

Network Paper

In brief

- Emergency Supplementary Feeding Programmes have been widely implemented for a number of decades as part of the standard toolkit of emergency response. Programmes are normally implemented in conjunction with general food distributions in order to address moderate malnutrition in emergencies.
- While individual implementing agencies routinely monitor and evaluate programme performance, findings are rarely published in peer-reviewed literature. There have been no large-scale studies of the effectiveness of these programmes in emergencies, despite frequent claims of poor performance.
- This Network Paper reports on a study to determine the efficacy and effectiveness of emergency SFPs, conducted in 2005–2006 by Save the Children UK and the Emergency Nutrition Network. The paper begins with a short summary of the study, explaining its rationale, scope and methodology, and setting out the key characteristics of the emergency SFP interventions it investigated. The paper then explores in depth the main findings of the study as they relate to impact at individual and population level. Finally, the paper sets out the main conclusions arising from the research, and discusses some of the implications for emergency Supplementary Feeding Programmes.

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Measuring the effectiveness of Supplementary Feeding Programmes in emergencies

Commissioned and published by the Humanitarian Practice Network at ODI

Carlos Navarro-Colorado, Frances Mason and Jeremy Shoham



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Chapter 1

Introduction

Emergency Supplementary Feeding Programmes (SFPs) have been widely implemented for a number of decades as part of the standard toolkit of emergency response. Programmes are normally implemented in conjunction with general food distributions in order to address moderate malnutrition in emergencies. While individual implementing agencies routinely monitor and evaluate programme performance, findings are rarely published in peer-reviewed literature. There have been no large-scale studies of the effectiveness of these programme in emergencies, despite frequent reports of poor performance in the 'grey' literature, and SFPs are still very much the norm where levels of malnutrition are seen to reach emergency thresholds. This may reflect a number of factors; such programmes do not, for instance, require a high degree of specialist expertise compared to programmes like therapeutic feeding of the severely malnourished, making them relatively easy for agencies to roll out, and donors make few demands in terms of evidence of impact, meaning that resources are easily accessed.

SFPs explained

There are two types of emergency SFP. *Targeted SFPs* aim to prevent those who are already moderately malnourished from becoming severely malnourished by providing a food supplement to the general ration. For this type of programme to be effective it is essential that an adequate general food distribution for the whole household is in place so that the ration is not shared with other members of the family. If this is not the case then there is a substantial risk that the malnourished individual does not receive enough of the supplement to recover from moderate malnutrition. *Blanket SFPs* aim to prevent widespread malnutrition and related mortality in nutritionally vulnerable groups by providing a supplementary ration for everyone in the vulnerable demographic group, i.e. individuals are targeted on the basis of whether they belong to a specific age/gender/physiological group, irrespective of whether they are malnourished or not. Blanket SFPs are usually implemented where prevalence of malnutrition is already very high, or where many people in a particular group are at risk of becoming malnourished. The primary target group for both types of programme are children under five years of age, although pregnant and lactating women are also often included.

SFPs can be implemented as dry take-home feeding or on-site feeding. Take-home rations are normally provided weekly or fortnightly, while on-site feeding takes place each day and usually comprises two meals. Rations for both on-site and take-home feeding are usually based on a premix prepared from blended food or cereal flour and other ingredients, usually including sugar and a vegetable oil to increase energy density, and an additional protein

source, often a legume or pulse. Emergency SFPs are often (but not always) implemented in conjunction with programmes targeted to the severely malnourished, such as Therapeutic Feeding Centres (TFCs) or Community Managed Treatment of Acute Malnutrition. Admission to programmes is normally based on nutritional status, where weight and height measurements are compared against international growth standards in reference tables.

There is substantial controversy over the efficacy and appropriateness of SFPs in emergency contexts.¹ Critics have raised questions about their appropriateness in the absence of adequate general rations (a frequent occurrence during emergencies) and the relative cost-inefficiency of setting up a separate infrastructure from the general ration programme in order to allocate relatively small quantities of food to vulnerable groups. Rations may be as little as 700 kcals per enrolled beneficiary. There has also been criticism of the appropriateness of rations distributed through SFPs, on the basis that other nutritional products would have a far greater impact on weight gain and physiological health. Some agencies have called for the discontinuation of emergency SFPs and the introduction of blanket distribution of nutritional products like Ready to Use Therapeutic Foods (rather than Corn Soy Blends) to address moderate malnutrition. One study in the Great Lakes region of Africa found that the major immediate causes of malnutrition were poorly understood, and there was little justification for implementing SFPs.²

Given these weaknesses, one major player, the ICRC, has for many years implemented a policy whereby the general ration has been increased above that of other international agencies (2,400 kcals per person per day, as opposed to the 2,100 kcals recommended by other agencies) in order to obviate the need for a separate feeding programme. In the main, however, criticism of emergency SFPs has not prevented many agencies from implementing them, and there has been no attempt to collate the occasional evaluations of these programmes into a coherent body of evidence. There has been no credible overall assessment of the impact or effectiveness of these programmes. Although implementing agencies and donors have conducted evaluations of a small percentage of programmes, methodologies have been variable, making comparison difficult. One review of published evidence, looking at five data sets between 1980 and 2004, found just 15 studies.³ The review also found that the quality of these studies was generally poor, and their findings equivocal.⁴

This Network Paper reports on a study to determine the efficacy and effectiveness of emergency SFPs. It was conducted in 2005–2006 by Save the Children UK (SCUK) and the Emergency Nutrition Network (ENN). The study

consisted of a retrospective analysis of SFPs implemented between 2002 and 2005, comprising 82 programmes implemented by 16 agencies in Africa, Asia and Central America. The paper begins with a short summary of the study, explaining its rationale, scope and methodology, and setting out the key characteristics of the emergency

SFP interventions it investigated. The following two chapters explore in depth the main findings of the study as they relate to impact at individual and population level. Finally, the paper sets out the main conclusions arising out of the research, and discusses some of the implications for emergency SFPs.

Chapter 2

The study

While the majority of emergency SFPs conduct routine monitoring of key programme outcomes, there has been no attempt to conduct a comprehensive collation and analysis of the findings of this project data. This lack of a comprehensive overview and critical analysis of this form of programming is surprising and potentially worrying. At the beginning of the 1980s, Beaton and Ghassemi conducted a large-scale multi-country review of the impact of SFPs in non-emergency situations.⁵ They concluded that these programmes had little impact in terms of growth performance, a finding that arguably changed the way these programmes were perceived, and contributed to a subsequent reduction in their use. A similar review of emergency SFPs is long overdue.

In this context, the ENN and SCUK convened a group of humanitarian agencies in order to define the scope and process of a study into emergency SFPs. The objectives of the study were defined as:

1. To describe the characteristics of emergency SFPs implemented in recent years.
2. To assess the effect of emergency SFPs on children enrolled in the programmes (efficacy), and to look at contextual factors influencing outcomes.
3. To assess the impact of emergency SFPs at population level (effectiveness).
4. To describe and compare the costs of SFPs in different emergency contexts (cost-effectiveness), and to compare these costs with those of other types of intervention with similar objectives.

Criteria for programmes and data to be included in the study were as follows:

- SFPs implemented in acute and chronic emergencies.
- Main target group comprises children under five years of age.
- The objective of the SFP includes the prevention/treatment of malnutrition (using Weight for Height and/or micronutrient deficiencies as both eligibility criteria and measures of outcome).
- Cover both targeted and blanket SFPs.
- Implemented between 2002 and 2005 (irrespective of whether the SFP existed before or after these dates).

Programmes specifically addressed at HIV-positive patients were not considered for this review. Data was not collated or analysed on pregnant and lactating mothers or other age groups attending the SFPs. The study was conducted over two years, in 2005–2006.

Methodology

The study was led by SCUK and ENN, with the support of a Research Advisory Group of experts to help with the

methodology and analytical findings.⁶ The review was funded by OFDA, DCI, SCUK, ACF, Oxfam and SCUS. For the purpose of the study, an SFP was defined as:

one or more Supplementary Feeding Centres or Units – fixed or mobile – established in a defined regional area, addressed to a specific population group and managed by the same structures – even if this involved several actors working in coordination.

Participating agencies were asked to identify the SFPs that fitted the predefined criteria, and to select and send in reports to the study. The reports received included needs assessments, funding proposals, nutrition protocols, internal reports, internal and external evaluations, intermediary and final donor reports, nutrition surveys and internal monthly reports from feeding centres. A standard form was developed to include all the variables relevant to the study. During the process of data extraction, each programme was summarised using these forms. The variables were then coded and entered into the final database. All data extraction was conducted by the same person. The summary forms also provided a comprehensive picture of the programme. These forms included a description of the main characteristics of the programme, problems encountered and the agency's own assessment of performance.

A substantial effort was made to recover all variables of interest for the study. However, this was often not possible. On numerous occasions, important information was not included in the reports. In these cases, the agency was contacted to determine whether they could furnish missing information. Although this helped to identify some relevant reports, in many cases requests for extra information were not met. Data extraction took much longer than originally envisaged, reflecting the wide variety of reports obtained, their different formats and the need to check and often recalculate numerical information. Only four programmes were excluded from the study. One reported an 'unrealistic' recovery rate of 100%, while three others were compilations of several NGO programmes where contexts and protocols were mixed without adequate explanation.

After selection of the programmes, the database comprised 82 programmes implemented by 15 organisations. Only 67 of the 82 programmes included in the study supplied statistical information on the *outcomes* of the programme. No data on individual children was obtained. The programmes included in the study were voluntarily submitted by the implementing agencies. As such, they cannot be considered a representative sample of SFPs implemented during the period. This is discussed further in chapter 4.

All statistical information was checked and validated, specifically with regard to the following points:

- age groups covered by the data;
- numerator used for the calculation of percentages of exits;
- minimum level of aggregation in terms of time (monthly, quarterly or only figures for the duration of the project) and location (by centre, programme or region);
- whether information presented as percentages was available as raw data (to allow recalculation of rates); and
- gaps in information for a specific month or centre.

Information on population mortality and malnutrition rates was checked to clarify the indicator used, the population to which the data referred, the sample size, the method used to collect the information and the presence of baseline data for comparison. When possible, the actual nutrition survey report was used. Finally, additional information was obtained from Reliefweb, ALNAP and Refugee Nutrition Information System, for example to identify the location of programmes when the names of districts and regions were unfamiliar, and to add information on the basic contextual characteristics of certain programmes, where this information was lacking in agency reports.

Some agencies only reported recovery rates, mortality rates and defaulting rates. This may be because, while the Sphere Minimum Standards stipulate that reported exits should also include ‘those who are referred’, there is no indicator or target given for this category of exit. Theoretically therefore, 50% of a programme’s patients could be sent to TFCs because they are losing weight, yet the programme could still meet the Sphere standard of 75% of patients recovering. While many agencies report on non-response, many do not. In cases where data on ‘non-responders’ was not reported, recalculations from the primary data (which was available for the majority of projects) were undertaken in order to derive rates of non-response. Children transferred to hospitals or TFCs, those that were discharged before recovery and those where treatment failed are reported in different ways by each agency. In order to standardise data for the study these cases were all aggregated into one category for each SFP, labelled ‘non-response’. Average rates of weight gain and average duration of stay in the SFP centre among recovered children are usually presented by month (or quarterly). It should be noted that average weight gain and duration of stay are typically reported only for recovered children, and that in many respects this biases results towards positive outcomes.

Only seven programmes provided details of costs incurred (five of these were from the same organisation). Fifteen other programmes reported the budget, nine of them as a single figure for the reported period and the other six with a breakdown of budget lines. Unfortunately this information was often incomplete (e.g. referring to only one of several

Box 1

Definition of outcomes

Recovery: A beneficiary that reaches the programme-defined discharge criteria.

Defaulter: A beneficiary that is lost to the programme before reaching discharge criteria, and whose actual status (dead, recovered, other) is not known. Typically, two weeks of absence are required before classifying the child as a defaulter, though this varied between programmes.

Death: A beneficiary lost-to-follow-up who is reported dead by the family or by home visitors.

Non-response: For the purposes of this study, this category includes:

- patients transferred to a TFC due to a deterioration in their nutritional status;
- patients transferred to hospital due to a medical complication independent of their nutritional status; and
- patients who remain in the programme but do not reach discharge criteria after a given length of time (typically 16 or 24 weeks, though this varied).

Occasionally, patients ‘discharged’ in irregular ways may be included in this group, for example a patient admitted by error. This subgroup is assumed to be negligible in most, if not all, of the SFPs.

There is some variation in the criteria used by each SFP to define recovery and defaulting. The analytical limitation this introduces into the study cannot be overcome in the absence of data on the outcomes of individual patients.

donors for the programme, or to one period and not others). Furthermore, the budget data usually included the costs of other programmes. Given the poor quality of the cost data and the complexity of trying to derive ‘better’ data, it was decided to abort Objective 4 of the study (to describe and compare the costs of SFPs in different emergency contexts). Research protocols are being developed by an inter-agency steering group led by ENN and SCUK to compare the cost-effectiveness of different methods (including emergency SFPs) for the treatment and prevention of moderate malnutrition in emergencies.

Reporting weaknesses

An unexpected number of information gaps, inaccuracies, statistical errors and other inappropriate uses of information and data were found in the reports. This was not only a constraint to the study, but also raised concerns about the quality of the interventions, the accountability of the agencies carrying them out and their capacity to learn from experience. It was exceptional to find a programme

document which provided comprehensive information on inputs, context, design and outputs. Contradictions in programme activities were common, and it was often difficult to follow the logical linkages between assessments, interventions and results.

Basic information, on the location of the programme and implementation dates, for instance, or the problem being addressed and the reasons why a programme was started, was frequently insufficient, programme objectives were often poorly articulated and it was unclear if the supplementary feeding programme was supplementing a basic or general ration, as there was often no description of other food sources. Programme protocols were also poorly described. Data from screening activities was often quoted as if it was surveillance data, while it was unclear whether malnutrition rates referred to weight for height or some other indicator, or if it was a percentage of the median or Z-score figure. Information was also inadequate regarding how the data was generated – from a cluster survey, for instance, or a purposive sample.

Many of the final reports examined in this study, and in particular those addressed to donors, place more emphasis on the volume of the activity implemented than on results achieved. This is justifiable to the extent that information is needed for the planning and evaluation of logistics and financial resources. However, it is not a substitute for reporting programme results.

Good reporting practice

Not all reporting systems were as problematic as this analysis implies. Two good examples of reporting practice deserve mention:

- Action Contre la Faim uses a reporting format for SFPs that is similar in all programmes the network implements around the world. This format has separate lines for each age group and can also be adapted to

include information specific to a particular programme. Variations of this format have been adopted by other organisations. An example of the reporting format is given in Annex 1.

- Valid International uses a spreadsheet table format, in which the data of each centre for each month is entered as a single observation. A system of pivot tables allows the user to extract statistics on demand. Setting this system up can be complex and needs some knowledge of spreadsheets, but once it is in place it is an ideal way of managing data.

Main characteristics of the programmes reviewed

Eight of the SFPs were in Asia, one in Central America and all the others in Africa. The distribution of SFPs in the sample reflects the main crises in which humanitarian assistance was delivered between 2002 and 2005. Most of the emergency SFPs were implemented in insecure areas affected by war, and most were established in conjunction with a therapeutic feeding programme for the treatment of children with severe malnutrition, and with general ration support. For the programmes that provided statistical information on admissions and entries, the periods reported ranged from two months to almost five years. The median was just below one year. Nine programmes covered periods longer than three years. Only five programmes seem to have been set up at the onset of the crisis. The majority of the SFPs were implemented with international staff, in some cases in collaboration with local health structures or NGOs. In a small number of cases explicit programme objectives included integrating SFP structures into the prevailing health system. Programmes varied widely, from national programmes with hundreds of centres to small programmes with just one site. Some programmes were short-term interventions, which were closed and reopened as the need arose.

There was a marked lack of consensus over the objectives of the SFP. The stated aim of some organisations was solely to treat moderate malnutrition; for others, preventing severe malnutrition or reducing population malnutrition rates were cited as goals. Other operational objectives were also commonly cited, such as improving the quality of care for malnourished children (six programmes), improving nutrition and hygiene education (three programmes), and building capacity, improving health and nutrition practices and increasing utilisation of local health services (one programme). Twenty-five programmes did not cite objectives.

Table 1 summarises the protocols of SFPs. Only two of the programmes reported were blanket feeding programmes. One of them admitted all children from six months to 12 years, the other admitted all children from six to 59 months, plus pregnant women and nursing women with a child below six months. Two programmes combined periods of targeted distributions with short periods of blanket feeding, depending on the availability of foodstuffs and other programme constraints.

Box 2

Statistical problems

Out of the 67 SFPs that provided outcome statistics:

- 15 provided percentages without the actual numbers;
- 16 only included 'recovery', 'defaulter' and 'death' in the denominators;
- 29 included children being followed up after TFC recovery, mixed with children admitted directly into the SFP;
- 20 did not specify whether the children being followed up after TFC recovery had been included in the statistics;
- 17 mixed several age groups in the statistics; and
- 13 did not specify the age group to which the statistics referred.

Table 1: Summary of information on protocols of SFPs

	Yes
<i>Type of feeding</i>	
Blanket feeding	2
Targeted feeding	80
Dry (take-home rations)	80
Wet (on-site feeding)	0
<i>Frequency of distributions</i>	
Twice per week	2
Weekly	28
Fortnightly	14
Monthly	4
Weekly or fortnightly	7
No information	27
<i>Recovery criteria</i>	
WFH > 85% and MUAC > 120mm	32
Above criteria to be attained for 2 consecutive visits	19
MUAC >/-120mm	16
Other criteria	6
No information	44
<i>Other activities</i>	
Family ration	24
Nutrition education	53
Community screening	52
Defaulter tracing	45
Medical protocol explained	45

Most programmes also admitted pregnant and lactating women, while some admitted age groups above 59 months, including adults and older people. Data on these beneficiaries was not systematically collected for this study.

Where duration of treatment exceeded a certain period without recovery (or other outcome) children would be discharged and categorised as ‘non-recovery’ or ‘failure of treatment’. Two organisations set a limit of 16 weeks of treatment and one 12 weeks. Another programme set this limit at 16 weeks for children who had reached a Weight-for-Height of 80%, and 24 weeks if the child had not reached this cut-off point.

In all the SFPs, beneficiaries visited the centres for follow-up and to collect rations. These visits took place once a week in 28 programmes, and once every two weeks in 14 programmes. Monthly visits took place in four SFPs. The

food distributed followed different recipes. Most were based on the use of fortified blended foods, mainly CSB (or UNIMIX), and locally produced versions of CSB (UNIMIX, FAMIX, Likuni Phala). These recipes usually included corn flour, soya beans or similar foodstuffs. In most situations this was complemented with sugar and vegetable oil, as recommended in protocols, with the exact quantities varying from one programme to another. Except for a recipe based on rice and peas, all the others were distributed as a premix (rather than each commodity being distributed separately), as recommended in most guidelines.

Often, and for a variety of reasons, one product would be replaced temporarily, or the quantities used adjusted. On other occasions, the complete recipe was reviewed and changed. This happened in at least 14 programmes. Although explanations are not always available, the most frequent cited was unavailability of one of the products due to pipeline or delivery problems. Two programmes in Afghanistan changed the protocol more than five times in seven months. These changes seem to be related to pipeline and delivery problems, as well as an attempt to adapt products to local preferences.

Twenty-four programmes included a ‘protection ration’ or ‘family ration’. The objective of a family ration is to increase the likelihood that the supplementary food will be consumed by the beneficiary child. In two cases where the ‘family ration’ had to be interrupted, there was a significant decrease in attendance rates in the centres, and a resulting increase in the number of defaulters as well as reduced admissions of new cases. This could indicate that the ‘family ration’ was playing a much more important role than initially intended, or at least that attending the weekly distributions was not considered sufficiently valuable by many families if they only received small amounts of food for one family member.

The protocols for SFPs usually include the distribution of nutrition supplements in the form of iron and folic acid tablets to children above one year of age, and Vitamin A. Iron and folic acid distribution was reported by 34 programmes, and Vitamin A by 42 programmes. In addition, 43 programmes gave Mebendazole (for deworming) to all children above one year of age admitted to the programme. Some 50 programmes included nutrition education and screening. Most programmes mentioned ‘home visiting teams’. Forty-five also used these teams for defaulter tracing, in an attempt to identify absconding patients and to bring them back to the programme. No organisation reported the success or failure of this activity.

Box 3**Selected SFPs reviewed in the study**

In **Afghanistan**, programmes in the Panjshere Valley and the Shamali Plains were inaccessible during winter, with recurrent supply problems. Mobile units were used to reach the population, but there were very high defaulting and non-recovery rates. There were no facilities for treatment of Severe Acute Malnutrition (SAM). A programme in Mazaar, implemented largely to prevent further population displacement, utilised SP450 which appeared more acceptable than CSB. High rates of default were related to huge distances and seasonal factors. A programme in Kabul involved the integration of 15 SFP centres with primary health care services, and was coordinated with TFP, hospitals and water and sanitation programmes. However, despite good access the programme was frequently affected by changes in the food distributed, and coverage was low.

In **Burundi**, one programme in Bujumbura Rural had high defaulting levels due to attacks by armed groups. Another programme in Cibitoke implemented by the same organisation was handed over to the local authorities, with the NGO assuming responsibility only for training and supervision. One SFP with 13 centres in Karuzi was implemented in conjunction with a general ration programme for the most vulnerable part of the population.

In the **Democratic Republic of Congo**, programmes in Kivu suffered from high levels of insecurity and population displacement, with teams evacuated on a number of occasions. The programme was twinned with Therapeutic Feeding Programmes (TFP) but there was no General Food

Distribution (GFD). Another programme in Kinshasa was implemented in partnership with local organisations and churches. A programme in an isolated mining area struggled to get off the ground, and only two of the planned nine centres were opened. Admissions were much lower than expected, and recovery rates were initially very disappointing.

In **Kenya**, a number of organisations implemented SFPs for pastoralist populations in the north in response to drought, chronic poverty and periodic insecurity. Programmes were usually linked to GFDs and health services. One programme had been part of a long-term livelihood programme, but due to a severe 'hungry season' was converted into a 31-centre SFP for the duration of the hungry period.

In **Eritrea**, a 31-centre programme set up in response to drought and chronic poverty was combined with a growth monitoring and promotion programme. It was implemented in conjunction with a GFD, but there was no therapeutic care.

A programme in **Tajikistan** was set up for rural and urban residents, where poor hygiene and infectious diseases were one of the main suspected causes of malnutrition. The programme was integrated with TFP and health structures, but there was no GFD.

A 16-centre programme in **Myanmar** was established to bolster the food security of poor and politically excluded minority groups. Distributed foods included rice, peas, sugar and oil.

Chapter 3 Programme efficacy at the individual level

Sixty-seven of the programmes reported outcomes for enrolled children.⁷ The number of beneficiaries per SFP in this study ranged from 60 to 34,072, with a median of 2,898.

Recovery rates (including default, mortality and non-response)

Figure 1 presents the recovery statistics for the three categories of exit defined in Sphere (recovered, defaulters and deaths). Figure 2 presents a recalculation of the same statistics including 'non-response' (either as reported by the programme or recalculated for the study).

When calculated following Sphere recommendations, 63.9% of the SFPs obtained a recovery rate equal to or above 75% for the whole period of operations reported. The target recovery rate set by Sphere is that 75% of children should recover. Following the addition of non-recovery exits, however, only 39.3% of SFPs reached this threshold of quality. Overall, only 25 SFPs (41%) met all Sphere indicators (i.e. recovery, default and mortality). If the raw data from all the programmes is pooled (376,179 beneficiaries), a total of 260,034 children recovered (69%), 67,366 defaulted (17.9%), 1,763 died (0.46%) and 47,016 (12.5%) were classified as non-responders to treatment.

The apparent discrepancy between the low number of SFPs that met all Sphere standards and the fact that, when pooling all the data together, 69% of children recovered can be explained by the finding that a small number of SFPs which contributed many children to the study had good recovery rates. However, the relationship between size of programme and high recovery was not shown to be statistically significant.

Table 2 shows that most of the variation in recovery rates is due to the rate of defaulting (as it varies more between programmes than the other rates). Rates of 'non-response' also play an important, though less significant, role.

Significance of default

In order to explore the actual effect of the protocols and intervention design on the patients who remained in the programme (non-defaulters), Figure 3 presents a recalculation of the statistics after defaulters are excluded.

Forty-five SFPs (73.8%) have a recovery rate equal to or above 75%, after excluding defaulters. The median recovery rates among patients who stayed in the programme is 86.5% for the 61 SFPs considered.

Figure 1

Percentage of exits broken down by recovery, mortality and default

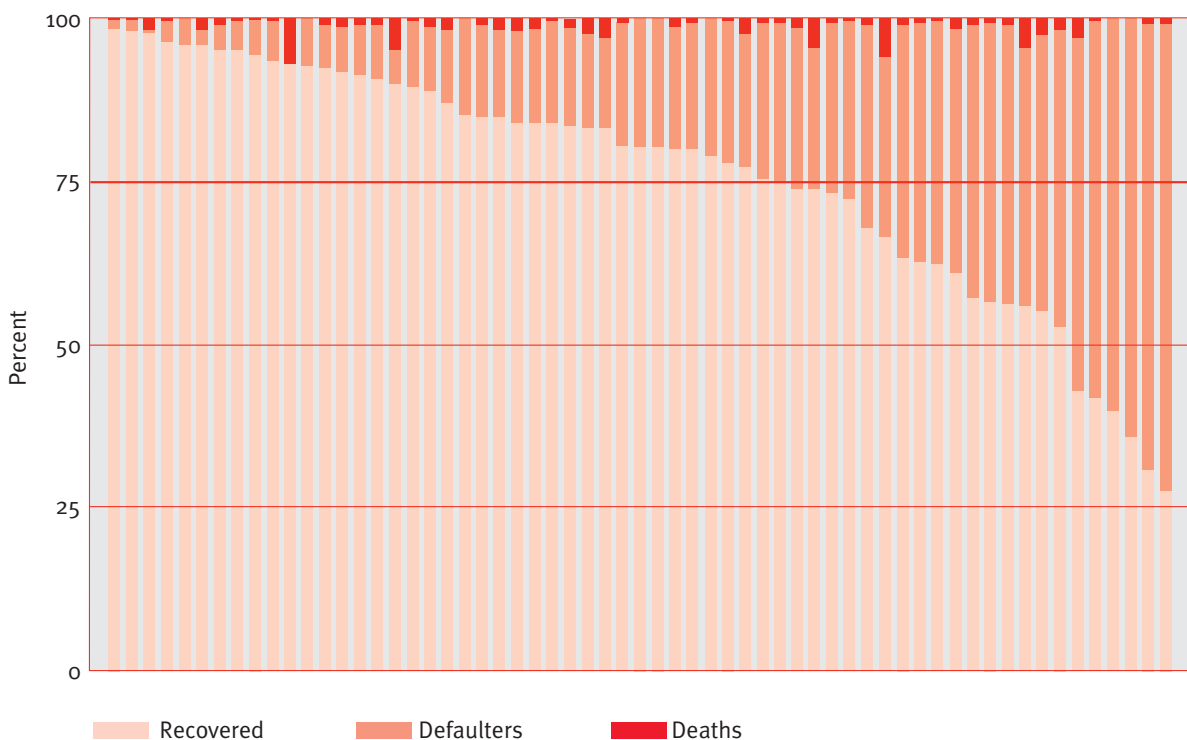


Figure 2
Percentage of exits including ‘non-response’

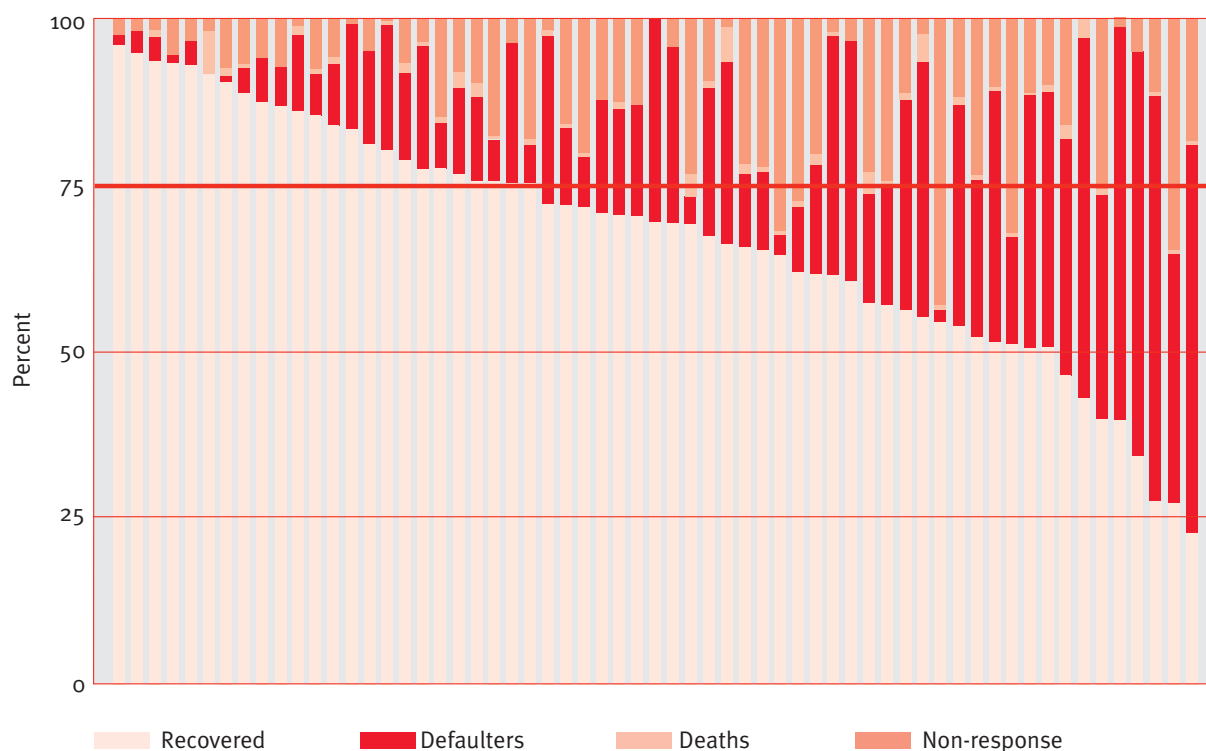


Table 2: Distribution of exit statistics for 67 SFCs

	Median	Inter-quartile (Iq) range	Size of Iq range	Range
Percent recovered	69.6	55.0–80.2	25.2	22.8–96.1
Percent defaulted	16.4	6.6–29.0	22.4	0–61.2
Percent deaths	0.4	0.05–1.1	1.05	0–6.7
Percent ‘non-response’	10.1	3.6–18.0	14.4	0–43.2

In the majority of programmes (65%), the rate of defaulting is higher and varied more from month to month than the rate of non-response. The monthly mortality rates were very low in all programmes, and varied little. The monthly variation in defaulting rate seems to be influenced by seasonal factors, with higher rates observed in the cultivation and harvest months, when access to programmes is reduced due to rains, flooding or snow, or where there are sudden increases in insecurity. In some exceptional months, default rates exceeded 80%.

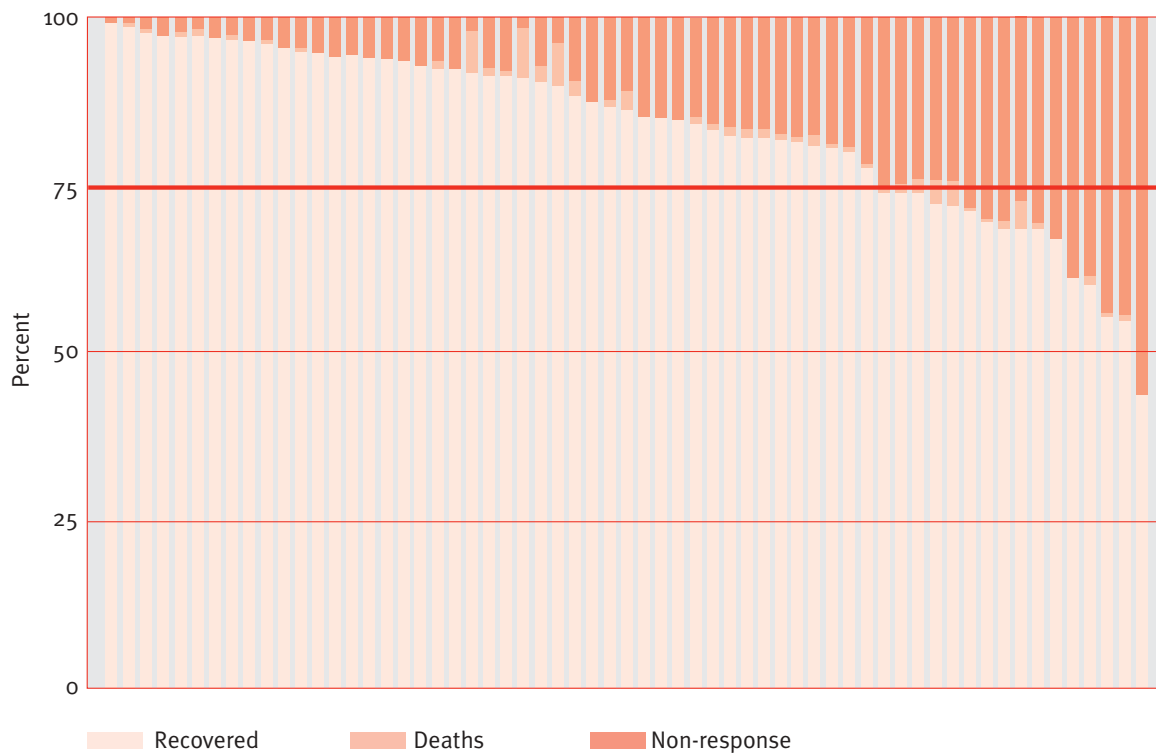
Weight gain and length of stay in feeding centres

Average weight gain and average duration of stay in a centre are usually calculated in SFPs among recovered children who are discharged, as a way of assessing the

quality of recovery and identifying potential problems with feeding protocols and their implementation. These two indicators are usually calculated each month from the total number of children who recovered during that month, or a sample of them.

A relatively small number of programmes reported weight gains and duration of stay. Table 3 presents summary statistics among recovered patients for the total period reported by SFPs.

When analysed by month (rather than for the total period reported), the median average weight gain ranges between 1.9 and 4.5 g/kg/day. With a few exceptions, the rates of weight gain do not seem to vary significantly from month to month. The median of monthly average duration of stay in the programme ranges from 48 to 91 days.

Figure 3**Reassessment of percentages without defaulters****Box 4****Understanding defaulting**

Defaulting is really ‘loss to follow up’ or ‘unknown outcome’. Undoubtedly, some beneficiaries stop attending the SFP because their nutritional status improves and other activities take priority. Other patients may drop out even if they are not recovering due to problems of access or the opportunity cost involved. Among this group some may have recovered spontaneously thanks to alternative sources of food, while others may have deteriorated and become severely malnourished or die. So, how bad is the rate of defaulting? Surprisingly, despite the presence of many systems to trace defaulters and ascertain their status, almost no reports answered this question. The answer probably differs from place to place and must fluctuate with seasons, access and competing priorities for the family. More rigorous reporting of ‘causes of defaulting’ and the percentage of defaulters who recover versus the percentage who do not would greatly enhance understanding of the dynamics of SFP attendance, and consequently the appropriateness and quality of programmes.

Table 3: Summary distribution of exit statistics for recovery patients

Recovered children	N	Median	Iq range	Range
Weight gain (g/kg/day)	19	2.7	2.3–2.9	1.8–6.8
Duration of stay (days)	17	67.5	58.4–75.1	44.9–86.7

Note: The statistics presented in this table have been calculated assuming that the number of children discharged recovered did not change from month to month. This assumption is only an approximation for most SFPs.

Programme performance by country

Table 4 presents the distribution of recovery, defaulting and non-response rates by country (grouped by regions). The median defaulting rate is above 25% in Angola, Chad, Ghana, Uganda and Afghanistan. There is a statistically significant difference between the default rates within the countries ($p = 0.041$). A non-response rate above 25% was observed in Liberia. Other countries with high non-response rates were DRC and Somalia. However, if all the countries are grouped together, the difference is not statistically significant ($p = 0.172$). Seven countries have a recovery rate above 75% (Niger, Sierra Leone, Eritrea, Ethiopia, Kenya, Myanmar and Tajikistan), but the differences are not significant ($p = 0.0781$).

Box 5**Different approaches to treating mild and moderate malnutrition**

A controlled trial (stepped-wedge design) in Malawi in 2005 compared the use of RUTF (peanut paste) and CSB in promoting weight and height gain in children 10 to 60 months old with mild malnutrition (weight for height between 80% and 85% of NCHS standard). Fifty-eight percent of the children receiving RUTF attained a weight for height above 90% in eight weeks, compared to only 22% in the CSB group. Rates of weight gain were 3.1 and 1.4 g/kg/day respectively (both differences were statistically significant). Drop-out rates were 2% for children receiving RUTF and 5% for those in the CSB group. No other children reached the discharge criteria. Although the admission and discharge criteria used in this study are not those employed in standard SFPs, the results highlight that, although the substitution of CSB with a nutritionally 'richer' product appears to increase efficacy, this may not be sufficient to attain acceptable recovery rates, and other modifications to increase the acceptability and appropriateness of the programme may be necessary.⁸

In an earlier pilot study in Rwanda in 1994, Golden and

Grellety replaced CSB with SP450 – a specially designed food aimed at providing optimum nutrients for the treatment of moderate malnutrition – in a wet-feeding SFP (usual admission and discharge criteria were applied). This intervention appeared to lead to a decrease in defaulting rates from 39% to 9%, and an increase in recovery rates from 51% to 81% (mortality and transfer rates did not change significantly). The rate of weight gain increased from a median of 1.2 to a median of 5.1 g/kg/day. Although these preliminary results have not been further explored, they invite consideration of the effect of nutritionally 'richer' products, not only on the quality of recovery but also on the acceptability of the programme.⁹

There is a need for further research on the impact of food supplements like RUTF and SP450 as well as newer ready to use supplementary foods on recovery rates and weight gain. Studies will need to take into account the acceptability of the product, its nutritional characteristics, causes of 'non-response' (including underlying disease), financial costs and the opportunity costs to carers.

Table 4: Exit statistics by country

	SFPs	% recovered		% defaulters		% non-response	
		Median	Iq range	Median	Iq range	Median	Iq range
Angola	10	66.9	38.7–90.6	29.5	3.8–38.4	3.4	1.9–10.1
Burundi	6	72.5	70.3–79.8	16.7	13.8–17.2	10.7	6.4–12.1
DRC	10	61.8	52.2–81.4	15.1	9.9–16.4	22.4	7.1–25.3
Malawi	2	65.9	—	19.6	19.1–20.1	13.6	13.5–13.8
Chad	2	45.1	22.8–67.5	40.4	22.3–58.5	13.9	9.3–18.5
Ghana	1	66.3	—	27.1	—	0.9	—
Guinea Conakry	1	84	—	9.3	—	5.8	—
Liberia	1	64.4	—	3.6	—	31.9	—
Niger	3	78.9	69.2–84.1	5.5	4.1–13.2	10.4	6.3–23.2
Sierra Leone	1	93.4	—	1.2	—	5.3	—
Eritrea	1	77.4	—	18.6	—	3.6	—
Ethiopia	7	80.2	76.9–88.8	7.2	4.2–13.0	7.4	3.2–14.9
Kenya	1	96	—	1.5	—	2.3	—
Somalia	2	65	54.6–75.5	11.2	1.4–21.0	23.4	3.5–43.2
Sudan	10	61.1	39.5–70.5	22.3	12.5–37.5	14	9.4–22.2
Uganda	3	56.3	45–83.6	29	15.8–31.7	11.4	0.5–24.0
Afghanistan	4	53.2	51.1–57.8	38	37.0–38.5	6.7	2.7–10.5
Myanmar	1	86.2	—	11.4	—	1.1	—
Tajikistan	1	75.5	—	6.4	—	17.5	—

Despite these observations, it is important to note the differences in all the rates within countries (large inter-quartile rates) and regions. This suggests that the country context is not necessarily the main determinant of recovery

rates. The low number of SFPs per country in some instances prevents further exploration of this assertion. It is worth noting that, for countries with several SFPs, the defaulting rates are consistent (narrow inter-quartile

Table 5: Effect of various factors on SFP efficacy

	Recovered			Defaulters		Non-response		Weight gain			Duration of stay		
	SFPs	Median	Iq range	Median	Iq range	Median	Iq range	SFPs	Median	Iq range	SFPs	Median	Iq range
General ration													
Yes	32	68.4	69.2–84.0	16.6	6.5–28.1	9.8	4.6–17.1	10	2.9	2.9–3.9	9	59.7	52.8–67.5
No	13	57.4	51.2–65.6	21	11.2–36.2	10.8	3.5–22.7	6	2.45	2.1–2.7	6	75.9	68.2–81.7
Kruskal-Wallis Chi2		1.967		1.106		0.662			5.188			6.125	
p		0.168		0.292		0.415			0.227			0.013	
Time from main crisis													
5 months	4	41.3	25.2–65.3	48.6	29.9–59.8	7.2	2.8–14.7	—	—	—	—	—	—
1st year	12	62.9	51.1–71.0	20.3	11.9–36.0	15.3	10.5–21.2	4	2.9	2.5–3.4	4	54	46.6–68.2
2nd year	5	65.3	50.7–81.4	20.1	13.9–37.5	10.4	10.1–13.5	2	3	1.9–4.1	2	67.5	52.8–82.3
3rd year	5	66.5	54.0–77.4	19.1	18.6–33.3	6.8	3.6–11.5	—	—	—	—	—	—
4th year or more	3	76.9	69.2–78.9	13	4.1–13.2	8	6.3–23.2	—	—	—	—	—	—
KW Chi2		4.459		8.499		4.927			—			—	
p		0.347		0.075		0.295			—			—	
Existence of TFP													
No TFP	5	66.4	61.7–7.4	27.1	18.6–35.9	2	1.1–2.2	2	2.6	2.5–2.9	1	67.5	—
Inpatient TFC	51	70.5	54.6–83.6	16.2	6.3–26.3	10.2	4.7–20.0	17	2.7	2.3–2.9	16	66.2	58.1–75.9
OPD	11	66.5	50.7–76.9	18.4	12.5–38.2	10.8	8.0–13.8	—	—	—	—	—	—
KW Chi2		0.791		3.167		8.424			—			—	
p		0.673		0.205		0.015			—			—	
Chronic situation													
No	40	73.7	64.6–84.1	13.1	5.7–21.6	9.7	3.5–15.7	11	2.9	2.6–3.9	10	61	57.7–67.5
Yes	27	61.8	51.2–74.2	19.1	12.5–37.5	10.2	4.3–22.9	8	2.3	1.9–2.7	7	75.1	68.2–82.3
KW Chi2		6.569		4.89		0.569			4.97			5.038	
p		0.01		0.027		0.451			0.029			0.024	
Displaced population (refugees or IDPs)													
No	30	76.2	66.5–84.1	13.5	5.7–20.1	7.2	3.5–13.5	4	2.2	1.9–4.7	3	75.1	64.3–82.3
Yes	37	61.9	51.2–71.9	17.2	11.4–35.6	12	4.8–22.2	15	2.9	2.4–3.0	14	64.9	57.7–71.2
KW Chi2		8.968		2.984		3.577			0.81			1.587	
p		0.003		0.084		0.059			0.368			0.207	

range), i.e. Afghanistan (median 38%) and Burundi (median 16.7%). The same is not true for non-response or recovery rates, suggesting that the country (or the characteristics associated with it) impact defaulting but not recovery or non-response. The latter may be related to programme management and design.

Correlation of programme performance with contextual factors

Table 5 presents the correlation between five key contextual factors which appear to affect SFP recovery outcomes.

The presence of a general ration seems to have a significant impact on recovery rates, although this is only statistically significant for duration of stay. The lack of quality of some of the GFDs described in the reports may explain this lack of statistical significance. Furthermore, in some cases the lack of a GFD may simply reflect the fact

that it was not considered necessary, as other sources of food were available.

There is an observable relationship between the time from the onset of the crisis and the performance of the centres, particularly in relation to the number of defaulters (higher when the crisis is recent) and the recovery rate (lower when the onset of crisis is recent). Although this relationship is not statistically significant, it could indicate improvements in SFP management over time, as well as improvements in food security among the assisted population.

The existence of a Therapeutic Programme for treatment of severe malnutrition only has a statistically significant effect on the rate of 'non-response'. This is probably explained by the fact that, when a TFC or an Outpatient Treatment Programme (OTP) is at hand, many children will be transferred to these facilities. The higher incidence of defaulting in the programmes where there is no Therapeutic

Programme probably reflects the fact that children performing badly have no referral facility and will therefore be lost to the programme.

The presence of chronic crisis (as defined in the SFP reports¹⁰) seems to have a significant negative effect on efficacy. This may reflect that fact that coping strategies are exhausted, thereby affecting the nutrition recovery of children as well as the ability or the motivation of carers to attend centres.

Displaced populations appear to have higher defaulter rates compared to resident populations, with a significant impact on recovery rates.

The study also examined other variables in relation to the efficacy of the programmes:

- number of centres in the SFP;
- total number of exits;
- total duration of the period reported;
- context defined as insecure in reports;
- lack of access to population in some areas or during some periods;
- causes of malnutrition as defined in reports (access to food, problems of care and knowledge, health problems);
- setting (urban, rural, camps); and
- economic background (agro-pastoralist, pastoralist, food aid-dependent).

The analysis found either no correlation or was unreliable, due to lack of information on many variables, problems with the classification of the categories of the variables and homogeneity of some of the variables (notably in relation to programme design).

Other context and programme characteristics that could not be analysed due to problems like data homogeneity, lack of information or classification difficulties were:

- presence of drought, food insecurity or lack of access to markets;
- presence of food security programme assisting the same population;

Box 6

How context can affect programme performance¹¹

Concern Worldwide implemented a Community Managed Acute Malnutrition programme in Darfur with an Emergency Supplementary Feeding Programme for moderately malnourished individuals in 2006. Recovery rates were found to be low, with significant differences between areas. In El Geneina the cumulative cure rate for the period June to November 2006 was 27%, with high default rates. In contrast in Mornei SFP recovery rates were 61% by the end of the same six-month period.

A number of reasons were identified for these differences. First, the El Geneina programme covered a larger, more diverse population of camp-based internally displaced people (IDPs) and IDPs living amongst the host population. In contrast those in Mornei were largely camp-based. Second, El Geneina had a more developed cash economy, beneficiaries had further to travel and also faced more competing demands on their time, such as undertaking income-earning opportunities. Another factor was that GFD coverage was almost 100% in Mornei, whereas only about 60% of SFP beneficiaries in El Geneina were in receipt of a general ration. Finally, it appears that access to/use of protected water sources was lower amongst non-recovering children in El Geneina than in Mornei, implying more water-borne disease in El Geneina.

- presence of a home-visiting component in the SFP;
- direct implementation by NGO versus implementation with local partner (government or private);
- foodstuffs distributed;
- estimated amount of kcal in the diet;
- frequency of distributions (weekly, fortnightly, monthly);
- distribution of family ration;
- average number of patients per month; and
- average number of patients per centre.

Chapter 4

Programme efficacy at the population level

A stated rationale for many emergency SFPs is to reduce levels of malnutrition and mortality at population level. The study attempted to assess programme impact at population level in three ways: evaluation of the coverage of programmes, study of population changes in malnutrition rates and an exploration of the ratio of severe to moderate malnourished children identified in programmes and in surveys.

Analysis of coverage data

Programme coverage was evaluated in 40 nutrition surveys, pertaining to 19 programmes. The coverage of these programmes was estimated to range from 1% to 71.7%, with a median of 20.5%. However, these results must be interpreted with caution as the methodology to assess coverage from the data obtained in nutrition surveys suffers from several potential biases.¹²

Table 6 estimates the coverage needed to obtain a percentage reduction in GAM at population level given a recovery rate of 75% of children.

Table 6: Coverage needed to effect GAM reduction

GAM reduction	Minimum coverage needed
100%	Not possible with a recovery rate of 75%
75%	100%
50%	66.7%
25%	33.3%

This analysis does not take into account the development of new cases of acute malnutrition (incidence), nor the fact that some children may recover spontaneously (without treatment). Nor does it account for malnourished children not included in the programme at the time of the survey, but who may be included in later weeks (average duration of acute malnutrition before spontaneous recovery or death is several weeks). The two latter factors would imply that the coverage needed to attain a reduction in GAM would be lower than that estimated in Table 6.

With the median coverage rates observed in the surveys reported (assuming their validity), it is difficult to attribute to SFPs any major impact in reducing GAM or in the prevention of severe acute malnutrition (SAM) at the population level.

Analysis of population nutritional surveys

Theoretically, mortality and malnutrition rate changes at population level would provide the most direct indication of the effectiveness of SFPs. Figures 4 and 5 (page 16) present a scatter of mortality rates (CMR and U5MR, respectively) and GAM¹³ for the 105 surveys made

available to the study (representing 31 SFPs, 23 of them with more than one survey).

Overall, surveys implemented before the start of the programmes demonstrate a higher CMR and GAM than those implemented once programmes had begun. However, this could simply represent the fact that baseline surveys are generally conducted at the height of the crisis, so the situation will tend to improve subsequently independently of the interventions implemented. This is further explored in Figures 6 and 7, which represent the percentage change in GAM and SAM, respectively, between the baseline survey (a nutrition survey implemented in the three months before the start of the programme) and the next survey implemented in the same geographical area (such data was only available for nine programmes).

The GAM rate appears to increase after several months of SFP implementation (points above the zero line) in four programmes, and to decrease in five others (points below the zero line). In the same surveys, the rate of SAM seems to increase in three programmes and decrease in six. The reductions in GAM and SAM rates observed here do not provide strong evidence of the effectiveness of SFPs in reducing population levels of malnutrition. Furthermore, the SFPs did not prevent increases in GAM in four cases, and increases in SAM in three.

Analysis of GAM : SAM ratios

A third strategy (and one that has not been used before) for evaluating programme effectiveness was explored in the study. In principle, in an effective SFP (high recovery rate and high coverage), most children with moderate malnutrition should recover, and therefore will not develop severe malnutrition. Meanwhile, other children in the community would still develop moderate malnutrition, as the SFP has no direct effect on them. In other words, SFPs can theoretically change the incidence rate (new cases per time period) of SAM but not that of GAM. On the other hand, as cases are treated, both the prevalence of GAM and SAM could be affected, though probably in different ways.

If these assertions are true, this could provide a field tool to evaluate the effectiveness of programmes which would have the advantage of being specific for programmes addressing moderate malnutrition. In this way, it may be possible to separate out the potential effect of SFPs from that of other interventions. The question then becomes: can the ratio of the incidence rates of GAM and SAM reflect the effectiveness of SFPs, and if so, is it possible to monitor these easily in the field? In order to explore this possibility, Figure 8 presents the relationship of GAM and SAM prevalence in the surveys available, during the six months before and the 12 months after the beginning of the programmes.

Figure 4

Distribution of CMR and GAM in nutrition surveys before and after start of programme

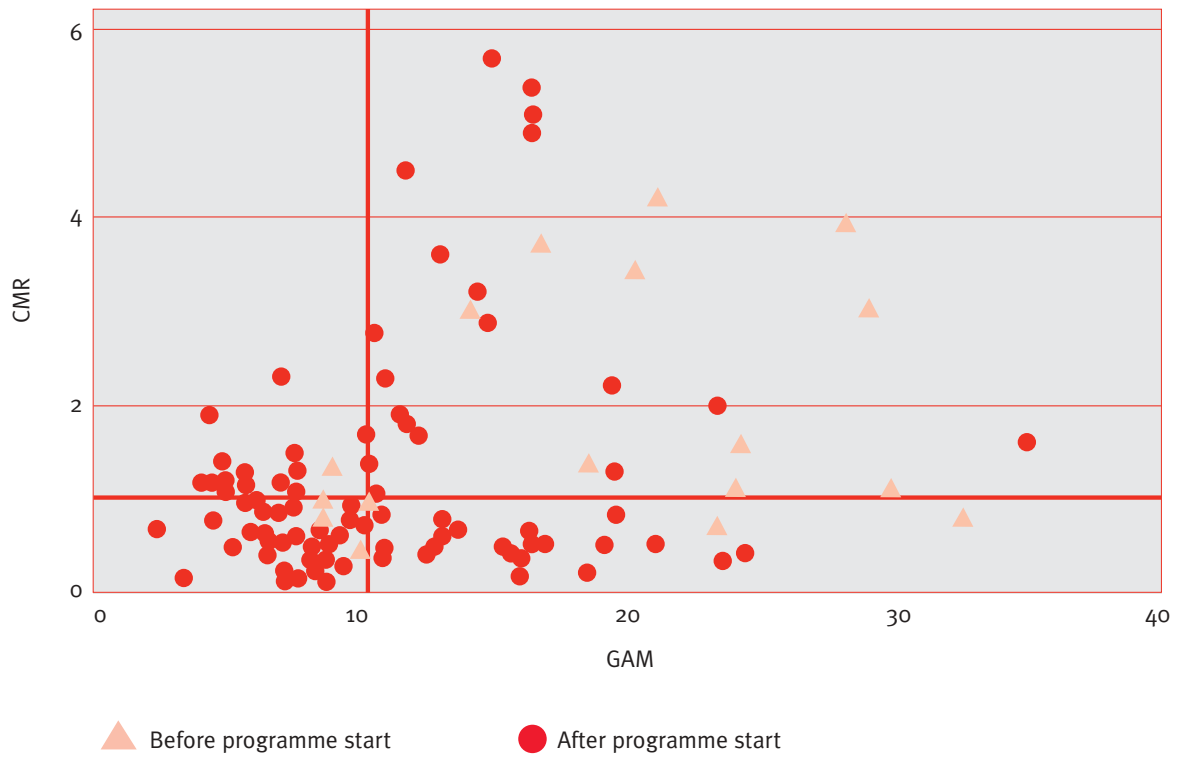


Figure 5

Distribution of U₅MR and GAM in nutrition surveys before and after start of programme

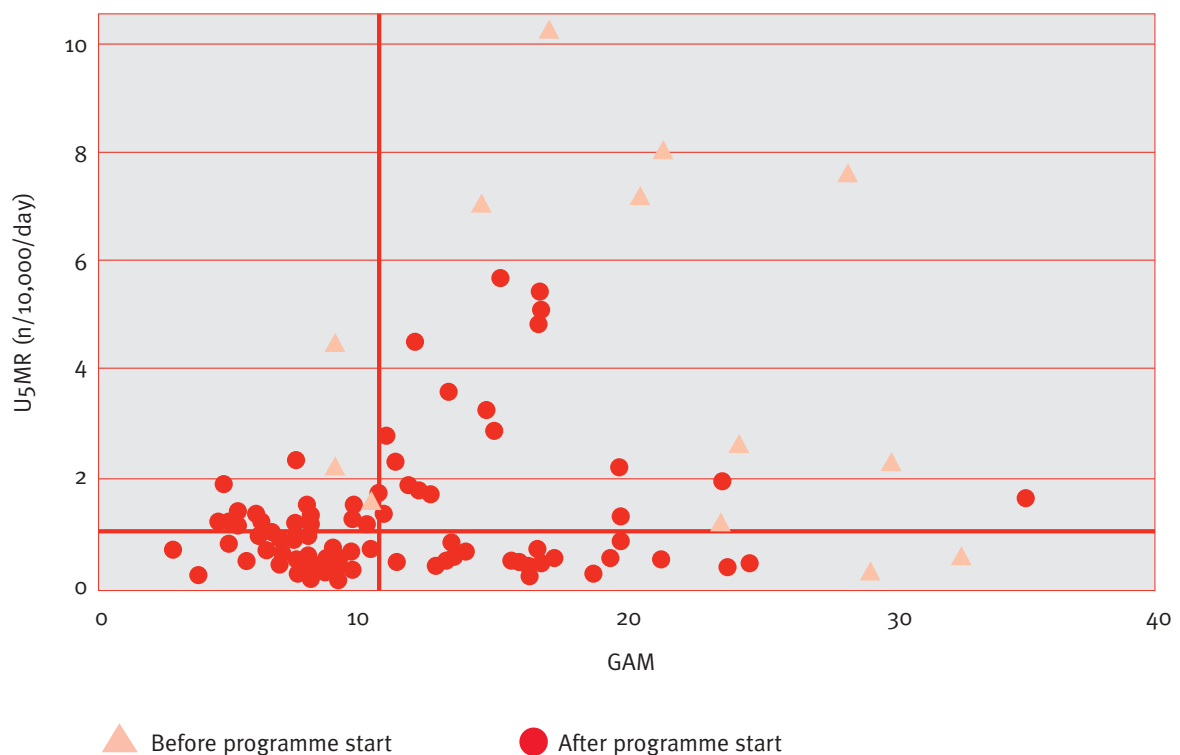


Figure 6

Percentage changes in GAM after implementation of SFP

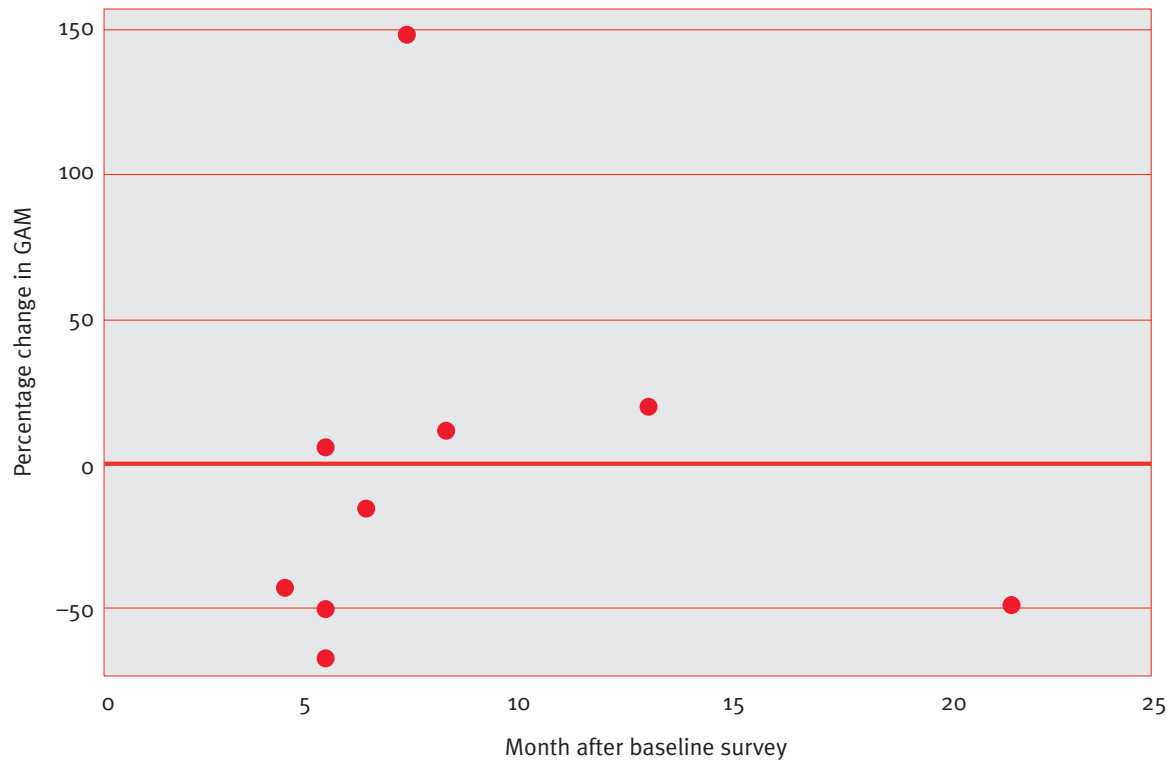


Figure 7

Percentage changes in SAM after implementation of SFP

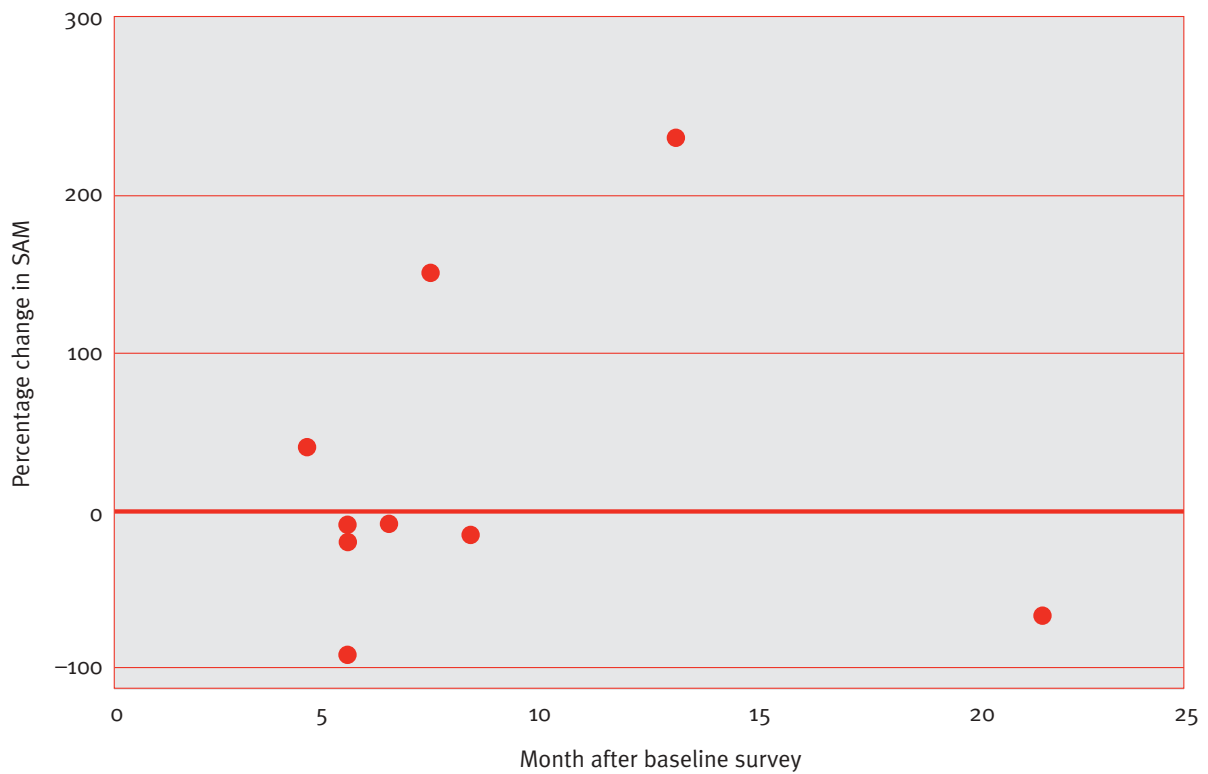
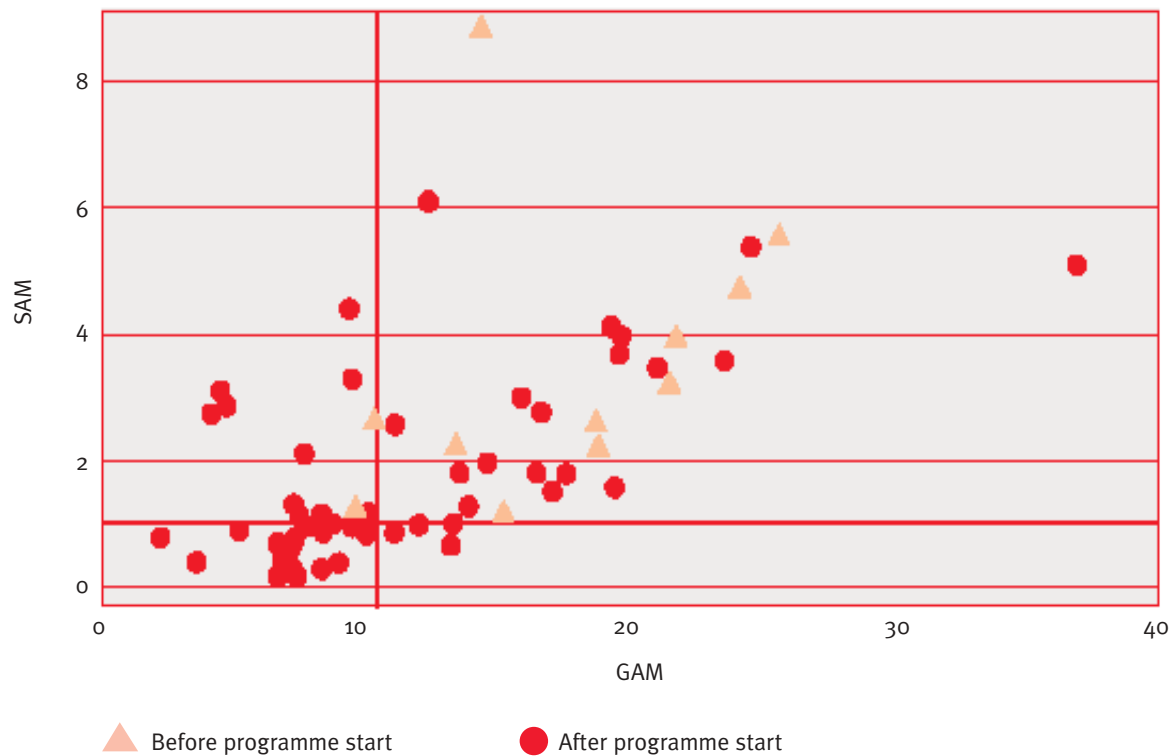


Figure 8

Relation of GAM and SAM before and after programme start



Overall, the median ratio of GAM to SAM in this sample of surveys is 6.7, meaning that, for each child identified with severe malnutrition, 6.7 other children were identified with moderate malnutrition. There is no statistically significant difference between the ratio of GAM to SAM of the surveys implemented before the start of programmes and that of surveys implemented after programmes began (non-parametric test, $p = 0.392$).

As there is currently no guidance or understanding of what the changes in the GAM–SAM ratio should be, if any, it is not possible to assert if the lack of difference between the ratio before and after the start of the programmes is due to ineffectiveness of the SFPs, or rather lack of sensitivity of this methodological approach.

Chapter 5

Conclusions and recommendations

This study has demonstrated a number of important findings with regard to the standard of programme monitoring and reporting and evidence for the impact of emergency SFPs at individual and population level. These findings have implications for future research and also suggest a need to rethink the institutional architecture of agencies involved in nutritional crises, in order to enhance best practice and accountability.

Programme reporting

A series of problems in the way emergency SFPs are reported were identified, most importantly with regard to programme statistics (exit data). This means that many programmes were unable to adequately monitor programme efficacy. Clearly, reporting of programme outcomes needs to be strengthened as a matter of urgency. There is a pressing need to develop a standardised reporting system, with recommendations on the way to collect, present and analyse a minimum set of information for emergency SFPs. Adoption of this standard reporting system by implementing agencies and donors should contribute to much-needed lesson-learning from the field as compiling data from different organisations and comparing the results of different protocols and strategies would become feasible.

In addition, programme reporting should be promoted for full programme periods rather than by budgetary periods, in order to obtain a more comprehensive understanding of programme quality. These reports should also include information on other programmes being implemented amongst the beneficiary population, as well as significant events affecting implementation.

The analysis of exits from SFPs revealed the magnitude and variability of 'non-response' exits in some programmes. For this reason, it seems advisable to include this group in standard reporting recommendations such as Sphere Minimum Standards as a separate group.

Characteristics of the programmes

Programmes included in this study were based in 22 countries and a variety of contexts, and reflect the main areas of nutrition crisis and interventions in the study period. It is perhaps surprising that only a small number of blanket feeding programmes or on-site feeding programmes were reported for the study. Almost 90% of the SFPs were associated with Therapeutic Feeding Programmes, providing a more holistic care package and allowing for referrals. However, while several programmes highlighted community participation as an objective, only a small number were able to actively involve the community in decision-making and programme design.

The reports submitted to the study showed that many programmes were implemented without a prior assessment of the situation, and that there was often no explanation of the reasons why an SFP was appropriate, or an investigation into the baseline situation of the population in terms of food availability and access, morbidity patterns, caring practices and livelihood strategies. This mirrors findings from other recent studies.¹⁴ As a consequence, the set-up and protocols often followed standard recommendations, with no adaptation to the particular characteristics of the crisis or the population being assisted.

Programme efficacy: individual level

Programme statistics at the individual level (efficacy) showed that, despite 69% of children recovering overall, less than 40% of the programmes attained acceptable recovery rates if non-response is included. The main factor undermining the rate of recovery was defaulting, which also showed more variation than other exit statistics both between and within SFPs. Defaulting is most often associated with seasonal and secular trends, quality of programme management and/or lack of adaptation of the SFP design to local circumstances.

The study also showed that certain contextual factors may play a significant role in determining recovery rates, notably the presence of a general ration distribution, the length of time since the start of the crisis, the chronic nature of the emergency and whether beneficiaries are displaced populations (as opposed to residents).

If considered together, these factors would appear to demonstrate that default is directly related to opportunity costs for carers. The current design of SFPs may be creating a dilemma for beneficiaries, forcing them to choose between attending the SFP to obtain food for a member of the family and other activities related to the economic or food security of the rest of the group. These findings suggest a need for further study to determine the reasons for defaulting, and an exploration of how this information can be used to adapt programmes.

For those patients that remained under treatment (non-defaulters), three out of every four centres attained recovery levels above 75%, with 84% of the children in the sample recovering. This still suggests that there is a margin to improve the design of the programme and management provided at the centres (i.e. nutrition protocols and associated disease management).

These findings also link into the current debate on the need for improving supplementary foods, in that, while

Box 7**Should we be trying to reduce defaulting?**

In most programmes, defaulting increases during the planting and harvesting seasons when labour is at a premium. Attending SFPs (or other distributions) at such times clearly creates a conflict with securing future household food security. The dichotomy for beneficiaries may well be ‘relief food for one child today’ versus ‘our own food for all the family tomorrow’. In such contexts should we not be supporting the latter objective, rather than trying to prevent defaulting? Strategies for encouraging attendance at centres, such as distributing non-food items to recovered patients, are common, but are they appropriate? Sensitive programme design should take into account the dilemmas that families face during food crises. The objective should not be to influence choice about whether to attend centres or not (and thereby improve programme outcome statistics), but rather to eliminate the need to make such difficult choices in the first place. Are there imaginative programme designs that allow people to care for the moderately malnourished child and at the same time cater for current and future family needs?

better products may well improve recovery rates, it may be over-optimistic to expect that they will dramatically increase recovery rates if the way programmes are designed is not addressed at the same time.

This study should force us to reflect more closely on the strategies used to deliver food during emergencies. Should food be delivered through new SFPs, which are better designed to account for population opportunity costs, or through other strategies like expanded general rations, where targeting and monitoring of malnourished individuals may not be as effective? Prospective cohort studies to compare outcomes, costs and cost-effectiveness of different approaches to treating people with moderate malnutrition in nutritional emergencies are long overdue.

Programme efficacy: population level

The data collected by agencies on coverage and prevalence of malnutrition and made available to the study does not demonstrate any impact at population level. Indeed, a significant number of nutrition surveys showed a decline in nutritional status following implementation of an SFP.

Given the methodological difficulties around population-level impact assessment (the need for control groups to account for other factors or interventions which may impact on the prevalence of malnutrition at the population level), a new approach was considered based on the estimation of the ratio of children with moderate

malnutrition to severe malnutrition. This approach takes into account that SFPs can be expected to reduce the incidence of severe malnutrition, but not that of moderate malnutrition. Proper monitoring of these variables, through repeated surveys, analysis of admissions to SFPs and TFPs or through surveillance could provide an easy way to evaluate impact and consider the quality and coverage of SFPs during field operations, without the need to select a control group. This approach needs further testing and critical appraisal.

There is no doubt that a large number of children have significantly benefited from the programmes looked at in this study. If the objective of SFPs is to *treat* individuals with moderate malnutrition, then many succeeded. Whether Sphere standards for recovery are set too high or programme design and management can be strengthened so that a greater proportion of programmes meet Sphere recovery standards is another matter. If on the other hand the objectives of emergency SFPs include reducing the prevalence of moderate malnutrition and the *prevention* of severe malnutrition and associated mortality at the population level, then we can see little if any impact. This study has shown that agencies cite different objectives for emergency SFPs, and that many (25) cited no objectives at all. Lack of clarity around objectives allows a lack of accountability with regard to programme performance, which in turn may underpin poor reporting standards.

It is clear from the data in this study that, given current levels of coverage and recovery, population-level impact may be negligible and unrealisable, and that alternative interventions addressed to the wider population may in some situations be more appropriate. The need to explore alternative interventions is given added impetus as thinking on treatment of moderate malnutrition evolves with the advent of new products like RUTF and Plumpy’doz®, and the simultaneous realisation that targeted emergency SFPs may not always be the ideal approach for addressing moderate malnutrition in emergencies. Alternative approaches like blanket distribution of special foods during the pre-harvest period are being proposed by agencies like MSF.¹⁵ Furthermore, as Community Managed Treatment of Acute Malnutrition programmes using specially designed therapeutic foods are increasingly rolled out and implementing agencies focus their energies on integrating these programmes within national health systems,¹⁶ there is a realisation that most national governments struggle with resourcing and supporting this type of programme. It is therefore very unlikely that these same governments will have the capacity or resources to take on the decentralised SFP component of CMAM, which will involve a significant increase in caseload.

New feeding products

New feeding products for the treatment of severe and moderate malnutrition may confer a number of advantages over foods traditionally used in emergency supplementary

feeding, such as CSB and Likuni Phala. These include the following:

- Foods are more likely to be seen as medicine and therefore not shared with other family members.
- Nutrient content is designed specifically to address the broad functional consequences of malnutrition, such as immuno-competence, appetite and metabolic disorders, not just weight loss.
- Some foods can have an impact on stunting.¹⁷
- The provision of these foods may only be required during hungry periods, potentially having a lasting impact throughout the year.
- It is possible that these foods can be locally produced and sold at affordable prices.

Research is ongoing into the effectiveness of these new products in terms of nutritional outcomes. However, it is critically important that this research is not divorced from micro and macro level economic reality. Although it may be possible to develop the perfect ration for treating all the physiological consequences of moderate malnutrition, the economic consequences at household level of introducing specialised foods may be damaging. For example, Plumpy'doz® provides relatively few calories but does provide a combination of nutrients which seem to increase appetite. Providing foods to satisfy any resulting increased appetite may be a challenge for many households. Recent research by SCUK in Bangladesh suggests that feeding families a healthy diet can cost three times the average annual income of up to three-quarters of the poorest households.¹⁸

Another critically important economic variable to consider is the cost of producing and providing large quantities of 'specially designed' foods, and whether this would be sustainable from government resources. If such foods are introduced at the time of an acute emergency using international donor resources, how will the system be sustained when the emergency is over? Are donors willing to continue provision of this type of product (albeit for a smaller caseload) following an emergency, or is it realistic to expect a developing country government to continue providing such a resource? Furthermore, if these products are to be marketed, is there the infrastructure to ensure accessibility for the poorest? If the answer to these questions is no then there is little prospect of integrating structures and approaches set up during an emergency into the national health systems of emergency-affected countries.

Research modelling the economic implications and consequences of using new products to treat severe and moderate malnutrition is critical. Such research has yet to be undertaken.

Institutional implications

One of the main successes of the study has been the cooperation and willingness shown by agencies in sharing information in order to provide an overview of emergency

SFP performance. The process involved in carrying out the study and the initial findings highlight a set of institutional issues regarding the capacity of the current humanitarian system to evaluate collective agency experiences and outcomes of specific types of intervention, and to answer specific programmatic questions.

Recent history of the treatment of SAM with the rapid rollout of community-based treatment in order to address the poor coverage of centre-based treatment has demonstrated the urgent need for an overview of programme performance across the multiplicity of actors in the sector. Arguably, had an agency or body undertaken an overview of TFC performance and coverage during the 30 or so years that such interventions have been rolled out, the impetus to find a community-based approach would have been generated far earlier than has been the case.

It may now be time to start advocating for a body or organisation to take responsibility for assessing the impacts and cost-effectiveness of the various types of intervention carried out during nutritional crises. At the very least, this will ensure that interventions are not simply rolled out on the basis of existing humanitarian agency capacity and mandate, and the willingness of donors to pour resources into what in some cases are relatively unproven activities. Writing in *The Lancet's* recent series on nutrition, Morriss, Cogill and Uauy argue:

*assessments and reviews of nutrition actions in emergencies have largely focussed on the effect of various feeding programmes on nutrition outcomes such as growth and micronutrients status. What is often lacking is a clear analysis of the cost-effectiveness of different interventions to enable recommendations to be made on the optimum rations composition, targeting and exit criteria, and the appropriate mix of complementary activities to improve health and nutrition outcomes ... one key challenge is the absence of an agency with responsibility for taking an overview of the effectiveness and cost effectiveness of different types of intervention. Nutrition in emergencies is a mix of multiple agencies, agendas, protocols, and methods. The general lack of coordination and leadership has allowed the institutional status quo to prevail. Thus, agencies that have built up expertise and mandates around certain types of intervention (or intervention design) will continue to practice these interventions in emergencies without serious examination or challenge.*¹⁹

In an ideal world, data on programme performance in the nutrition in emergencies sector would be submitted to some form of repository managed by an independent international agency. Standardised reporting on programmes like emergency SFPs would furnish such a repository with data that could be analysed to determine such things as overall programme performance, appropriateness and the implications of design modifications. *The Lancet* series suggests that the UN Sub-Committee of Nutrition (SCN) could become a forum that makes individual UN agencies accountable for results. However, accountability is not simply about UN

agency performance. A multiplicity of agencies is involved in emergency nutrition interventions, including government, international and national NGOs and faith-based agencies. The optimum institutional location for such a mechanism would therefore need careful consideration.

Recommendations

These recommendations are addressed to implementing agencies, donors and research institutions alike. It is envisaged that they will soon be complemented and followed by specific research proposals and workshops to reach consensus on ways forward.

Reporting

1. Redefine and standardise ‘minimum reporting requirements’ for SFPs. This should include:
 - Clear and common definitions of outcome categories.
 - Clear and common statistical treatment of age groups and special groups of patients (e.g. those being followed up from TFC/OTP).
 - Standard presentation of outcome statistics.
2. Specify comprehensive reporting of programmes to inform lesson-learning from the field. Comprehensive reporting should include reporting for the total duration of the programme (rather than just budget periods) and consideration of other relevant activities implemented amongst the beneficiary population.
3. Develop specific guidelines for the preparation of these reports, including data analysis (formulae for basic calculations) and the presentation and interpretation of data.
4. Revise the Sphere Minimum Standards for reporting outcome statistics – specifically to account for patients that have not recovered.
5. Donors and agencies implementing emergency SFPs should adhere to these ‘minimum reporting requirements’ and adopt standardised reporting formats, to facilitate the compilation of data, comparison of results and improved accountability.
6. Develop software to facilitate reporting.

Programme efficacy

In order to address problems of defaulting and non-response in emergency supplementary feeding, it will be necessary to implement a combination of research studies and adapted programme monitoring. The findings of research may eventually lead to new monitoring protocols for all programmes in order to assess where and why defaulting and non-response are occurring, so that programmes can be adapted accordingly. In the short term, the key goals of research and adapted monitoring will be to:

7. Explore the main reasons for defaulting and develop programme designs that minimise it, for instance adapting SFPs, or alternative interventions such as expanded general ration programmes.
8. Assess the final outcome of defaulters from SFPs (through surveys or defaulter tracing) in order to

determine the ‘actual’ mortality and recovery rates of programmes.

9. Evaluate the opportunity costs of attending SFPs, and the impact on programme efficacy, particularly during harvest periods, and develop alternative programme designs that minimise these costs.
10. Evaluate the real outcomes of patients classified as non-respondents and adapt programme design to reduce non-response.
11. Evaluate the effect of different foodstuffs on the number of defaulters and non-respondents, as well as on the quality of recovery.
12. Develop and promote the implementation of situation assessments that help determine whether emergency SFPs are appropriate for a given situation or whether there are better alternatives. Such assessments should consider the likelihood and magnitude of default and non-response, and also coverage. Where the implementation of emergency SFPs takes priority over assessment, the need for, and appropriateness of, an emergency SFP should be re-evaluated at the first opportunity.
13. Ensure that coverage surveys are always undertaken, both to assess the quality of screening and to evaluate the potential impact of programmes at population level.
14. Investigate the development of methodological tools to assess programme impact at the population level by isolating the change in mortality and malnutrition rates attributable to SFPs, for example by evaluating the ratio of GAM to SAM.

Overall design

15. Re-evaluate and clarify the roles and objectives of emergency SFPs.

There are two key objectives to consider:

- i) the treatment of individuals with moderate malnutrition and preventing the development of severe malnutrition in such individuals; and
- ii) reducing the prevalence of GAM at population level.

Whether one or both objectives are valid for a given situation will depend on a number of factors, including defaulting, non-response, coverage, types of foodstuff allocated and general food security in the population. In situations where impact at population level is likely to be minimal and where it is necessary to reduce population-level malnutrition and mortality, it may be appropriate to explore alternative interventions aimed at the general population.

In order to inform decisions about programme objectives and the best means of attaining such objectives:

16. Establish an operational research programme to compare emergency SFPs with alternative strategies to treat moderate malnutrition and reduce the prevalence of GAM at population level, such as expanded general rations, cash transfers and the seasonal blanket distribution of special foods, and promote the

development of an evidence base to support one strategy over another.

17. Implement prospective cohort studies to compare the outcomes, costs and ultimately cost-effectiveness of different approaches to treating people with moderate malnutrition in nutritional emergencies.
18. Conduct research to explore the economic costs and sustainability issues of introducing specialised foods to treat and prevent moderate malnutrition in emergencies.
19. Advocate for a body or organisation to take responsibility for assessing the impacts and cost-effectiveness of the various types of intervention carried out during nutritional crises.

A number of international agency workshops and research initiatives are planned to advance and consolidate thinking on how best to address moderate malnutrition in emergencies. These initiatives are vital and could lead to new interventions which not only address acute malnutrition in crisis situations but also have some impact on the enormous caseload of chronic malnutrition in many parts of the world. It is however vital that any new interventions are monitored and evaluated in a way which provides robust evidence of efficacy and effectiveness. Equally important is a determination of the cost of such interventions, for both implementing agencies and beneficiaries.

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Notes

- 1 See for example A. Curdy, *The Relevance of Supplementary Feeding Programmes for Refugees, Displaced or Otherwise Affected Populations*, Paper prepared for a workshop on improving the nutrition of refugees and displaced people in Africa, Machakos, Kenya, 5–7 December 1994; UNHCR, *Report of a Workshop on Tools and Strategies in Needs Assessment and the Management of Food and Nutrition Programmes in Refugee and Displaced Populations*, Addis Ababa, Ethiopia, 15–21 October 1995; Inter-agency Food and Nutrition Group, *Report of a Workshop on Selective Feeding Programmes. Dublin, Ireland, 18–20 February 1997*; and A. Duffield et al., *Review of the Published Literature for the Impact and Cost-effectiveness of Six Nutrition Related Emergency Interventions*, Draft report prepared for CIDA by the ENN, 2004.
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- 7 The number of programmes considered varies between 61 and 67 depending on whether the statistics included percentages for all the period, percentages for each month and whether the numerator total was provided to allow recalculation of rates.
- 8 M. P. Patel et al., 'Supplemental Feeding with Ready-to-use Therapeutic Food in Malawian Children At Risk of Malnutrition', *J Health Popul Nutr*, vol. 23, no. 4, pp. 351–57.
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