons. Major efforts are being exerted by the Ministry of Health and humanitarian aid agencies to treat malnourished children with therapeutic programmes implemented through approaches involving in particular community based management of acute malnutrition (CMAM), in-patient care, and targeted supplementary feeding programmes. Additionally, in areas with higher acute malnutrition rates, blanket supplementary feeding programmes (BSFP) are implemented during lean seasons as a preventive approach. In spite of all these programmes, repeated survey results show that acute malnutrition rates remain unabated (see map).

## Pilot to improve BSFP performance

In 2010, WFP's targeted supplementary feeding programme (SFP) aimed at treating moderately malnourished children reached over 200,000 children. In addition, 415,000 children aged 6-59 months were reached through a BSFP aimed at preventing the usual peak of acute malnutrition observed during lean seasons in Darfur. While the targeted SFP met the SPHERE standard for all performance indicators

across Sudan, 2009 programme monitoring data of the BSFP led to questions about its efficiency in reducing rates of acute malnutrition usually observed during lean seasons.

In order to improve efficiency of the BSFP in Sudan, means of improving performance of the programme were explored. A pilot was designed and implemented in one area in Kassala State. Kassala was selected because of WFP's pre-existing SFP programme, presence of a WFP nutritionist and the relative safety and accessibility of the area compared to Darfur and other areas of conflicts. The pilot programme began in March 2010 and is continuing until end of 2011.

## Nutritional and programming context

Prior to the pilot, GAM prevalence rates in Kassala were usually high and similar to that seen in Darfur (19.2% SHHS 2006, 15% SMOH 2009, 16.7% SHHS 2010). Mukaram, one of the shanty towns on the outskirts of Kassala town, was selected for the pilot by the State Ministry of Health (SMoH). The area is one of the poor neighbourhoods of Kassala and is situated relatively near to the main town and hence easier for SMoH staff to monitor. Prior to the pilot study, mid upper arm circumference (MUAC) measurements of all children in the catch-

<sup>1</sup> Sudan Household Health Survey 2010

Map 1: Prevalence of acute malnutrition in Sudan

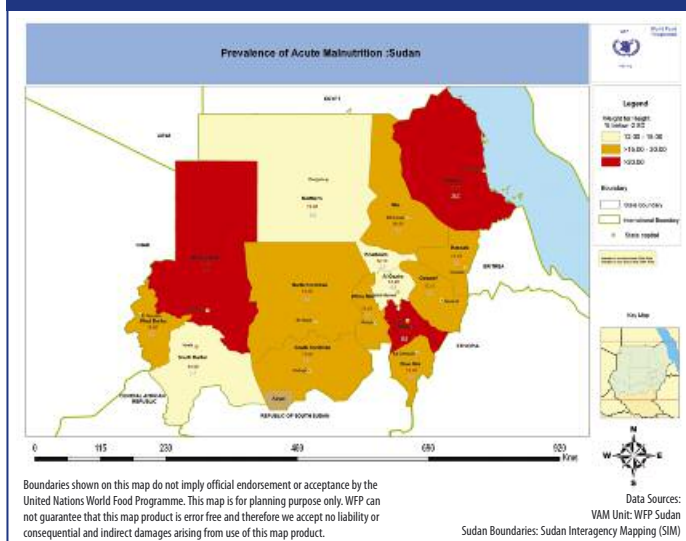


Table 1: Number of children under 5 years enrolled in SFP in two PHCs, Mukaram, Kassala, 2009

Month	Number of children
January	137
February	125
March	20
April	208
May	227
June	200
July	156
August	106
September	129
October	145
November	55
December	90

ment areas of these two Primary Health Care Centres (PHC) confirmed a high prevalence of acute malnutrition where 15.5% of the children had MUAC below 125 mm<sup>2</sup>.

There were and remain two Supplementary Feeding Programme (SFP) centres located in the area within the PHC. The catchment area of the two centres was estimated to have a population of 10,000 people with 1,500 children under five years of age. These centres usually saw high numbers of children with moderate acute malnutrition (MAM) enrolled in the SFP programme throughout the year. The admission numbers for MAM cases in 2009 for the two SFP centres in Mukaram can be seen in Table 1. Very high numbers of admission were seen at the SFP centres located in Mukaram in March 2010 at the start of the pilot. This may have been due to intensive communication with the community prior to the start of the pilot combined with the provision of a blanket food ration, thereby attracting greater numbers of MAM children into the Mukaram catchment area.

Figure 1 shows the trend in admission of malnourished children from January 2009 to December 2010 in ten SFP centres in Kassala, including those in Mukaram. This is presented as a percentage of MAM cases enrolled in the SFP relative to the estimated number of children under five in the catchment area of each of the centres (15% of the catchment population). The coverage of SFP in the catchment areas is unknown. Seasonal trends are observed with higher prevalence rates during the lean season (May – Sept)<sup>3</sup> and lower rates during the postharvest season (Oct-Dec). The coverage of the SFP in Kassala is unknown<sup>4</sup>.

#### Pilot intervention design

The design of the pilot study included intensive community engagement and sensitisation. A community club was established in each of the health centres. The clubs were equipped with cooking facilities for recipe development/trials, toys to entertain children while their mothers participated in discussions, and other essential resources. These facilitated participation of women in the discussion/awareness sessions held in the clubs twice a week. Prior to the establishment of the clubs, meetings were held with the community elders to sensitise them to the objective of the programme and also to identify and select community change agents.

The tasks of the 'community change agents' (the frontline workers of the intervention) included support to the MoH staff in growth monitoring of the children enrolled in the BSFP, keeping children entertained during the club

meetings/education sessions, facilitating discussion on topics related to food, feeding, food hygiene and food safety, cooking demonstration, and mixing of the 'super' cereals (CSB+), oil and sugar prior to the distribution, etc. All traditional practices that posed a threat to the children's and women's nutritional status was strongly discouraged. Example of such practices included ceasing breastfeeding as soon as the mother is pregnant even when the breastfed child is too young to do so. The 'change agents' were also responsible for making home visits – once a week for each home – in order to increase awareness of other household members of issues discussed in the club meetings. This facilitated changing risky traditional feeding practices such as early cessation of breastfeeding, eating from the same plate/dish even for very young children, low feeding frequencies and poor food hygiene, etc.

A Knowledge Attitudes Practice (KAP) survey was conducted to understand the local food and feeding habits. Existing education materials were then adapted to address issues identified by the KAP survey. The 'change agents' were trained for three days by the MoH on these topics and on facilitation techniques.

#### Target groups and enrolment

All pregnant and lactating women and children under five years of age were targeted with the BSFP, providing approximately 500 kcal. The ration consisted of super cereals 100g, 10g oil and 10g sugar mixed prior to distribution on a bi-monthly basis. All children were measured every month and their growth monitored. Children who were identified as moderately malnourished were referred to the targeted SFP and children identified as severely acutely malnourished children were referred to the outpatient therapeutic programme (OTP).

The enrolment in the programme was such that within four months of the start of the programme, 100% of all children under five years in the catchment areas of these PHCs were registered in the programme (expected under-five children 1500 – 15% of the total population). This blanket enrolment also determined that there was an increase in the identification of acutely malnourished children. At the start of the enrolment, almost 22% of the children in the programme were identified to be suffering from acute malnutrition.

#### Results

The nutritional status of all the children in the pilot programme was monitored on a monthly basis (see Table 2). Children identified as moderately malnourished at enrolment were referred to the SFP centres located in the same health facility where they received the regular SFP ration (1200

kcal per day per child as a take home ration). Children who were not malnourished at enrolment received half the ration of the targeted SFP.

The recovery of the children who were malnourished was rapid. A significant proportion (68%) of malnourished children enrolled in the SFP gained sufficient weight within 4 weeks to recover. This recovery was sustained on the lower BSFP ration over the 12 months period following recovery. Additionally, children who were not malnourished at enrolment remained healthy throughout the year, even during the lean/hunger season. A survey was conducted in July 2011 on 281 randomly selected children in Mukaram<sup>5</sup>. The proportion of children with a weight for height z score (WHZ) below – 2 SD was less than 1%. Mean WHZ was found to be 0.40±0.43.

#### Replication of the model

With impressive results from the model piloted in Mukaram, the SMOH requested WFP to expand the integrated blanket supplementary feeding programme (IBSFP) into North Delta, where the latest survey had indicated that the acute malnutrition rates was 16.5%<sup>6</sup>. There was no existing SFP centre in North Delta. Hence, the MoH with support from WFP established new SFP centres in four PHCs. The expansion also entailed establishment of community clubs in the PHCs. The Mukaram model was duplicated in all aspects. Table 3 provides the preliminary data from monthly monitoring of the nutrition status of the children enrolled in the programme. While the results are not as impressive as Mukaram, they reflect the success of the overall programming approach.

#### Cost

The cost of the ration/child including Food-for-Work provided for the community mobilisers (at a ratio of 50 children/community mobiliser) is 0.09 USD per child/day<sup>7</sup>. The additional cost for the printing of registers, education materials, training of community mobilisers, toys, mats, and sun shelter for the clubs for Mukaram was 0.81 cents per child. The latter cost is a one-off fixed cost at the start of the programme. The total cost per child per year in the blanket SFP was 33.66 dollars. The cost of the targeted SFP ration ranged from 12.4 – 14.9 USD per child if they recovered from MAM within 10 to 12 weeks of enrolment in the programme. The BSFP cost was therefore at least twice as high as the targeted SFP. However given that under the BSFP children don't succumb to malnutrition year after year, the overall programme cost is much lower as fewer children present for targeted supplementary feeding.

#### Lessons learned

The community involvement in the project from the design stage onwards played a significant

Table 2: Nutrition status of children enrolled in the BSFP pilot

Month	Total number of children <5 years registered	Number of malnourished	Global acute malnutrition prevalence
March '10	1782	390	21.8%
April '10	1851	134	7.2%
May '10	1821	85	4.6%
June '10	1866	90	4.8%
July '10	1882	68	3.60%
August '10	1790	73	4.07%
September '10	1861	45	2.40%
October '10	1856	44	2.37%
November '10	1841	32	1.37%
December '10	1856	19	1.02%
January '11	1901	15	0.78%
February '11	1901	12	0.63%

Figure 1: Trend in admission in eight SFP centres in Kassala during lean and non-lean seasons, Jan 2009-Dec 2010 (as percentage of under five catchment population by centre)



<sup>2</sup> Prevalence in acute malnutrition with MUAC criteria is found to be much lower than with WHZ criteria in Sudan.

<sup>3</sup> For some centre records were not available for all months; for this reason the lines are not continuous.

<sup>4</sup> Coverage survey of CMAM is ongoing - UNICEF

<sup>5</sup> Records of 5 children were flagged and 19 children did not have complete data.

<sup>6</sup> Report of Nutrition and Mortality Survey in North Delta March 2011, SMOH

<sup>7</sup> At commodity prices as of 14 October 2011

**Table 3: Monthly beneficiary number and proportion of malnourished children enrolled in IBSFP in North Delta area, May – July 2011**

Month	IBSFP centres	Total < 5 children Registered	Total MAM Cases	Total SAM Cases	GAM rate
May	Umalguraa	402	47	22	17%
	Britani	352	40	14	15%
	Hadalia residents	391	50	10	15%
	Hadalia IDPs	301	35	15	17%
	<b>Total/average</b>	<b>1446</b>	<b>172</b>	<b>61</b>	<b>16%</b>
June	Umalguraa	498	34	10	9%
	Britani	356	31	7	11%
	Hadalia residents	200	25	5	15%
	Hadalia IDPs	305	28	9	12%
	<b>Total/average</b>	<b>1359</b>	<b>118</b>	<b>31</b>	<b>11%</b>
July	Umalguraa	442	22	7	7%
	Britani	428	21	8	7%
	Hadalia residents	361	28	12	11%
	Hadalia IDPs	305	16	6	7%
	<b>Total/average</b>	<b>1536</b>	<b>87</b>	<b>33</b>	<b>8%</b>
August	Umalguraa	442	13	6	4%
	Britani	428	9	7	4%
	Hadalia residents	361	21	6	7%
	Hadalia IDPs	305	11	12	8%
	<b>Total/average</b>	<b>1536</b>	<b>54</b>	<b>31</b>	<b>6%</b>

role in ensuring successful implementation and outreach of the programme. Initiation of the project through the community leaders created strong link between the targeted community and the SMoH.

The community change agents took ownership of the project and felt a sense of responsibility towards the community members. Use of the change agents eased the task of convincing the community about the need for behaviour change and also facilitated the task of the health staff in the health centres. Food for work played an important role in motivating change agents

The SFP centre attracted children and women from beyond the usual catchment area of the health centres.

The toys made available at the health and social club assisted the nutrition educators to entertain children while women were discussing and listening to the nutrition education and take accurate measurements of children by making them relaxed during the measurements and consequently increasing the accuracy of the measurements.

Cooking demonstrations of various recipes of complementary foods from locally available commodities and CSB at the health club gave the chance for women to learn proper food preparation and hygiene practices while also keeping women interested while health and nutrition messages were delivered.

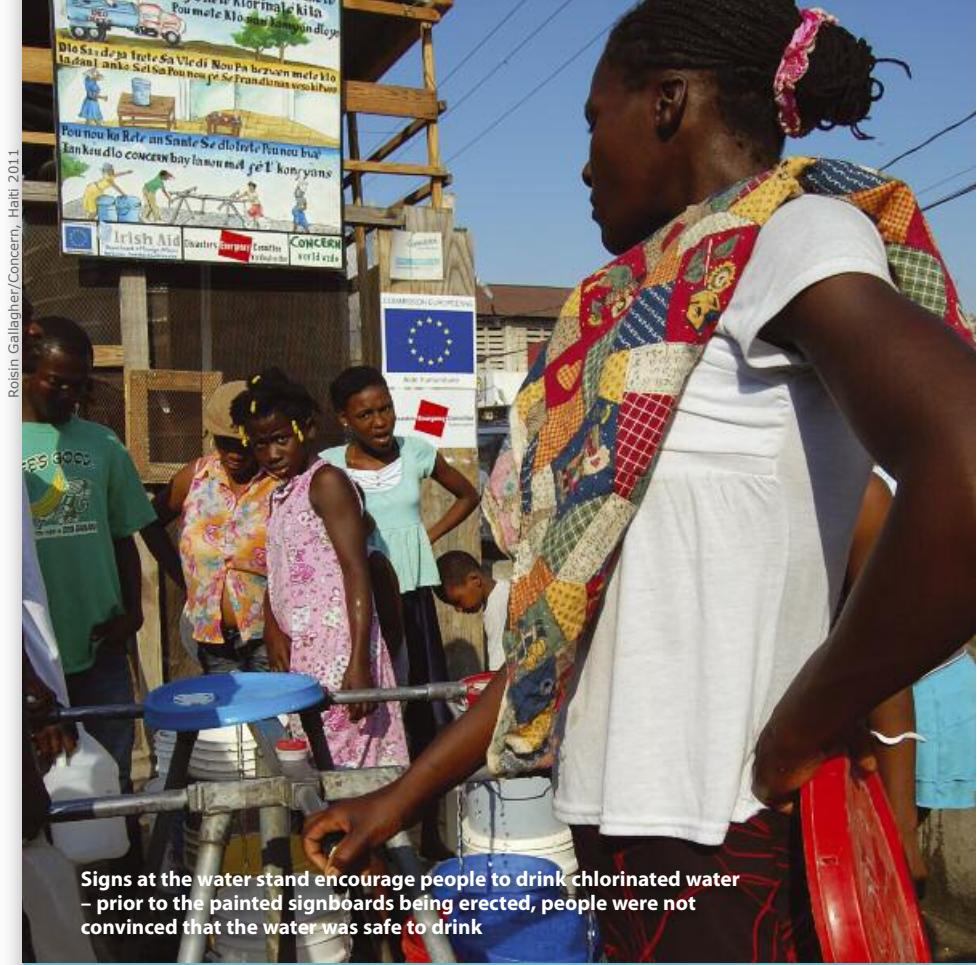
Community club meetings provided opportunities for women to discuss a wide variety of topics beyond food, feeding, food safety and food hygiene.

Intensive monitoring by the MoH and WFP as well as the community leaders was important for the overall outcome of the pilot.

**Conclusions**

Changing harmful infant and young child feeding practices requires active participation of the community in the learning process. When food availability and quality is enhanced through the provision of small quantities of highly fortified food combined with the intensive engagement of the community around harmful feeding practices, the impact of food aid is significantly increased. The size of the programme allowed intensive monitoring by SMoH and WFP. The challenge lies in taking the pilot to scale.

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Signs at the water stand encourage people to drink chlorinated water – prior to the painted signboards being erected, people were not convinced that the water was safe to drink

# Evaluation of Concern's response to the Haiti Earthquake



By Andy Featherstone

Andy Featherstone is an independent humanitarian research and policy consultant. With significant experience working for NGOs and interagency networks, he specialises in helping agencies learn from their work and in bridging the gap between policy and practice.

The earthquake that struck Haiti on January 12, 2010 did so with devastating consequences. More than 200,000 people were killed, 300,000 were injured and over one million were left homeless. The cocktail of extreme vulnerability coupled with the huge loss of life and massive destruction wrought on Haiti's largest urban area and political and commercial hub effectively decapitated the state. It left hundreds of thousands of people traumatised and without the means necessary to sustain life and livelihood. It was this that precipitated the tremendous generosity that saw Concern raise 28 million euro and embark on its largest single-country humanitarian programme since it was established in 1968.

An evaluation was undertaken eight months after the earthquake<sup>1</sup> and followed an unprecedented expansion of the programme and staff. The purpose of the exercise was to review the appropriateness, timeliness, efficiency and effectiveness of both the interventions carried out and operational support systems with an important focus being placed on documenting lessons learnt.

The evaluation findings were as follows.

*Timeliness*

The response was timely, particularly the early support to water, sanitation and hygiene (WASH). An area where Concern performed particularly strongly was in quickly moving beyond a focus on support to urban areas to meeting the needs of displaced and host communities in rural areas.

While Concern was successful in providing timely assistance in important sectors of its response, the organisation lacks consensus over the use of its surge capacity mechanisms, the Emergency Response Team (ERT) and Rapid Deployment Unit (RDU). It is urgent that agreement is reached over how to manage and deploy these assets to most effect in the future.

<sup>1</sup> Featherstone, A (2010). Evaluation of Concern's Response to the Haiti Earthquake. October 2010

There is a need for greater fluency within the organisation in applying streamlined human resources (HR) systems that better support emergency recruitment (like the use of generic terms of reference and the quicker adoption of recruitment systems that can fast-track staff appointments, inductions and entry to the programme).

While the organisation has a comprehensive financial management system, the experience of the team in trying to link programme outputs with donor contracts to facilitate contract management has been a challenging one and would benefit from review.

### Coverage

Concern has performed well against the coverage criterion, choosing to launch a multi-sectoral response which targeted both urban and rural communities. Given the extraordinary nature of the crisis, an extraordinary response was required. While it means that Concern has had to work hard to deliver against such a large programme, it has done so successfully.

### Relevance

The programme has maintained its relevance throughout the response by providing a mix of targeted assistance (through cash for work and livelihoods programmes) and blanket distribution of basic commodities. While the context of the crowded urban environment has made it difficult at times to attain minimum standards, interviews with project participants suggest that the services being provided by Concern are meeting their needs.

The use of SPHERE standards and indicators in Concern's programmes has provided an important yardstick for success. Given the clarity that the WASH team now has about progress that needs to be made against cluster standards, it will be important that swift progress is made to achieve these.

### Connectedness

Concern's established presence in the country and the strong links it has with communities provided an important platform for the earthquake response. This has served both to provide much needed assistance and further cement Concern's relationship with project participants. Since the organisation is also working in sectors it has established a competence in, interventions in these areas often benefit from strong analysis.

While considerable progress has been made in building a coherent Concern team in Haiti, it will be important to continue to strengthen ways of working to ensure strong integration between all parts of Concern's mandate, whether long-term development or humanitarian response.

### Accountability

Good progress has been made in cascading key accountability principles such as the provision of information, consultation and participation of communities throughout the Concern programme. An important area for Concern and the broader humanitarian community will be to ensure that camp committees are consistently working in the best interests of the people they represent.

There is some urgency in establishing accountable and representative camp committees and Concern should continue to work with the cluster to find workable solutions.

### Effectiveness

Concern has been effective in mounting a large multi-sectoral humanitarian programme in Haiti. In particular, the breadth of the programme, the timeliness of many of its early interventions and the prioritisation of meeting rural in addition to urban needs has been impressive in such a complex context.

Protection and peace building are now being mainstreamed across the humanitarian programme. In the absence of government policy on durable settlement solutions and with elections planned for November 2011, it is likely that these cross-cutting areas will become ever more relevant. It will be important that there is sufficient capacity and that activities are fully integrated across all of Concern's humanitarian work in Haiti.

Two resources are highlighted - a review of the excellent organisation-level meta-evaluation conducted in 2009 and the Preparing for Effective Emergency Response (PEER) document which summarise organisational knowledge and learning. Condensing these into a set of succinct (1-2 pages) documents, highlighting key lessons for programme design and delivery and organisational systems and ways of working, would be a wise investment for the future.

### Identifying best practice

The evaluation highlighted the significant contribution which Concern has made in meeting the needs of earthquake-affected communities in a timely and effective manner. A number of these are worthy of particular mention as

they demonstrate significant innovation, achieve a level of excellence in response, or show proficiency in a particular area of response.

### Responding to the needs of rural and urban communities

Concern has built on its established presence in the country to extend both relief and recovery activities to those living outside the immediate environs of Port-au-Prince. Its operations in La Gonave and Saut D'eau have been backed up by a robust analysis of the numbers of displaced and the impact this displacement has had on the local infrastructure and economy. In the first three months of response, Concern provided cash, tents to meet emergency shelter needs and non-food items to targeted beneficiaries in these areas. Given the propensity for aid to be targeted at the most visible and most numerous claimants, the targeting of rural areas by Concern is noteworthy. Not only does it have the potential to ensure that those affected by the earthquake and subsequent displacement are supported, but it goes some way to slowing the inevitable return to Port-au Prince which the limited services available in the city would have struggled to accommodate.

### Transitional shelter design and delivery

The roll-out of the T-shelter programme has been considered by many (including the shelter cluster coordinator) to be exemplary. While it took some time to conduct the baseline survey, to assess needs and to procure the materials, the programme has benefited from sound targeting and excellent organisation of work processes which has allowed for swift production of the shelters. The design is innovative and has taken account of the needs for earthquake- and hurricane-proofing. The approach taken towards the use of contractors to manage shelter construction using labour sourced from the camp has allowed the work to progress quickly, while fostering ownership and transferring important skills to members of the camp population.

### Humanitarian leadership & coordination

Throughout the response, Concern staff have shown a commitment to participating in humanitarian leadership and coordination forums. While the Country Director is part of the Humanitarian Country Team (HCT), sector staff members have also played prominent roles in clusters and sub-cluster groups.



Allison Shelley/Concern, Haiti, 2010

Out-patient nutrition clinic at Place de la Paix, Port-au-Prince



Eighty per cent of schools in Port au Prince were damaged or destroyed. Concern has hired 'animators' to facilitate play and learning.

Allison Shelley/Concern, Haiti, 2010

Róisín Gallagher/Concern, Haiti 2011



Temporary shelters nearing completion at Tabarre

Interviews showed they had an astute understanding of both the resource requirements that coordination commitments place on the organisation but also the opportunity this provides to influence the humanitarian response far beyond what Concern could achieve through other means. While some members of the humanitarian community may dismiss the value of coordination as being too time-consuming, it is the way of doing humanitarian business. In contexts such as Haiti, it is essential for prioritising assistance and avoiding duplication. The team has used the forum that the clusters offer for raising issues of concern to the wider humanitarian community such as protection, shelter design issues and the threat of forced evictions. Interviews with Cluster Coordinators highlighted the value they placed on Concern's participation, as well as the important contribution that staff members have made to the work of the clusters.

**Lessons learned**

Concern's response in Haiti has necessitated interventions that have either been unprecedented or provide the potential to lead the organisation in new directions or challenge current ways of working.

*Responding to urban disasters*

Humanitarian organisations in Haiti have struggled to make their earthquake responses

relevant to the urban environment. While 'camps' are often administratively more easy to support, the lack of space and the infiltration of powerful gangs into the over-crowded urban environments has created a significant challenge to agencies who are more used to working in peri-urban or rural environments. The lesson here may be to stretch humanitarian comfort zones and look at methodologies to support smaller and more decentralised settlements that focus on the importance of community, that benefit from strong links with local authorities and which have strong links with the private sector to ease the process and sustainability of handing over services. In seeking to address these issues directly, the approach taken by Concern in Tabarre Issa camps has much to offer. In working with both resettled and host communities, and in trying to plan the settlement less as a regimented camp, Concern's programme has taken a 'neighbourhood' or 'community' approach which is considered as best practice by many in the cluster.

*Innovative approaches to addressing vulnerability: The Baby Tent Programme*

Haiti is the first humanitarian response where the concept of 'baby tents' has been delivered to scale, in a context where women had suffered significant trauma and where the use of infant formula was often prioritised over breastfeeding practices. The Baby Tents were a space which offered privacy, care and counselling and which could advocate for, educate and support women on breastfeeding. Where infants were not breastfed, the baby tents monitored the use of infant formula. Thus they provided potentially life-saving services for both breastfed and non-breastfed infants.

*A high value placed on an independent procurement capacity*

An important lesson has come from trialling the United Nations Humanitarian Response Depot (HRD) which is available for both pre-positioning of stock items and procurement. Experience from the earthquake response strongly suggests the need for Concern to retain an independent procurement capacity as quotes from the HRD procurement agency were found to be uncompetitive and lead times were considered to be lengthy. While the initial reliance on air freight has a significant cost attached to it, it did ensure that the programme could scale-up swiftly and ensured that minimum quality standards for procured items were met.



Róisín Gallagher/Concern, Haiti 2011

Cleaning drains as part of Cash for Work



## Review of Integrated Food Security Programme in Malawi

**Summary of published review'**

A review of an Integrated Food Security Programme (IFSP), implemented by GTZ<sup>2</sup> in Malawi from 1997 to 2004, has recently been published by Tufts University. The IFSP in Malawi was a complex, multi-sector activity that sought to improve food security and nutrition in one of the country's most vulnerable, least-performing regions. The programme was implemented by GTZ (now GIZ)<sup>3</sup> on behalf of the German Federal Ministry for Economic Cooperation and Development (BMZ) between 1996 and 2003 (with a 12-month extension supported by the European Union).

The IFSP's end-line evaluation reported that the intervention had achieved its objectives. A subsequent review was undertaken to consider whether gains made in the past had been sustained and to draw lessons from this example that may contribute to new thinking on models of integrated, multi-sectoral programming. The review highlights that "food security approaches to nutrition require systemic, multidisciplinary and inter-sectoral approaches" (UN Standing Committee on Nutrition, 2009, p. 1). It goes on to argue that the empirical evidence remains limited of what actually works on the ground, where attempts are made to introduce packages of interventions that address multiple sectors at once.

This review was conducted over a period of five months (November 2010 through March 2011) and involved two field trips. The findings presented in the



review rest on three kinds of information: documented evidence (project, consultant, and published reports), insights shared by various experts and stakeholders, and direct experiences of the reviewers from the village visits.

Villages were visited based on meeting one of four criteria:

- Early adopters versus later adopters (villages included from the outset of the IFSP in 1997 versus those included later).
- Villages that recorded positive nutrition gains over the course of the IFSP versus those that were less positive.
- Villages that served as 'controls' in Phalombe District (prior to that district's separation from Mulanje).
- Villages with specific examples of 'success stories' versus 'failures'.

The review authors emphasised the limits to attributing findings of the review in any statistically significant manner. The IFSP could not maintain 'pure' control groups due to administrative re-districting in the late 1990s that removed original control villages from Mulanje District. Furthermore, there were many other agents of change both across Mulanje and beyond. While the review does not ascribe causality to the IFSP versus any other influences, an attempt is made to draw inferences about the role of the intervention where expected outcomes were achieved (as documented in the end-line evaluation). This is achieved by careful post-hoc interviews with those directly involved (beneficiaries as well as implementers), an assessment of the plausible links between inputs and outcomes, and triangulation across multiple sources of data with Mulanje and neighbouring districts.

The intervention which started in 1997 encompassed 185 villages (roughly 40,000 households). Mulanje District was selected because it represented "an area which has chronically suffered the greatest food deficit over the last 10 years, compared to other areas in Malawi". An obvious manifestation of the severity of local problems showed up in the causes of paediatric mortality in Mulanje District Hospital, which in 1993 were reported as malnutrition (21% of cases), malaria (19%), and anaemia (11%). In 1997, malnutrition and anaemia were still among the top three causes of death locally (at 18% and 14%, respectively), with HIV/AIDS having taken over first place.

The initial roll-out villages were chosen largely because at that time they had "no interventions by other donor agencies", in other words, they were seen as "pristine" and more likely to demonstrate changes more clearly in the absence of other donor activities.

### Key findings of the review

The IFSP in Mulanje was successful in most of its aims. Not only were conclusions of the 2004 Final Evaluation Report confirmed, but many of the gains identified then have been sustained. This represents an important "proof of concept" of this particular approach to integrated programming. Successes can be identified as helping bring positive changes in food security (measured by outcomes

across multiple sectors), changed thinking and behaviours at community level (that persist a decade later where 'early adopters' have continued to innovate), and new approaches to tackling food insecurity that have been adopted by the public sector locally and nationally. The IFSP has influenced government thinking on food and nutrition security more broadly, leading to many of its principles being embedded in current national policies.

In terms of specific successes, child nutrition was improved (reaching the target set of a 10% reduction in the prevalence of stunting) and most sectoral targets were also achieved. Gains that can be attributed by varying degrees to the IFSP include enhanced agricultural productivity and output in several staple crops, the cultivation of an enhanced range of crops (as a result of introduction and promotion of new and improved seeds), and reduced losses to crop and livestock diseases - all leading to higher levels of farm output. This in turn contributed to reduced periods when farm households have no food in their stores, higher household incomes, and increased local investments in productive assets, including in the natural resource base.

Beyond agriculture, the IFSP promoted non-farm income diversification activities that have since proliferated, allowing for more diversified livelihoods and disposable income. Access to market (for sale of crops, purchase of food, and engagement in cottage industries) was improved through access road and bridge construction, still well maintained in most instances. The supply of clean water has improved significantly, and maintenance of water points has been good, largely supported through village committees. Access to food for-work represented an important safety net for food-insecure households who could not immediately benefit from enhanced farm productivity and market access. Improved supply of food and income has supported enhanced diet diversity and quality. A wider range of foods is consumed today than prior to the IFSP, and also compared with most other parts of the country. Food preservation activities have enhanced diet choices and reduced post-harvest losses.

The process of community engagement was valuable and valued. Community and government training in problem-solving processes are still in use today. Many village committees are still functional, and the promotion of 'demand responsive' models of service delivery had durable impact on the way that public servants conduct their business. The IFSP model was widely promoted in Malawi and its lessons have been incorporated into training and policy agendas since the end of the intervention.

### Conclusions of the review

A number of broad conclusions emerge. The IFSP represents a model of integrated programming, carefully designed around a core conceptual framework, which achieved its targets. But it is not the only possible model, either for achieving such targets or for approaching integrated programming as a

process. The Mulanje example should be carefully analysed against other potentially viable approaches in seeking to understand how best to leverage actions across multiple sectors to achieve gains in agriculture, nutrition, and health simultaneously.

The IFSP model appears to have been relatively cost-effective. At roughly US\$59 (around €40) per household, or US\$11 person (€8) per year, the package of IFSP interventions compares well with a range of other integrated programmes in Malawi and elsewhere. That said, not every element of the package worked equally well, with home gardens, some health interventions, and some crops performing weakly compared with other components of the programming.

The successful (versus weak) aspects of this activity shone a spotlight on the importance of cultivating leadership for change. Engagement of community leaders as stakeholders and the intensive training of villagers in leadership roles and committee processes was critical. So too was establishing appropriate incentives and buy-in across district- and national-level ministries so that 'ownership of leadership' was cultivated and service delivery and programme implementation all benefitted. Identification and support for early adopters (leaders in innovation) mattered immensely to 'start-up' activities in the realm of livelihood diversification. Attention to this process aspect of programming was critical.

Questions raised by the review that should frame debate on future integrated programming include:

- Could the same outcomes have been achieved for less cost?
- If so, what is the minimum versus desirable menu of interventions that would (together) generate the best possible outcomes for least cost?
- Would the unit cost of the package introduced in Mulanje rise or fall if taken up at scale across the country?
- Should such packaged interventions seek to promote absolute change or accelerate relative change (to bring 'lagging' regions or communities up to par with the rest of their country)?
- Can integrated programmes be designed to buffer future shocks, not just resolve pre-existing vulnerability to food insecurity, and what would that add to the cost of a package of integrated services and inputs?

Many such questions can only be answered through operations research on a next generation of multi-sectoral integrated programme, which this review concludes is a reasonable development policy priority.

<sup>1</sup> Webb, P (2011). Achieving Food and Nutrition Security: Lessons Learned from the Integrated Food Security Programme (IFSP), Mulanje, Malawi. June 2011. Download at: <http://www.donorplatform.org/load/11188>

<sup>2</sup> German Technical Cooperation. This is now part of GIZ since 1 January 2011 (see footnote 3).

<sup>3</sup> Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH. The German Society for International Cooperation (GIC) Ltd is a federal enterprise that supports the German Government in achieving its objectives in the field of international cooperation for sustainable development.



Preparation of enriched porridge as part of the programme to manage moderate acute malnutrition

Fondation Tdh, Guinea, 2011

# Multi-pronged approach to the management of moderate acute malnutrition in Guinea

By Dr Jean-Pierre Papart and Dr Abimbola Lagunju



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### Guide to acronyms used (equivalent in generic CMAM terminology)

cSAM	complicated severe acute malnutrition
sSAM	uncomplicated SAM
MAM	moderate acute malnutrition
CNT	Stabilisation Therapeutic centre (manage Phase I cSAM)
CNA	Outpatient Therapeutic centre (treat sSAM and phase II cSAM)
CNS	Supplementary Feeding centres (manage MAM)
CMC	Communal Medical Centres
MSPH	Ministry of Public Health
CS	Health Centre

*This article describes the experience of Fondation Terre des hommes in the management of moderate acute malnutrition in supplementary nutrition centres supported by the organisation in Guinea.*

**F**ondation Terre des hommes (Fondation Tdh) is a Swiss Child Rights advocacy organisation based in Lausanne, Switzerland and founded in 1960. The Foundation employs the UN Convention on the Rights of the Child as its guiding principle in its two principal domains of action, maternal and child health (MCH) and child protection. Its intervention strategy in these two domains is predicated on empowerment of beneficiaries, system reinforcement and advocacy. Fondation Tdh has nutrition-focused MCH and child protection projects in five countries in the West Africa sub-region – Benin, Burkina Faso, Mauritania, Togo and Senegal

### Management of acute malnutrition in Guinea

In Guinea, the management of acute malnutrition is undertaken at three different levels of facility, depending on the severity of the case:

- Therapeutic nutrition centres (CNT) manage phase 1 of complicated severe acute malnutrition (cSAM)
- Outpatient nutrition centres (CNA) treat severe acute malnutrition without complications (sSAM) and also phase II of cSAM
- Supplementary nutrition centres (CNS) manage patients with moderate acute malnutrition (MAM).

This management strategy alongside the model for interventions (see Figure 1) was developed by the Ministry of Public Health (MSPH) and published in The National Guidelines of Management of Acute Malnutrition in May 2008. National guidelines admission criteria at health facility level are shown in Table 1.

### Fondation Tdh in Guinea

Fondation Tdh has been supporting government health facilities in Conakry, Guinea in

the management of MAM since 2005. This decision was informed by the reported increase in the global acute malnutrition (GAM) rates between 1999 and 2003 in the city of Conakry. The 1999 Demographic and Health Survey reported 10.9% GAM prevalence in children aged less than 5 years. The QUIBB (*Enquete sur le Questionnaire des Indicateurs de Base du Bien-etre*) survey of 2003 showed that global acute malnutrition was 14.4% among the same age group. Conakry had the second highest rate of global acute malnutrition among the eight regions in the country in 2003.

In December 2007, Fondation Tdh supported two communal medical centres (CMCs) (Ratoma and Flamboyant), both located in the Commune of Ratoma and a private medical facility (St. Gabriel Dispensary) in the adjoining commune of Matoto to adopt and put into practice the new national guidelines on the management of acute malnutrition in the treatment of sSAM. This involved use of RUTFs and health facility based management of MAM. In December 2008, two additional health centres (CS) in Ratoma commune (Lambandji and Wanindara) also introduced these activities using the national management guidelines. Fondation Tdh supported these facilities by putting in place a monitoring system to follow up on performance and provide necessary technical advice. This article is based on the monitoring of the performance of these four health facilities between 2008 and 2010. See Figure 2 for map reflecting Conakry communes.

### Health facility network in Ratoma Commune

The Commune of Ratoma has 20 quarters (administrative units). The public health system consists of sixteen health facilities: two CMCs and 14 CS. The CMCs, which have the same facilities as district hospitals (surgery, paediatric and internal medicine units, hospitalisation), serve as referral units for the health centres. Of the 16 health facilities in the commune, none has a CNT, five have a CNA and all 16 have a CNS (five facilities have both a CNA and a CNS). All these health facilities have a nutrition unit manned by trained government staff. All identified cSAM cases are referred to the Institute National de Santé de l'Enfant (INSE) for stabilisation. After stabilisation, they are referred back to the health centres for ambulatory management of phase 2. Fondation Tdh presently provides technical support to all the health facilities in Ratoma Commune.

### Fondation Tdh support to health facilities

All the activities of the nutrition programme (anthropometric assessment using measurements of weight, mid-upper arm circumference (MUAC)), cooking demonstrations, counselling) are carried out by the government staff of the nutrition units of the health facilities. Fondation Tdh provides techni-

Table 1: National guidelines admission criteria and health facility level

	Admission criteria*	Health facility level for care
Moderate Acute Malnutrition	<ul style="list-style-type: none"> <li>• W/H between 70% and 79.9% of the median</li> <li>• MUAC between 11 and 12 cm (for length &gt; 65 cm)</li> <li>• Absence of oedema</li> </ul>	CNS
Severe Acute Malnutrition	<ul style="list-style-type: none"> <li>• W/H &lt; 70% of the median</li> <li>• MUAC &lt; 11 cm (for length &gt; 65 cm)</li> <li>• Absence of medical complications</li> </ul>	CAN
	<ul style="list-style-type: none"> <li>• W/H &lt; 70% of the median</li> <li>• MUAC &lt; 11 cm (for length &gt; 65 cm)</li> <li>• Presence of medical complications</li> </ul>	CNT

W/H: weight for height \*Based on the NCHS references

Figure 1: Model of intervention for the management of acute malnutrition in Guinea

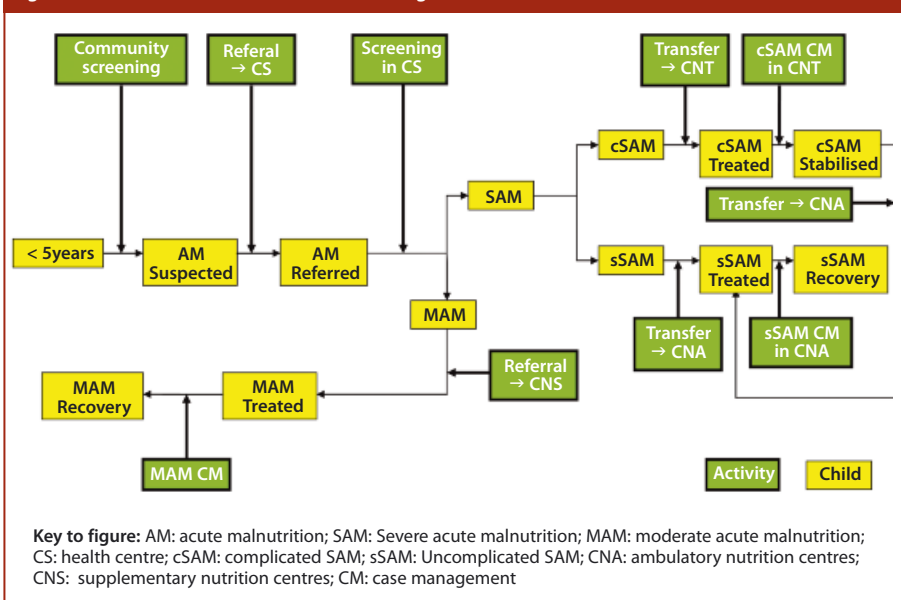


Figure 2: Map of Guinea focused on Conakry communes



cal, material and equipment support to the nutrition units of the health facilities.

The staff of Fondation Tdh comprises two medical doctors and a nutritionist. Technical support includes training and on the job supervision. Fondation Tdh also invests in quarterly nutrition programme supervision of all the health facilities by the higher authorities of the Conakry City Health Directorate. Fondation Tdh staff also assist the health facilities in collating and analysing data generated from their nutrition activities. Through these analyses, weaknesses are jointly identified and decisions are reached on corrections. Further, on the request of the health authorities, Fondation Tdh acts as an active interface between the health authorities and agencies like UNICEF and World Food Programme (WFP) for supplies to the health facilities. This is a temporary arrangement pending the time the authorities study the reporting mechanisms of these agencies and identify a liaison person for this activity.

In addition to the technical support, Fondation Tdh also provides material support to the nutrition units, such as stationery, IEC (information, education, communication) materials, cooking materials, MUAC tapes and weighing scales.

### Urban Community Health Workers in Ratoma commune

In six of the 20 quarters of Ratoma, Fondation Tdh in collaboration with the communal health authorities, recruited and trained 32 urban community health workers (UCHW). The UCHWs participate in the community screening of children for acute malnutrition in their neighbourhoods, follow up on defaulting cases and engage in the promotion of healthy nutrition practices through cooking demonstrations, counselling on breastfeeding and hygiene (See Figure 3).

### Screening of children for acute malnutrition

Screening of children for acute malnutrition takes place at two levels – in the neighbourhoods (active screening) and at the health facility level (passive screening). See Figure 3.

#### Active screening

Each of the UCHWs is assigned an area within their neighbourhoods. The UCHWs compile a list of all the children within their area and visit

their homes on a monthly basis. In the course of the visits, MUAC of children 6-59 months is measured and recorded. Children with MUAC of <125mm are referred and accompanied by the UCHW to the health facility in their area. The nutritional status of referred children is further assessed (weight and height are measured, MUAC re-measured) by trained government health workers and then children assigned an appropriate treatment regime as directed by the National Guidelines. The National Guidelines stipulate that children with cSAM are immediately referred and accompanied to the INSE. Children with sSAM are put on the ready to use therapeutic food (RUTF) regime (see below). Children with MAM are given rations (when available) and their mothers advised to come for weekly cooking demonstration and training on appointed days.

#### Passive screening

This is conducted in the health facilities by health workers (nurses and doctors) for all the children (0-5 years) who have come for consultations due to an illness or to well-baby clinics (0-11 months). The weights and heights of all these children are measured and recorded and in the case of children between 6-59 months (or whose lengths are >65 cm), MUAC is also measured. Children between 6-59 months presenting with acute malnutrition are assigned to the appropriate treatment as directed by the National Guidelines.

The total case load of malnutrition for Ratoma Commune and St Gabriel is shown in Table 2.

### Management of SAM

The child with sSAM is prescribed Ready to use therapeutic foods (RUTF)<sup>1</sup> and routine drugs like Vitamin A, antibiotics and anti-helminthics. RUTF is given on a weekly basis to the children and at the end of each week, the child presents at the health facility for a check-up until the child attains and maintains the target weight (85% of the median % weight-for-height) at two consecutive weekly checkups (option 1) or option 2 (discharge on reaching 85%) without two consecutive check-ups.

Monitoring reports indicate that St Gabriel Dispensary has had major problems with defaulting in the treatment of sSAM. In 2010, of a total number of 1,133 recorded exits, 35.6% were cases of defaulting. The reason for this is that, unlike the four other CNAs supported by

Fondation Tdh, St. Gabriel Dispensary has a reputation for inexpensive and quality medical treatment which extends far beyond Ratoma commune. The dispensary charges a flat rate which includes costs for consultation, laboratory tests and medicines. Many people travel great distances, sometimes up to 200 km, to seek treatment in this dispensary. Normally, parents do not recognise signs of acute malnutrition in their children and come to the healthcare centre expecting treatment for illnesses rather than for malnutrition. The healthcare centre staff identify malnourished cases through routine measurement of the children. When a child is diagnosed as suffering from acute malnutrition and the parents are told that treatment is necessary and that this will involve several weekly check ups (a total of 5 to 10 visits), many of them fail to return to the centre after one or two follow-up visits. This is due to the distance they have to travel each time. These cases present a problem for the Dispensary, because there are no CNAs or CNS in the villages of origin of these children to which they can be referred.

All identified cases of cSAM are referred to INSE. Fondation Tdh supports the patients through the payment of transport costs from the referring health facility to INSE. Further, Fondation Tdh pays the treatment costs of cSAM cases referred from any of its intervention centres. cSAM cases are managed with F75 formula until stabilisation and then referred back to referring centre for Phase 2 management as prescribed by the National Guidelines.

### Management of MAM

Breastfed children <6 months, identified by weight for age, suffering from MAM are treated for any underlying illness and their mothers are counselled on appropriate breastfeeding techniques and practices. The children are discharged from the programme when consistent weight gain is established through breastfeeding.

Children between 6-59 months suffering from MAM (identified using W/H) are treated with enriched porridge, prepared twice a week at the health facility and distributed to children. The porridge is constituted to deliver 100kcal/100mls. The children are fed there.

<sup>1</sup> The management of sSAM has also been the subject of several monitoring reports, which may be consulted. Contact the authors for details.

Figure 3: Communal (active) screening / health facility based (passive) screening

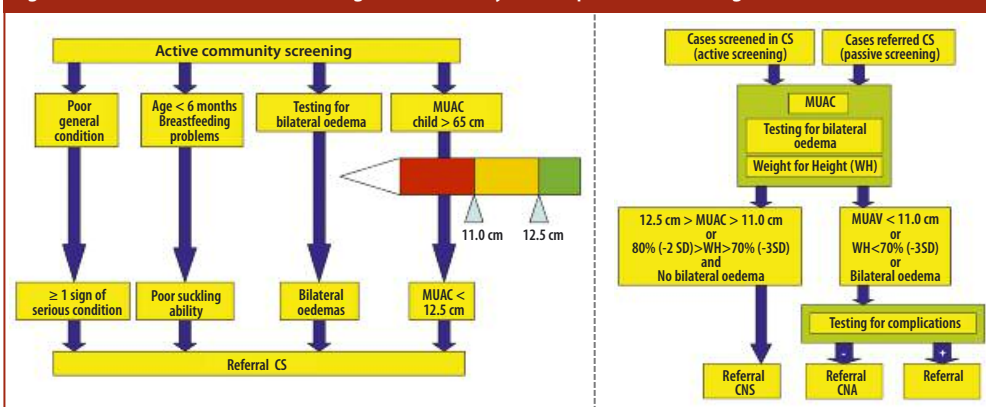


Table 2: Screening<sup>1</sup> of children and cases of malnutrition in Ratoma Commune (+ St. Gabriel)

	Children screened	MAM <sup>2</sup> cases	MAM <sup>3</sup> cases
2008	87,739	9,316 (10.6%)	1,953 (2.2%)
2009	101,197	9,371 (9.3%)	2,259 (2.2%)
2010	100,047	6,793 (6.8%)	1,393 (1.4%)

<sup>1</sup> This includes children screened at community level UCHW as well as children identified through passive screening. St. Gabriel does not have a UCHW network for active screening.  
<sup>2</sup> MUAC 110 – 120 mm or 70% - 80% of the median % weight-for-height  
<sup>3</sup> MUAC <110mm or <70% of the median weight-for-height

Mothers are advised and shown how to prepare the enriched porridge for their children at home and to give them the porridge twice a day in addition to family foods. Depending on availability (through the World Food Programme supplies), there is a weekly distribution of premixed food (Corn Soy Blend (CSB), sugar, oil, salt).

Anthropometric measurements of these children are taken and recorded weekly and a child is discharged from the programme in accordance with either option 1 or 2 (outlined above under SAM management). Although option 2 is less reliable, most facilities supported by Fondation Tdh adopt this approach.

**Programme monitoring**

This monitoring report is based on data collected over a period of 36 months (1st January 2008 to 31st December 2010) from CMC Ratoma and CMC Flamboyant. Additional data were collected over a 12-month period (1st January 2010 to 31st December 2010) from two CS in Ratoma Commune – CS Wanindara and CS Lambandji. Data from St Gabriel (Matoto commune) were not available for analysis.

A total of 7,033 cases of malnutrition in children 0-59 months were treated by the four health facilities during the period under review. Of this number, 2,343 (33.3%) presented with SAM, while 4,690 (66.7%) were treated for MAM. Of the total number of children treated for MAM, 162 (3.5%) were <6 months of age, 4,207 (89.7%) were aged 6-23 months and 321 were aged 24 – 59 months.

Table 3 shows the relevant centre, case numbers and year of data collection for the SAM and MAM cases.

*Anthropometric profile and admission criteria of the children (0-59 months) treated for MAM*

The criteria for identification of MAM used were weight for age for children <6 months and 70% - 80% of the median W/H index for children aged 6-59 months. Of the 4,690 cases identified as MAM at these centres during the reference period, 35 (0.7%) were false positive diagnoses and five (0.1%) were SAM cases that were eventually referred to CNT.

The average weight for height (W/H) percentage of the median (NCHS unisex curve) at admission was 77% for boys and girls combined (p=0.509). Applying the gender specific NCHS W/H references, the average W/H z score on admission was -2.8 for boys and -2.5 for girls (p<0.001). The same differential is found using the 2006 WHO growth standards: W/H z score -3.3 for boys and -2.8 for girls (p<0.001).

The programme criteria are based on NCHS references. For comparative purposes, the 2006 WHO growth standards were used as a test reference for analysis. Of those admitted to the programme, 5.2% were judged not acutely malnourished (W/H z score >-2), half (50.7%) of admissions were moderately acutely malnourished and 44.4% were severely malnourished based on 2006 WHO standards. With the NCHS bi-sex curves, the figures are 12.6%, 70.5% and 16.9% respectively. Thus use of the WHO Growth Standards would greatly increase the numbers of children considered severely malnourished, and reduce the number of those classified as moderately malnourished.

*Performance record of MAM case management*

In the management of MAM, the national case management guidelines of malnutrition stipulate that children should be discharged on attainment of 85% of the median of the W/H index. However, some mothers abandoned treatment before their children could attain the discharge weight. Table 4 shows the status of children on exit from the MAM management programme that reflects 5.8% of mothers of MAM children defaulted from treatment. The default rate from treatment varied little between Ratoma and Flamboyant (p=0.867). Reasons for default varied from change of location of residence (within the city) by the mother, lack of time, and return to their village of origin. The vast majority (94.1%) attained the anthropometric criterion for recovery. Five cases were referred to CNT for treatment for SAM.

*Time needed to attain target weight*

The mean time needed for a child to attain 85% of the median was 3.5 weeks. The length

of stay varied from year to year and from health facility to health facility as shown in Table 5.

The longest period of stay recorded was nine weeks in CMC Ratoma in 2010. This may be partially explained by the fact that some of the children admitted into the programme were borderline cases (MUAC 110mm or slightly above or 70% of the median % weight-for-height or slightly above). Further, some mothers did not regularly attend the twice-weekly cooking demonstration and training. The duration of stay in the programme also depends on the ability of the mother to source and prepare appropriate food for the child at home in the period between the cooking demonstration and food distribution in the health facilities. The lowest duration of stay recorded was 1 week – these were also borderline children with MUAC at 123 mm or above or 79% of the median % weight for height or slightly below.

*Average weight gain*

The average weight gain for children treated for MAM in CMC Flamboyant was 7.7g/kg/day, whereas in Ratoma, it was 7.6g/kg/day over the three year period. There were fluctuations in this average weight gain depending on the CMC and the year in question. Table 6 shows the average weight gain in the two CMC and the two CS over a period of three years

*Weight gain and length of stay in the programme*

Normally the length of stay should be inversely proportional to weight gain. However, this correlation could not be established in this study because

Table 3: Sources, case numbers and year of data for SAM and MAM cases

	2008	2009	2010	Total
CMC Ratoma	1314	1047	851	3212
CS Wanindara	0	0	509	509
CS Lambandji	0	0	302	302
CMC Flamboyant	858	1187	965	3010
<b>TOTAL</b>	<b>2172 (30.9%)</b>	<b>2234 (31.7%)</b>	<b>2627 (37.4%)</b>	<b>7033 (100%)</b>

Table 4: Status of MAM children on exit from the programme

YEAR	Status at discharge (according to National Guidelines)			Total
	Recovery	Default	Transfer to CNT	
2008	1320 (92.6%)	106 (7.4%)	0	1426
2009	1435 (95.3%)	65 (4.3%)	5 (0.4%)	1505
2010	1660 (94.4%)	99 (5.6%)	0	1759
<b>Total</b>	<b>4415 (94.1%)</b>	<b>270 (5.8%)</b>	<b>5 (0.1%)</b>	<b>4690</b>

Table 5: Duration of treatment to attain target weight in MAM children

	CMC Ratoma			CMC Flamboyant			CS Wanindara			CS Lambandji		
	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
2008	6	1	4.1	7	2	5.1	n/a	n/a	n/a	n/a	n/a	n/a
2009	6	0	3.2	7	1	3.2	n/a	n/a	n/a	n/a	n/a	n/a
2010	9	1	3.7	5	2	3.3	8	2	3.6	6	2	3.2
<b>Total</b>	<b>9</b>	<b>0</b>	<b>3.6</b>	<b>7</b>	<b>1</b>	<b>3.7</b>	<b>8</b>	<b>2</b>	<b>3.6</b>	<b>6</b>	<b>2</b>	<b>3.2</b>

Table 6: Average weight gain in two CMCs and two health centres

	2008	2009	2010
CMC Flamboyant	8g/kg/day	9.7g/kg/day	7g/kg/day
CMC Ratoma	10.7g/kg/day	5.7g/kg/day	5.9g/kg/day
CS Wanindara	-	-	6.5g/kg/day
CS Lambandji	-	-	5.8g/kg/day

there were external factors beyond the control of the programme managers despite their efforts to contain them. These factors included the regularity of mothers at the twice-weekly cooking demonstration sessions, quality and quantity of food which they gave to their children in-between the twice-weekly visits to the health facilities and episodes of illness like malaria, diarrhoea or respiratory tract infections. Efforts to contain these external factors included:

- Home visits for defaulting mothers by CHWs
- Support to mothers of children during an episode of illness
- Distribution of premixes (CSB, oil, sugar and salt) to mothers of MAM children after each weekly cooking demonstration in the health facility when available.

#### *The role of mothers in the management of moderate acute malnutrition*

The compliance of mothers to advice on the preparation of enriched porridge, feeding practices at home and their attendance record at the twice-weekly food preparation demonstrations played an important role in the favourable exit outcome of moderate acute malnutrition. Despite the challenges of increases in the prices of basic foodstuffs, many mothers were able to mobilise resources to purchase ingredients and prepare

enriched porridge for their children irrespective of supplies of premix via the programme.

#### **Conclusions**

Government health facilities when given the appropriate technical, material and equipment support can deliver good results in the management of MAM cases. On the job training and supervision, feedback on performance and regular higher level supervision of nutrition activities played an important role in the quality of results posted by the four health facilities that were considered in this study.

To many mothers, MAM is not an illness and compliance with treatment, particularly when it requires weekly presence in a health facility, is a challenge. The multi-pronged approach of community sensitisation, information and education, home visits and facility-based management of MAM children through weekly weighing and cooking demonstration adopted by Fondation Tdh and the authorities of the health facilities of the project, improved the knowledge of mothers about acute malnutrition in general, and MAM in particular.

Cooking demonstrations that included feeding MAM children in health facilities and education and counselling on good household

infant and young feeding practices were acceptable services to mothers. Compliance with treatment and the recovery rate was high and the rate of default was low. Lack of knowledge amongst mothers on appropriate feeding practices is likely to have been a significant factor in causing malnutrition in those children admitted to the MAM programme.

The role of UCHWs is pertinent even where there is a wide network of private and public health facilities. Through the active screening of children in their homes in the quarters, many children who otherwise would not have been brought to the health facility because they were not perceived as being ill by their mothers, were identified and sent to the health facility for treatment for MAM.

Finally the management of MAM in an urban setting demands a multi-pronged approach that involves trained health workers, community health workers, information education and counselling of mothers, good supervision and an adequate level of food security.

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### **Dedication to Kari Noel Egge**



Shared by two of her close friends and colleagues, Mary Lung'aho and Jennifer Rosenzweig

**A**s we went to print, we heard the sad news of the premature death of Kari Egge, whom many of you will have had the privilege of knowing and working with.

Kari graduated from Mahtomedi High School in 1985 and George Washington University in 1989. Kari earned a PhD in Public Health from Tulane University where she combined studies with HIV/AIDS-related projects. In the following years, Kari dedicated herself to international causes. Her career in humanitarian aid work spanned over 20 years with Peace Corps, Catholic Relief Services (CRS)

and the International Division of American Red Cross (AmRC). As part of CRS' Emergency Response Team, she played a key role in numerous emergencies, including the Goma volcano disaster, Afghanistan, Southern Africa drought and the tsunami in Indonesia. In addition, Kari helped train hundreds of emergency responders. Her last posting was to Thailand, working with those in countries affected by the 2004 tsunami. During her career, she made lasting friendships around the world. Kari was also a loving mother to Dylan (6) and Isabelle (8), taking every opportunity to introduce them to new cultures and environments.

There has been a huge outpouring of tributes on Facebook from a global community of colleagues and friends who supported her through her illness and are now celebrating her life. Here are just a few:

*"Kari will be greatly missed. Her enthusiasm and passion for improving the humanitarian cause will continue to inspire all of those who the pleasure to work with her."*

*"She was articulate, strong, and sensible and clearly had the experience to back up all the contributions she made."*

*"A mom who managed to become an amazing mother and still contribute to the humanitarian field for a long time. This affected me profoundly and I know I made decisions differently because of her example. It is amazing how much impact Kari's life had, not just on her immediate family who were blessed by her love and mourn her departure, but also on those of us who were merely in her presence and felt changed by her life and the way she chose to live it."*

Some lovely memories are also shared at <http://thegeographyofsoul.wordpress.com/2012/01/31/kari-noel-egge/>

There will be gatherings for her and celebrations of her life happening around the world (Minnesota, Washington DC, Kenya and Bangkok). This speaks to the incredible impact that she has had on the world.

We express our sincere condolences to her children, Dylan and Isabelle, on their loss, as well as to their father, Graham Eastmond, her parents, Robert and Deanna Egge, brother Kirk and family.

Mary Lung'aho, Jennifer Rosenzweig and all of the ENN Team

### **Dedication to Mr Abdikarim Hashi Kadiye**



Shared by Leo Matunga, Nutrition Cluster Coordinator, Somalia

**W**e extend condolences to the family and friends of Mr Abdikarim Hashi Kadiye and Mr Duale, who died on the 12th of January 2011 in Somalia. Mr Kadiye the head of Tofiiq Umbrella Development organisations (TUOS) and also, the nutrition cluster focal point for Hiran and Galgaduud, had just recently organised and chaired the Hiran-Galgaduud cluster meeting on the 10th of January 2011. Mr Kadiye was killed together with his driver, Mr Duale, in an ambush by unknown gunmen between Dhusamareb and El Dhere. This is a senseless loss of life and a

huge loss to the work of the cluster in the region. Mr Kadiye had been the nutrition focal person for Galgaduud for almost a year now, was a hard working member of the cluster, and had tried under difficult conditions to continue to organise partners meetings in the area and ensure smooth operations of the nutrition programme.

We extend our heartfelt condolences to Mr Kadiye and Mr Duale's families, friends and the TUOS staff.

Leo Matunga and the ENN Team

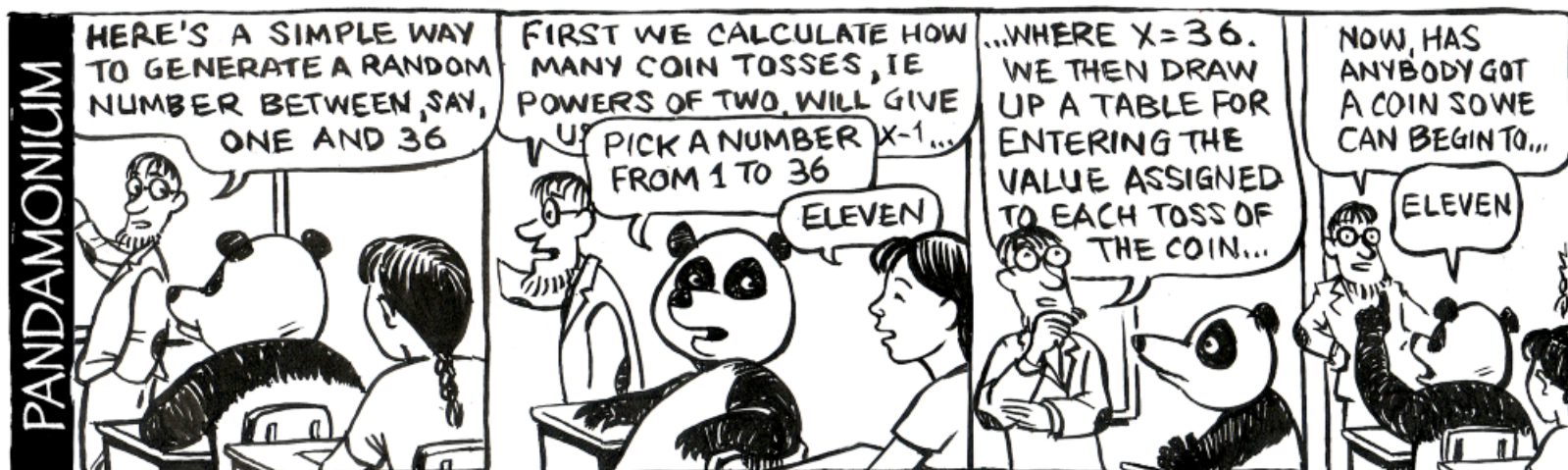
# People in aid



*UNHCR standardised nutrition survey guidelines and training regional training in Budapest, May 2011 (see news piece).*



*Participants in the UNHCR Operational Guidance workshop (see news piece this issue).*



## Invite to submit material to Field Exchange

Many people underestimate the value of their individual field experiences and how sharing them can benefit others working in the field. At ENN, we are keen to broaden the scope of individuals and agencies that contribute material for publication and to continue to reflect current field activities and experiences in emergency nutrition.

Many of the articles you see in Field Exchange begin as a few lines in an email or an idea shared with us. Sometimes they exist as an internal report that hasn't been shared outside an agency. The editorial team at Field Exchange can support you in write-up and help shape your article for publication.

To get started, just drop us a line. Ideally, send us (in less than 500 words) your ideas for an article for Field Exchange, and any supporting material, e.g. an agency report. Tell us why you think your field article would be of particular interest to Field Exchange readers. If you know of others who you think should

contribute, pass this on – especially to government staff and local NGOs who are underrepresented in our coverage.

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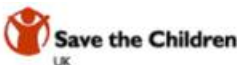
### Cover

Front: Goma Issune, a recipient at the mobile cash transfer programme. © Concern Worldwide, Niger, 2010  
Back: Amaram Moussa, mobile cash transfer recipient, © Concern Worldwide, Niger, 2010

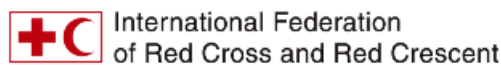
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World Health Organization



## The Emergency Nutrition Network (ENN)

grew out of a series of interagency meetings focusing on food and nutritional aspects of emergencies. The meetings were hosted by UNHCR and attended by a number of UN agencies, NGOs, donors and academics. The Network is the result of a shared commitment to improve knowledge, stimulate learning and provide vital support and encouragement to food and nutrition workers involved in emergencies. The ENN officially began operations in November 1996 and has widespread support from UN agencies, NGOs, and donor governments. The network aims to improve emergency food and nutrition programme effectiveness by:

- providing a forum for the exchange of field level experiences
- strengthening humanitarian agency institutional memory
- keeping field staff up to date with current research and evaluation findings
- helping to identify subjects in the emergency food and nutrition sector which need more research.

The main output of the ENN is a tri-annual publication, Field Exchange, which is devoted primarily to publishing field level articles and current research and evaluation findings relevant to the emergency food and nutrition sector.

The main target audience of the publication are food and nutrition workers involved in emergencies and those researching this area. The reporting and exchange of field level experiences is central to ENN activities. ENNs five year strategy (2010-2015) is available at [www.ennonline.net](http://www.ennonline.net)

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