• Drought resistant ‘banana’ in Ethiopia
• Preventing micronutrient deficiency in Angola
• Mapping vulnerability in Afghanistan
• HIV/AIDS and infant feeding in Kenya
From the Editor

T he more cynical amongst us in the emergency nutrition sector may sometimes be heard complaining that there is nothing new in this profession and that we just keep repeating the wheel - ‘the problems are the same, the solutions are the same’. However, a cursory glance over this issue of Field Exchange gives lie to any such claim. There are plenty of new developments. For example, the piloting of a newly developed product called QBmix (a micronutrient rich condiment) by MSF amongst IDPs in Angola to help combat the endemic pellagran stem of this problem that has plagued populations for a number of years (see field article by Evelyn Depoortere). The study shows that QBmix may offer a cheaper, and logistically simpler, alternative to fortified CSB, as a means of preventing further outbreaks. There is also a field article in this issue about an indigenous crop grown in south and southwest Ethiopia - ‘Enset’ (or false banana) and being promoted by the development agency Self Help International. The crop appears to have many potential uses which have a positive impact on food security. For example, it may be potential for promoting this local drought resistant crop in other food insecure areas of Ethiopia and for disseminating knowledge widely about its potential for reducing food insecurity. This issue also carries a summary of a study concerning the consumption of green peas in drought prone areas of Ethiopia. Consumption of this wild food, especially in drought periods, is associated with neuro-development (a neurodegenerative condition). However, the study shows that incidence is reduced when the affected population simultaneously consumes food aid in the form of cereal. The findings support the case for targeting food aid in these vulnerable areas, not just to the poorest, but also to those likely to increase their consumption of this legume.

There are also research findings reported in this issue, which, although not entirely new, add to an already considerable body of knowledge. For example, a study of the longer term impact of the siege and resulting famine in Leningrad during the second world war shows that the legacy of starvation is not just limited to growth impairment, but also future cardiovascular health. There is also a study on ration adequacy amongst Thai refugees. This study, yet again, shows how poor ration quality for food aid dependent refugees is directly responsible for the high levels of energy and micronutrient deficiencies which have existed amongst this population for a number of years. The inadequacy of the micronutrient content of home prepared replacement meals is already in evidence. As abreast of this new research - an ongoing concern of many in infant feeding circles - is highlighted in one summarised research piece by Rollins et al in South Africa. In this setting, infant formula is considered an appropriate and viable option for feeding infants of HIV positive mothers. However, a field article by Tom Oguta and his team in Kenya finds that home-adapted animal milks may be the preferred breastmilk substitute, and only available option, for carers of infants whose mothers are HIV positive. While current international guidelines recommend fortification of home prepared milk with micronutrients, in practice, these are often not locally available.

Take any sample of Field Exchange and it is apparent that there is a continuous stream of important information and ideas provided by new research and pilot interventions, which should, at least theoretically, help inform better practice. Unfortunately, much of this information never finds its way into the published literature. In spite of the dynamic may be that there is still much we don’t know. Where have we good quality research there is often a need to collate disparate research findings into a sufficient body of coherent evidence to make a case and advocate for change. Emergency ration adequacy for refugees and findings like those from the Thai refugee study are obvious examples where it appears that we have not reached a critical mass of evidence to effect change.

As editor of Field Exchange it is becoming increasingly difficult to leave out articles and research on HIV related issues. This issue of Field Exchange carries a field article on infant feeding practices among older pre-school children in Kenya, which gives a summary of a review of the impact of HIV on crises and humanitarian work, and research on predisposing factors to malnutrition amongst HIV positive children in Eastern Cape, South Africa. There is also a report on the AAH/Ofam co-chaired meeting of the HIV, food security and livelihoods working group.

The multifaceted interface between HIV and nutrition is becoming increasingly recognised and reflected in HIV/nutrition programming, especially where the HIV pandemic is most pronounced, e.g. southern and Eastern Africa. There is a growing trend towards using food aid in much of this area of work. According to this issue of Field Exchange, food aid is increasingly advocated, especially following emergency programmes under protracted relief and rehabilitation arrangements (PRROs). Food is therefore increasingly incorporated into Prevention of Mother to Child Transmission programmes (PMTCT), Home Based Care (HBC), TB treatment (DOT), Orphan and Vulnerable Children programs (OVC) and Neighbourhood Child Protection programmes (NCP). There appear to be multiple roles for food aid in these programmes with a variety of objectives proposed, e.g. nutritional, food security, incentive to comply with treatment, incentives for volunteers, protection, etc. However, there is often a lack of clarity over extant criteria, how food aid will be integrated with other packages and little thought or attention as to how these programmes will be monitored and evaluated. While there may be a rationale for food aid in many of these programmes, there is the very real danger that food may be used uncritically with little attention given to impact. Furthermore, in some cases it may be that food aid actually has a negative impact, e.g. undermines the volunteer ethos.

There is a long history of uncritical and ultimately ineffective use of food aid in longer term nutrition programming, e.g. supplementary feeding. Some critics of current developments are already implying that use of food aid is not necessary and may be an attempt to introduce development food aid (which has dwindled over the past three decades) by the back door. It is essential, therefore, that we reflect on new area of programming - an ongoing concern of many in infant feeding circles - is highlighted in one summarised research piece by Rollins et al in South Africa. In this setting, infant formula is considered an appropriate and viable option for feeding infants of HIV positive mothers. However, a field article by Tom Oguta and his team in Kenya finds that home-adapted animal milks may be the preferred breastmilk substitute, and only available option, for carers of infants whose mothers are HIV positive. While current international guidelines recommend fortification of home prepared milk with micronutrients, in practice, these are often not locally available.

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This article describes Self Help Development International’s experiences of using the staple crop, Enset, in their programming in Ethiopia, and the potential it holds for improving food security in drought affected areas.

Self Help Development International has gone a significant distance towards assisting tens of thousands of Ethiopian farmers to achieving food security, since they began promoting the introduction of the resourceful Enset plant in their project areas in the country’s south-western region. Although the dull, grey coloured bread or porridge produced from the fermented plant can be stodgy and unpalatable to western tastes, Enset has been having a far-reaching impact on the lives of rural Ethiopians for generations. Prompted by uneven and erratic rainfall in its project areas, Self Help set out to search for alternative ‘drought resistant’ crops to promote, and identified Enset as an option. Research into the crop showed that its high moisture carrying capacity and resulting durability meant it could help to ensure food security in drought prone areas.

Enset – what is it?

Also known as “false banana” due to its striking resemblance to the banana plant, Enset (Ensete Scitamineae) is a traditional staple crop in many parts of densely populated south and south-western Ethiopia. Records suggest that Enset has been grown in Ethiopia for more than 10,000 years. Indigenous hunter/gatherers of southern Ethiopia are thought to have been the first to cultivate Enset, and later introduced it to the Cushitic-speaking people of the northern highlands, only for it to be replaced by cereal-based crops due to the migration of the Semitic people. Enset is virtually unknown as a foodstuff outside Ethiopia and in western countries, variants are often grown as ornamental garden plants. The root of the plant provides food in the form of starch, the stem is used to produce a coarse fibre, and the leaves are fed to cattle, whose manure is in turn used to fertilise the plant. Although Enset is a protein-poor crop, its deep roots give it a greater resilience to drought than other cereal crops and consequently, a greater degree of food security to those who grow it.

Development workers have found that there are other significant benefits too, not least of which is the contribution of the Enset plant to sustainable farming. Soil erosion is a result of Enset cultivation is minimal. In fact, in Enset plantation areas, native soil has been altered for the better due to the long-term application of manure, natural mulching of leaf and stem residues, the rainfall capture from the plant leaves, and the resulting soil moisture conservation and reduced run-off when compared to bare-earth farming. Enset plants, which are traditionally grown in small plantations adjacent to homesteads, can grow to a height of six metres, and thus provide valuable windbreaks and shade from direct sunlight. Because of its large leafy fronds, it is also a good plant to inter-crop with coffee, potato and other food crops, which benefit from shady growing conditions.

The major food products obtained from the Enset plant are kocho, bulla and amicho, all of which are simple to produce once the plant is harvested, and can be stored for long periods without spoiling. Kocho is a bulky, chewy, fermented starch bread which is made from a mixture of the decorticated leaf sheaths and grated root. Combined with Ethiopia’s spicy kitfo minced meat, it is now a required dish in virtually all restaurants in the country – Addis Ababa included. The best quality Enset food is bulla, obtained mainly from fully matured plants. Bulla can be prepared as a pancake, porridge and dumpling. Amicho is the boiled Enset root. The root is boiled and consumed in a manner similar to that of other root and tuber crops.

Use of Enset in programming

In order to introduce the crop to the new...
There is a concern in Ethiopia that stocks of Enset have been depleted. In many parts of the country, it seems that the Enset plantations have not recovered from the harvesting of young immature plants which occurred during the 1980’s, when hundreds of thousands of people from northern Ethiopia were displaced to the south of the country – and required Enset for their very survival. However, according to Self Help’s African director, Dr. Awole Mela, Enset has, on balance, been hugely valuable to their sustainable rural development work in Southern Ethiopia. Not only has it given rural households a greater level of food security, it has provided valuable shade for the growing of other crops, and has also helped to reverse soil degradation in otherwise vulnerable areas. Upwards of 80,000 farmers in this project area are now successfully growing the crop.

A 1997 publication, produced by the American Association for the Advancement of Science, in collaboration with the Awassa Agricultural Research Centre “The Tree Against Hunger,” has done much to raise awareness of the potential and future prospects of Enset, both in Ethiopia and elsewhere. In the same year as this was published, the Ethiopian government formally recognised the importance of the crop to the people of Southern Ethiopia, and declared Enset ‘a national crop’ worthy of significant research and development funding.

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Areas, Self Help established demonstration plots on a small scale, in conjunction with Ethiopia’s Agricultural Research Institute in the Marako, Sodo and Dodota project areas. Over a period, the crop performance was monitored and assessed. Farmers in the locality were given the opportunity to visit demonstration sites and see for themselves the potential of Enset and its many uses. Following these initial demonstrations, contact farmers from amongst those interested were selected. These farmers were provided with the necessary seed stock, along with practical training on the growth of Enset in their region. Their plots, in turn, became demonstration sites visited by farmers in their locality. A certain proportion of seedlings was made available via contact farmers, as a way of getting their interested neighbour started with the crop. Revolving seed fund mechanisms of this kind are a feature of many of Self Help’s agricultural development activities.

Constraints
There have been obstacles facing those engaged in promoting the propagation of Enset, the most fundamental being it takes three to five years for the plant to achieve maturity. While a five year old plant can yield 40 kg of food, farmers who harvest after a single year can expect a yield of just one kg from the pseudostem – the bowl of the tree which is processed for food.

Although it is estimated that there are currently upwards of 10 million people in southern Ethiopia consuming Enset in their diet, there are historic and cultural reasons why others in the country do not. During the reign of Emperor Haile Selassie (1930-1975), the Ethiopian Ministry of Agriculture launched major initiatives to increase food production. The emperor gave strict instructions to focus on cereal crops and income-generating crops, such as coffee, while the Enset plant was ignored. The situation for Enset did not improve under the subsequent Socialist Derg regime (1975-1991), whose research projects had insufficient funds, and did not examine the potential of a crop.

There have been cultural barriers to the popularity of Enset too. Many urban Ethiopians regard a crop, which is used by southerners for everything from food, bedding and clothing to house building and fodder, as little more than a peasant food.

A number of factors have acted to change this perception, however, and market forces - which have seen the price of Enset remain stable while cereal grain prices have climbed -has been a significant one. Not to be under-estimated, either, has been the realisation that famine can, and has been, averted at times of drought, in areas where the Enset crop is being grown and processed by rural communities.
Adequacy of Replacement Milks for Infants of HIV-Infected Mothers

Summary of published research

Feeding recommendations for infants of infected HIV-mothers in developing countries remain controversial. As HIV can be transmitted to the infant by breastfeeding, the World Health Organisation (WHO) recommends that, “when replacement milk is acceptable, feasible, affordable, sustainable and safe, avoidance of all breastfeeding by HIV-infected mothers is recommended; otherwise, exclusive breastfeeding is recommended during the first six months of life.” However, little is known about the nutritional adequacy and feasibility of the various breastmilk replacement options recommended in related training materials. A recent study aimed to explore suitability of the 2001 feeding recommendations for infants of HIV-infected mothers in a rural region in KwaZulu Natal, South Africa, especially with respect to adequacy of micronutrients and essential fatty acids, cost, and preparation times of replacement milks.

Nutritional adequacy, cost, and preparation time of home-prepared replacement milks containing powdered full cream milk (PM) and fresh full cream milk (FM) and different micronutrient supplements (2 g UNICEF micronutrient sachet, government supplement routinely available in district public health clinics, and best available liquid paediatric supplement found in local pharmacies) were compared. The costs of locally available ingredients for replacement milk were used to calculate monthly costs for infants aged one, three, and six months. Total monthly costs of ingredients of commercial and home-prepared replacement milks were compared with each other, and costs were expressed in the context of the average monthly income of domestic or shop workers. The time needed to prepare one feed of replacement milk was simulated by local HIV and infant training course participants in rural homes, without electricity, gas or water but close to a stream and shrubs (1-2 minutes walk away).

When mixed with water, sugar and each micronutrient supplement, PM and FM provided less than half (50%) of the required amounts of vitamins E and C, folic acid, iodine, and selenium and less than 75% of zinc and pantothenic acid. PM and FM made with UNICEF micronutrient sachets provided 30% of the required intake for niacin. PM prepared with any micronutrient supplement provided no more than 32% vitamin D. All PMs provided more than adequate amounts of vitamin D. Compared with the commercial formula, PM and FM provided 8-80% of vitamins A, E, and C, folic acid, manganese, zinc, and iodine. Preparations of PM and FM provided 11% of the minimum recommended intake of linoelcic acid and 67% of the minimum recommended ălinolic acid, per 450 ml mixture.

It took 21-25 minutes to prepare optimally 120 ml of replacement feed from PM or commercial infant formula and 30-35 minutes for the fresh milk preparation. For an infant requiring 6-8 feeds per day, a carer would need 2.5 hours per day to prepare replacement milks, without taking into account time taken to feed the infant. PM or FM costs approximately R15 per month for home-averaged over the first six months of life and commercial formula cost approximately 32%.

The authors conclude that no home-prepared replacement milks in South Africa meet all estimated micronutrient and essential fatty acid requirements of infants aged under 6 months. Commercial infant formula is the only replacement milk that meets all nutritional needs. The authors suggest that breastmilk replacement milk options given in WHO/UNAIDS/UNICEF HIV and infant feeding training course materials are needed. If replacement milks are to provide total milk, preparation options must avoid vegetable oils, such as soybean oil, as a source of linoleic and linolenic acids, and additional vitamins and minerals.

Summary of published paper

Neurolathyrism is a neurodegenerative and irreversible spastic paraparesis that can be crippling and lead to complete dependency. This disorder can be caused by excessive consumption of the drought resistant pulse, grass pea (Lathyrus sativus). All major famines and chronic food shortages in Ethiopia from the mid-1970s onwards have been accompanied by reports of neurolathyrism epidemics. A recent research study examined whether addition of food-aid cereals to grass pea in roasted, boiled and raw, unripe seed preparations of PM and FM added to grass-pea foods was obtained from the female household member who prepared food. This information was collected for six months before the first detected case, and until the end of the epidemic. The enumerators classified the proportion of food aid cereal to grass pea as at least one third or less than one third. Spearman’s correlation coefficient was calculated to assess the association between the incidence of neurolathyrism and the amount of cereal food aid distributed.

Between September 1995 and December 31st 2000, a total of 2035 new cases were detected in Delanta Dawit district (period prevalence of 12.3 per 1000). There was a significant negative correlation between new cases per 1000 and the per-person amount of food aid distributed. The food aid mainly consisted of wheat and maize, with limited supplementary rations of vegetable oil. However, delivery became irregular and delayed and the amount of food aid fell, which coincided with the peak of the epidemic in 1997 when 1454 new cases were reported.

In the case study context, the consumption of grass pea in roasted, boiled and raw, unripe seed form was associated with an increased risk of neurolathyrism, whereas no raised risk was noted for the fermented pancake, unleavened bread and gravy preparations. Cereals are sometimes mixed with grass pea in the boiled, fermented pancake and unleavened bread formulas. Use of cereal and grass-pea flour mixtures for these preparations reduced the risk of paralysis if they contained more than a third cereal. The addition of wheat and maize to grass-pea preparations could compensate for the deficiency of methionine and cysteine, as well as diluting the concentration of toxins.

Susceptibility to neurolathyrism varies among individuals and communities, and an increased risk of paralysis is associated with the male sex and young age. The study controlled for the effects of age and sex in the logistic regression analysis, but was unable to control perfectly for socio-economic variables and interfering acute-illness episodes.

The study authors highlighted how reports were showing that only grass pea was resisting the current drought in most neurolathyrism prone areas, and that the population is increasingly relying on this pulse. The authors concluded that food aid should therefore not be restricted to the almost starving, but should also be urgently sent to people in neurolathyrism prone areas before they are forced into exclusive grass-pea consumption. Dietary information, education and communication on safe grass-pea preparations are also needed.

F. Lambein


5. The clinical symptoms of neurolathyrism are identical to those of konzo, a crippling disease caused by over-consumption of insufficiently treated cassava (Manihot esculenta). See Field Exchange 16, Suspected toxic ingestion outbreak in central Afghanistan, pp7-9; August 2002.
A study reported in Public Health examined refugee participation in health services in Tanzanian refugee camps. Participation was understood as a process whereby Health Information Team (HIT) members, as agents of the refugee community, actively pursue identification of health needs, make decisions and assume responsibility to meet these needs, in order to strengthen the capacity of the refugee community to improve their health. This type of approach contrasts with the more usual 'top down' approach used in humanitarian emergencies by relief agencies, in which community participation is seen as an optional, rather than an essential part of the process.

In nutritional emergencies, where selective feeding programmes may be established by international humanitarian agencies, there has been very little attention paid to the community participation in refugee camps. This type of approach contrasts with the more usual 'top down' approach used in humanitarian emergencies by relief agencies, in which community participation is seen as

**Starvation and Future Cardiovascular Disease**

The Leningrad siege occurred during the Second World War, as German troops prevented supplies reaching the city from 8th of Sep 1941 to January 27th 1944. If rations were received in full, which was not always the case, the population received about 460 calories per day (mostly bread, oil and sugar) with virtually no protein. Out of a population of 2.9 million, 630,000 died from hunger related causes, most during the winter of 1941-2. A recent study examined whether the siege increased risk of mortality, particularly from cardiovascular disease in subsequent years.

As part of the 1973 US-Soviet collaborative programme, data were collected for a lipid reseach programme. This involved a baseline survey undertaken in Leningrad between 1975-7 in which 5000 men, born between 1916-35, were randomly selected in Petrogradsky district. Data were collected on socio-economic factors, anthropometric measures and biological measurements, e.g. blood pressure, cholesterol concentration and cardiovascular dysfunction. Nearly a third of those surveyed had lived in Leningrad during the siege, which meant that they likely spent the whole siege period there since most people were unable to leave.

Analysis of the data showed a significant excess risk of high systolic and diastolic blood pressure in men who lived through the siege. Those who were exposed before puberty (9-15 years) at the peak of starvation (January 1942) were especially prone to high systolic blood pressure (odds ratio 1.56, 95% confidence interval 1.21 to 2.02), with a mean excess of 3.3 mm Hg. Except for a tendency to have a greater skinfold thickness, all other indicators of cardiovascular risk were remarkably similar for those exposed and non-exposed to the siege.

During the follow up, 2048 out of the remaining sample of 3905 men died. Cardiovascular disease accounted for 1050 deaths (51%), 662 from ischaemic heart disease and 333 from stroke, 97 at participated in health services. The excess risk of dying for those who experienced the siege was 21% (relative risk 1.21, 1.00-1.43). For stroke, but not for other mortality, the siege effect was significantly stronger for those who experienced it around puberty than at other ages.

Lifestyle and socio-economic circumstances did not confound the association between cardiovascular mortality and siege exposure. It appears that critical stages in the process of regulating blood pressure may occur during puberty and that starvation may cause permanent disruption of blood pressure regulation. Other potential mediating factors (for example endocrine changes) were not measured, and thus these conclusions remain hypothetical. The nutritional component of starvation is also entangled with the trauma of the siege.

The study does, however, indicate that puberty may be a highly vulnerable period and that starvation in puberty today may have implications for future cardiovascular disease in many developing countries.

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A recent religious/ethnic conflict in northern Nigeria provided a rare opportunity to investigate the effects of displacement on the growth and body composition of the children of families that were forced to migrate. In September 2001, the Fulani population inhabiting the Jos Plateau of Nigeria was overthrown and most of those who had survived, including the children, to migrate to temporary camps located about 40 km east of the city of Jos. This study was possible as one month before the conflict, a team had conducted a comprehensive anthropometric analysis of the same Fulani children who were displaced by the crisis. The Fulani of northern Nigeria, and the Jos Plateau in particular, are semi-nomadic pastoralists whose culture and economy are centred around cattle. They are physically very active, consuming a diet rich in dairy products and generally abstain from alcohol and tobacco.

In the pre-conflict study, bioelectrical impedance analysis, as well as standard anthropometric techniques, had been used to investigate the growth and body composition characteristics of 540 Fulani children aged 1-18 years. In April 2002, the study team located 30 of these same children, and re-measured height, weight, body fat and lean body tissue. In addition, the team used bioelectrical impedance analysis (BIA) to compare the phase angle of each child before displacement and after seven months of living in a displacement camp. The phase angle is foremost an indicator of an individual’s overall nutritional status, and is thought to provide information regarding the vitality and integrity of cellular membranes.

Seventeen males and 13 females, between the ages of 4-13 years, were included in the study. In terms of mean values and relative to growth curves established during the tranquil period immediately preceding the crisis, all but one of the girls grew taller and gained more weight than predicted - two-thirds of the weight gained by the girls was due to fat. While the male subjects, on average, grew taller, they gained 30 percent less in height than predicted. However, the boys did gain 50 percent more weight than predicted. Unexpectedly, fat accounted for one-half or more of the weight gain in both the boys and girls. An explanation for the unanticipated high proportion of fat in the weight gain may lie in the fact that caloric expenditure was reduced relative to what it had been pre-crisis, due to the confinement and reduced activity level. Another explanation is that the diet was adequate in terms of calories but unbalanced in terms of essential nutrients, such as protein.

In general, the boys did less well than the girls in the months following the crisis. This might be explained by the fact that girls spent more time close to their mothers, who were responsible for cooking and distribution of food in the camp. Also, the boys from ages 5-6 years onwards were more active and spent considerable time tending goats and cattle. The phase angle of all subjects did not decline significantly during the pre- and post-crisis interval.

In general, from the nutritional perspective, the Fulani children coped relatively well during the seven-month period of displacement. The fact that neither the growth nor body composition of the Fulani children deteriorated significantly following the crisis was attributed to the fact that during that period, they were receiving adequate and continuous supplies of food. Within 3 or 4 days of being displaced, the children were receiving food from several sources including grain from the federal government, as well as milk, cheese and butter fat from the cattle that had been recovered in the days and weeks following the crisis. Furthermore, the displacement camp into which the children and their families migrated was located in a secure region of the country and one that was controlled by people whose culture and ethnicity were similar to theirs. This minimised the psychological stress usually associated with displacement. Finally, at no time during their seven months as a displaced population were the children separated from their mothers. In conclusion, this study shows that displacement, in general, may not necessarily lead to deleterious effects on the growth of children.

Investing in Nutrition to Reduce Poverty

Summary of published research

Sierra Leone suffers from endemic and pervasive poverty due to long periods of economic decline and mismanagement. The 10-year civil war has further exacerbated the depth and severity of poverty. As a result, malnutrition rates are among the highest in the world. However, policy makers do not always recognise the fight against malnutrition as a priority to ensure the healthy human capital needed to fight poverty and achieve sustainable, positive economic growth. In view of this, the Ministry of Health and Sanitation in Sierra Leone, with technical support from Helen Keller International and UNICEF, organised a two week workshop on nutrition policy analysis and advocacy. The analysis was conducted by an intersectoral and inter-agency group of Sierra Leonean senior policy advisors representing a large number of government ministries. The analysis covered the period from 2002 to 2006, the five years following the democratic elections that took place in May 2002. The objective of the analysis was to quantify both the consequences of malnutrition on human capital and productivity, and the potential benefits of improved policies and programme to reduce malnutrition.

The analysis revealed that 46% of child deaths in Sierra Leone are attributable to malnutrition, the single greatest cause of child mortality in the country. In the absence of adequate policy and programme action, malnutrition will be the underlying cause of an estimated 74,000 child deaths over the next five years. The analysis also revealed that if current levels of iodine deficiency remain unchanged over the same period, 252,000 children could be born with varying degrees of mental retardation as a result of intrauterine iodine deficiency. Finally, the analysis showed that in the absence of adequate policy and programme action to reduce the unacceptable rates of anaemia in women, the monetary value of agricultural productivity losses associated with anaemia in the female labour force over the next five years will exceed $94.5 million.

A main conclusion of the work was that sustained investment in nutrition in Sierra Leone could bring about enormous human and economic benefits to develop the social sector, revitalise the economy, and attain the poverty reduction towards which Sierra Leone is striving towards.


2 The phase angle is calculated as the angular transformation of the arc-tangent of the ratio of reactance to resistance and is obtained by bioelectrical impedance analysis.
Approximately 140,000 refugees from Burma (Myanmar) live in ten camps along the Thailand-Burma border. They receive basic food and relief assistance from the Burmese Border Consortium (BBC), as well as a variety of health and education services provided by various non-governmental organisations (NGOs). The food basket provided by the BBC is meant for short-term survival and it is assumed that refugees living in camps for an extended period should be able to supplement the food basket through some form of subsistence activity. The BBC’s basic food basket includes rice, split yellow hulled mung beans, fermented fish, soybean oil, dried chillies and iodised salt, and averages 2200 kcals per person per day (children under five receive half the amount of rice, beans and oil).

A recent study set out to determine how the BBC ration is used, the ability of households to supplement the food basket through some form of subsistence activity. The study was meant to provide information to assist BBC and other organisations in identifying appropriate amounts and types of food for long-term refugee situations.

The site for the study was Mae La Camp in Tak province on the northern border between Thailand and Burma. The camp has been in existence since 1995 and is home to 40,000 refugees. Space and water are very limited within the confines of the camp. Some residents find day labour in neighbouring farms, although the movement of refugees in and out of the camp is increasingly restricted by Thai border officials. Households established for one or more years with children under 15 years of age were sampled. A questionnaire was used to determine economic, food consumption, and dietary intake patterns. Foods consumed were weighed and measured using a 24-hour recall for the household unit and nutritional status was determined using scales and a measuring tape. In total, 182 households containing 1,159 people were surveyed.

The main findings included:
- Average household energy and protein intakes were 96.6% and 111.4% respectively, of the recommended daily allowance (RDA) for healthy Thais.
- Twelve percent of protein was derived from animal sources. Carbohydrate, protein and fat accounted for 84%, 9% and 7% respectively, of total energy. The intake of vitamins A, B1, B2 and C and of calcium ranged from 24.2% to 53.1% of RDAs.
- Among children under five, one-third (33.2%) were underweight, 36.4% were stunted and 8.7% were wasted. This compared unfavourably with Thai children under five from a reported NCHB survey in 1996, where just under one-fifth (18.6%) were under weight, 16% stunted and 5.9% wasted.
- Among older children, 41.2% of those aged 5-9.9 years, 31.5% of those aged 10-13.9 years and 19.9% of those aged 14-17.9 years were underweight. Over half (61.6%) of those aged 5-9.9 years, 51.6% of those aged 10-13.9 years and 51.5% of those aged 14-17.9 years were stunted.
- Among a sample of 345 adults, 18.8% were thin (Body Mass Index (BMI) 18.5-19.9) and 7.2% were very thin (BMI < 18.5). 
- Examination for clinical signs of micronutrient deficiency found that among children up to 13 years, none had Bitot’s spots, 5% had active angular stomatitis.
- 80th percentile of expected weight-for-age three months follow up. In the zinc supplemented group, 58% of the children were above the 80th percentile of expected weight-for-age three months after discharge, compared with 27.6% in the control group. Dietary zinc supplementation resulted in a significant reduction in diarrhoeal disease, respiratory morbidity, and episodes of clinical anaemia, skin infections and fever, as well as vomiting, in children with PEM. These findings suggest that interventions to improve zinc intake in their management may be beneficial to Basotho children in Lesotho with PEM.

The authors of the study conclude that although zinc deficiency may not be a feature of malnutrition on presentation, failure to provide sufficient zinc may well delay convalescence and even limit the rate of growth in these children.
A recent study set out to test the hypothesis that the rate of carbon dioxide production is less in marasmic children with acute infection when compared to well-nourished children, but greater when compared to uninfected marasmic children. The study took place at Queen Elizabeth Central hospital, in Blantyre, Malawi. Using a stable isotope tracer dilution method, rates of carbon dioxide production were measured in children aged 12-60 months while receiving feeding. Results from 56 children were compared, 28 with marasmus and acute infection, 16 with marasmus, and 12 well nourished with acute infection. Those with acute infection had malaria, pneumonia or sepsis.

Well nourished children with acute infection produced more carbon dioxide than marasmic children. However, the rate of carbon dioxide production in marasmic children with acute infection was not greater than in uninfected children. The observed rate of carbon dioxide production was greater than that which could be produced from the dietary intake alone.

The study concluded that marasmic children do not increase energy expenditure in response to acute infection, as well nourished children do. The data suggest that children with protein-energy malnutrition and acute infection expend less energy, largely due to a lower body temperature and the absence of fever. Although not raising body temperature in response to acute infection conserves scarce nutrients, it also determines that the immunological benefits of fever are not realised. Fever activates cellular immunity, stimulates the acute phase response, enhances iron sequestration and is associated with better survival. The clearance of the malaria parasite is also accelerated by fever.

Additional disease burdens may add to the complexity of the situation. HIV/AIDS issues need to be ‘mainstreamed’ by aid agencies, both internally in terms of training staff, and externally in terms of the modalities, development modalities and of the links and interaction between humanitarian aid and development actors. The report finds a range of practical questions and challenges around programming of humanitarian aid in the context of an HIV/AIDS epidemic (see box).

The report asserts that the argument that HIV/AIDS significantly contributed to the southern Africa crisis came about gradually, but may have been over-emphasised and that other equally or more important factors risked being neglected. There has been concern on the part of certain donors and NGOs about how HIV/AIDS is being used to justify a need for continued humanitarian aid in some countries, and there has been scepticism about the underlying empirical evidence of the links between HIV/AIDS and food insecurity. The level of current data means that the scale and severity of HIV/AIDS’ contribution to both acute and chronic food insecurity is simply unknown.

Considering the numbers affected and dying with HIV/AIDS in sub-Saharan Africa, the authors consider HIV/AIDS a humanitarian problem and an acute crisis, which requires both a humanitarian response to suffering and a long-term perspective. They raise a number of challenges in responding to this situation:

i) Considering HIV/AIDS as a health crisis in its own right, in terms of massive and increasing levels of mortality and morbidity over a period of decades, requires a long-term response encompassing prevention, care, treatment and mitigation.

ii) Increasing underlying vulnerability, HIV/AIDS adds to the impact of other shocks, triggering acute crises more easily and complicating recovery.

iii) HIV/AIDS, as one of many contributory factors to long-term and chronic food insecurity, poverty and destitution, adds to the existing need for safety nets and long-term welfare, as part of the overall response to poverty.

The report author acknowledges that these are not new challenges and there is a danger of ‘AIDS exceptionalism’, privileging AIDS over other diseases in health systems or focusing unduly on the impact of AIDS in food security programmes. It is further argued that the overall response to HIV/AIDS needs to take place over decades, and requires a rethinking of relief

Dietary energy intake in the 44 marasmic children studied was 350 kJ/kg/day (84 kcal/kg/d), the level recommended for malnourished children from experience in treating malnourished children in Jamaica. The data from the rate of carbon dioxide production suggests that to match energy expenditure, intake should have been increased by 25% to about 440 kJ/kg/day (105 kcal/kg/d), when the quantity of food is considered. Current standard recommendations are that during the initial phase of treatment, severely malnourished children should receive 336-420 kJ/kg/day (80-100 kcal/kg/d). Further research is needed to determine whether increased dietary energy improves the response to acute infection, and whether these children might be better served by increasing their dietary intake.

The author reiterates that humanitarian relief should remain focused on saving lives and alleviating suffering, in response to acute crises. However, in the context of a HIV/AIDS epidemic, HIV/AIDS issues need to be ‘mainstreamed’ by aid agencies, both internally in terms of training staff and externally in terms of how humanitarian aid programmes are structured and delivered.

HIV/AIDS and Humanitarian Action

Summary of published paper


In reviewing the literature, the report sets out how the disease has clear negative impacts on food security at household level and that these impacts are complex, wide-ranging and gender-specific. In particular, it highlights that:

- HIV/AIDS is one of many factors contributing to underlying vulnerability
- HIV/AIDS creates particular types of vulnerabilities, through affecting predominantly prime-age adults, clustering in households, is gender specific, and through interacting with malnutrition
- HIV/AIDS undermines the ways in which people have traditionally coped with famine
- HIV/AIDS may increase vulnerability in famines, as people with AIDS will be less able to cope with reduced food intake and additional disease burdens
- Issues associated with crisis may add to the risks of transmission of HIV/AIDS and contribute to the spread of the epidemic.

However, it is also argued that original research is limited, tending to focus on agriculture and then little information about the scale of the impact of HIV/AIDS on food security at national and regional levels. The report stresses the importance of understanding how the impact of HIV/AIDS interacts with other factors, such as drought and conflict, to create acute humanitarian crises. All these factors must be considered when providing humanitarian relief in the context of a HIV/AIDS epidemic. The process whereby HIV/AIDS negatively
Nutritional Status of HIV+ Pre-School Children in South Africa

Summary of unpublished research

In paediatric AIDS, nutritional status seems to be of greater prognostic value than any particular opportunistic infection. A number of studies conducted amongst HIV infected children in South Africa have found underweight prevalence figures of 25-30%, and figures of 55-60% for stunting. These are much higher than the average percentages in a national survey conducted on children below 6 years of age, which indicated that 10% were underweight and 23% stunted.

In the Eastern Cape, where the prevalence of poverty, TB and HIV is amongst the highest in South Africa, a recent study set out to determine the impact of risk factors on the prevalence of malnutrition amongst HIV infected children. It was hoped that such information would assist decision makers in the formulation of optimal nutrition strategies to limit the impact of HIV/AIDS on the health of children.

The study took place at the immunology (outpatient) clinic at Livingstone Hospital, in the Eastern Cape, South Africa, between June and August 2003. One hundred and two HIV infected children, between the ages of 18 and 72 months, were included in the study. The children were on a standard regimen, receiving antibiotic (co-trimoxazole) prophylaxis, treatment of opportunistic infections, therapeutic dosages of Vitamin A every four to six months and a daily multivitamin supplement. None of the children received antiretroviral treatment, as such treatment did not form part of the government’s protocol for treatment at the time of the study. The study was undertaken with the informed and written consent from each subject’s parent/caretaker.

Socio-demographic and nutritional data were collected by trained, registered dietitians, assisted by a translator when necessary. This included anthropometric measurements of height and weight, mid upper arm circumference (MUAC) and triceps skinfold thickness.

Clinical assessment data, to determine the indices of morbidity, were collated with the assistance of registered health care professionals, which included a paediatrician and a registered nurse.

Findings

Nutritional status

The children in the sample (mean age 40.7 months) had a mean weight-for-age Z-score (WAZ) of –1.96 (SD=1.57), a mean height-for-age Z-score (HAZ) of –2.48 (SD=1.6) and a mean weight-for-height Z-score (WHZ) of –0.66 (SD=1.53). Although half (50.9%) of the children were underweight (WAZ < -2) and 58.8% were stunted (HAZ < -2), only 21.5% had a WHZ below –2. Eight children (7.8%) were severely malnourished (WHZ <-3). Twelve subjects (11.7%) had a MUAC below the cut-off value of 12.5 cm.

Indices of morbidity

Nearly half (43%) of the children were categorised by the paediatrician as HIV symptomatic, while twenty seven children (26%) either were on TB treatment or presented with signs of TB on the day of screening. A decreased food intake due to anorexia, nausea, vomiting, sore mouth or dysphagia was reported in sixty-nine children (68%), while 38 children (37%) suffered from chronic diarrhoea. Both decreased food intake and chronic diarrhoea were significantly associated with a poorer mean WAZ score (p<0.05). The sample suffering from chronic diarrhoea had a significantly lower WHZ score than those without (p=0.01).

Discussion

At many primary health care services and at dedicated HIV clinics, weight is the only recorded measurement obtained from HIV+ children. The high prevalence of stunting, as demonstrated in this study, suggests that many children may be adapting to a chronic state of illness.

Nutrition intervention in the form of macronutrient food supplementation, only takes place in those children who clinically appear to be severely malnourished. The stunting in the majority of the sample may create the false perception with most health professionals that the children's nutritional status

By Liana Steenkamp, Dr Jill von der Marwitz, and Charlene Giovanelli

Liana Steenkamp is a nutritionist currently based at the HIV/AIDS Centre, University of Port Elizabeth and since 2001, has been involved in HIV related research and training. She previously spent 10 years working in various nutrition sectors of the Department of Health.

Dr Jill von der Marwitz is Co-ordinator at the HIV/AIDS Centre, Faculty of Health Sciences, University of Port Elizabeth, Port Elizabeth, South Africa.

Charlene Giovanelli is a dietitian currently based at Livingstone hospital, Port Elizabeth.

The contribution of M Minnaar, Sr Oliphant and Dr MAI Khan in carrying out this study is gratefully acknowledged.

Table 1  Mean weight-for-age Z-scores associated with dietary characteristics and nutrition related complications

<table>
<thead>
<tr>
<th></th>
<th>Group 1</th>
<th>Group 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n (%)</td>
<td>mean WAZ</td>
</tr>
<tr>
<td>Food insecurity</td>
<td>39 (38)</td>
<td>-1.99</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mixed feeding at 6 weeks</td>
<td>37 (36)</td>
<td>-2.39</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mixed feeding at 6 months</td>
<td>38 (37)</td>
<td>-2.14</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mixed feeding at 12 months</td>
<td>7 (6)</td>
<td>-3.13</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Decreased food intake (symptom-related)</td>
<td>69 (68)</td>
<td>-2.18</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chronic diarrhoea</td>
<td>38 (37)</td>
<td>-2.37</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HIV Symptomatic/HV Symptomatic</td>
<td>44 (43)</td>
<td>-2.4</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TB Symptoms</td>
<td>27 (26)</td>
<td>-3.86</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Use of garlic</td>
<td>28 (27)</td>
<td>-2.02</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Use of African potato</td>
<td>22 (21)</td>
<td>-1.8</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Significant difference to the 95% confidence interval
Adult malnutrition was initially put on the agenda of the United Nations Standing Committee on Nutrition (UNSCN) Working Group on Nutrition in Emergencies meeting in April 1999. The current position of research in this area is that there is no consensus on standards of anthropometric measures of malnutrition in adults in complex emergencies. At the UNSCN meeting in 2001, research priorities, identifying steps to improve the assessment of adult malnutrition, were agreed. Since then, the thematic group on adult malnutrition within the working group has becoming increasingly active. Work is now being taken forward through a unique academic – NGO (non-governmental organisation) partnership, inter-linked by PREN (Partners for Research in Emergency Nutrition), a recently established collaborative research group at the University of Aberdeen, (figure 1).

Working in partnership with NGOs, bilateral and global organisations, PREN aims to carry out much needed epidemiological and evidence-based practice research, driven by questions from the field, within the area of malnutrition in complex emergencies. A Memorandum of Understanding (MoU) has been developed to provide assurance to all members involved in the project on issues such as data ownership, publication, confidentiality and management of the arrangement.

Education forms the cornerstone of preventative therapy and is vitally important that parents/caretakers receive comprehensive and accurate information. Patients seen by the health care providers must be given health education at antenatal clinics regarding infant feeding and the dangers of early mixed feeding, especially if infants are HIV positive. Alternative remedies are currently aggressively being promoted in the popular media in preference to sound nutrition practices, which is contributing to a great deal of uncertainty amongst health care workers about alternative complimentary therapies. This study indicated no nutritional benefits are derived from such practices. Nutritional management of disease complications, in particular diarrhoea and anaemia need to be addressed, as these variables indicated a significant relationship with malnutrition and wasting.

For further information, contact: Liana Steenkamp, HIV/AIDS Centre, Faculty of Health Sciences, University of Port Elizabeth, PO Box 1600, Port Elizabeth, 6001, South Africa.

Email: lianas@safrica.com

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### Table 1: Project Research Questions

<table>
<thead>
<tr>
<th>Questions at Population Level</th>
<th>Why do you find significant numbers of severely malnourished adults in some crises and not in others?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do context factors give a direction of risk of severe malnutrition in an adult population, taking different levels of anthropometric measures as the dependent variables?</td>
<td></td>
</tr>
<tr>
<td>Can context factors inform/help interpret and generalise findings from specific surveys done in specific contexts?</td>
<td></td>
</tr>
<tr>
<td>Are the associations found at the population survey level also seen at the TFP population level, (i.e., what context factors characterise the situation in a TFP with significant numbers of severely malnourished adults)?</td>
<td></td>
</tr>
<tr>
<td>How are context factors associated with different levels of anthropometric measures?</td>
<td></td>
</tr>
</tbody>
</table>

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Skin lesions in a HIV positive child with malnutrition status is acceptable. A large group which is valuable data to collect WAZ scores, but relatively good WHZ scores, may therefore be missed. The study indicates that in the absence of comprehensive nutrition assessment, simple markers, like the presence of chronic diarrhoea and loss of appetite, can be used to refer these patients for a more detailed nutritional screening to determine whether they qualify for nutrition intervention in the form of supplementation.

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Summary of ongoing research

By Laura Wyness, Researcher, University of Aberdeen, UK

Aims

The aims and objectives of the project were defined over several months through discussions between PREN and the HSAG. The main aims of the project are first, to carry out a robust, standardised Systematic Critical Literature Review (SCLR), to explore the school and population level of nutritional status for severe adult malnutrition. Secondly, to develop techniques for assessing routine, retrospective field data on severe adult malnutrition that has been collected by different NGOs. This form of data is being used, as it will include a broad range of contexts and populations. This work will help achieve the third aim to develop a model to aid the assessment of severe malnutrition in adults during complex emergencies.

Literature

The SCLR will search for, quality assess and summarise the evidence identified in the published and unpublished literature and methods currently used, and methods that could be used, to assess the nutritional status of adults during a complex emergency. The methods of nutritional assessment may include anthropometric and functional indicators, clinical signs, and contextual or situation indicators.

Initial Survey

In the initial stages of this project, a survey was conducted to investigate the type of data collected by NGOs, the problems experienced when collecting this data and the format of the data. A total of 27 NGOs were contacted and asked to complete a questionnaire (response rate 60%). The findings from this survey were used to inform the planning of the project.

The current stage of the project is to request routine retrospective field data on severe adult malnutrition from NGOs. To facilitate the preparation of the data for analysis, data from a few NGOs will be initially requested, with other NGOs being contacted as required. The data initially requested will consist of databases of Therapeutic Feeding Programmes (TFPs) and nutritional surveys (on database and hardcopy, if available). Context variables will be sought from Food Security Reports and Head of Mission Reports.

Data Analysis

Descriptive statistics of each NGO’s dataset will be carried out and findings reported back to that particular NGO. Analysis of the data will be carried out at two levels. The specific questions that the data will be used to address are shown in table 1.
Pellagra is caused by Niacin (Nicotinic acid) deficiency. The condition can be fatal and is often associated with other B vitamin deficiencies. Niacin (vitamin B3) is a water-soluble vitamin widely distributed in plant and animal food, but in very small amounts. Rich sources of niacin include groundnuts, fish, meat and pulses. The body can synthesise niacin from the amino acid tryptophan.

The recommended daily requirements range from 13 to 15 mg nicotinic acid equivalent for women and 16 to 19 mg for men. During pregnancy and lactation, an additional 2 and 5 mg nicotinic acid respectively, are required. For infants and children, 6 and 11 mg daily are recommended, respectively.

The initial clinical features of pellagra are non-specific and include anorexia, prostration, weight loss, headache and a burning sensation in the mouth. The fully developed syndrome, described by the “three D’s”, consists of dermatitis, gastrointestinal symptoms (diarrhoea), and finally mental impairment (dementia). The dermatological signs are usually most prominent, symmetrically affecting sun exposed areas like the arms (“pellagra gloves”), the cheeks in a butterfly distribution, and the neck and upper chest (“Casal’s necklance”). Eventually the fourth ‘D’ can occur - death. When a niacin and/or tryptophan deficient diet is consumed, the lead-time for developing signs of pellagra is about 2 to 3 months.

Populations consuming maize or sorghum and little else are at risk of pellagra. Niacin deficiency is now endemic at very low levels amongst the rural poor in Africa where maize is the principal cereal. Examination of rural health centre records may show a few cases - especially during the ‘hungry season’. However, outbreaks of pellagra have only occurred in recent years living in the city.

Between June 1999 and November 2002, there were four outbreaks of pellagra in Kuito town1. A total of 3859 cases were recorded during this period. During the first two outbreaks in 1999, the displaced population was the main group affected, with an attack rate of 4.7 per 1000 population. During the latter two outbreaks (2001 and 2002), it was the resident population who were most affected, with attack rates of 7.1 (in 2001) and 5.5 (in 2002) per 1000 population. In all outbreaks, women aged 15 years and older were the largest affected group.

Strategies to prevent outbreaks of pellagra in emergencies include diversifying the general ration to include bioavailable sources of niacin, fortification of foods when maize is a staple food in the ration, allocation of surplus foods to allow food sale or food exchange for another food commodity, vitamin tablet supplementation, and cultivation or production of foods by the affected population.

Adapted from: Pellagra and its prevention and control in major emergencies. WHO/NHD/00.10 Available online at http://www.who.int/nut/documents/pellagra_prevention_control.pdf

This article describes an assessment by MSF of using a micronutrient-rich food product, QBmix, in Angola and outlines possible strategies for the future in preventing micronutrient deficiency outbreaks in emergency affected populations².

Since the 1990s, Médecins Sans Frontières-Belgium (MSF-B) have worked in Kuito, Angola, as well as in several IDP (internally displaced person) camps around Kuito town. One of these camps, Kaluapanda, was established in March 2002 and has an estimated population of 4,400 people. During this period, MSF have been involved in a number of large scale emergencies in Kuito. However over the past year (2003), the situation has become much more stable, with the displaced population beginning to return home. The current MSF programme focuses on treatment of malaria and TB. MSF have also been implementing a pellagra treatment programme, which at the time of the study described in this article, was receiving 20-30 new patients every week. Most of those in this treatment programme were living in the city.

The contributions of Sandra Simons (medical coordinator, Angola), Ann Verwulgen (field coordinator, Kuito), Dr. Paulina Semedo (Coordinator of the National Nutrition Programme) and Sophie Baquet (Nutrition Advisor, MSF-B) are gratefully acknowledged.

Thanks to the MSF team of interviewers in Kuito, namely Aldino Gilles, Amelia Vila, Azevedo Antunes, Custodio Albano, Daniel Alfonso, Isabel Domingas, Manuela da Saudade, Maria do Ceu, Ventura Sozinho, and Veronica da Costa. Also, the assistance of Ms. Rita Kakwarta, Provincial supervisor for Nutrition, in the supervision of the teams, is appreciated.

1 Micronutrient supply in emergencies. Logistic feasibility and population acceptability of food supplementation with QBmix, Kuito, Angola. Evelyn Depoortere, January 2004
2 See Field Exchange 10, A Pellagra Epidemic in Kuito, Angola, by Sophie Baquet and Michelle van Hoo"
Box 2  Profile of QBmix

QBmix is manufactured by Nutriset. It has a shelf life of one year after manufacturing date, but studies are ongoing to improve this. It is recommended to store the product in a cool, dry place, below 30°C.

Use: QBmix is added to the family meal, like a condiment, after cooking only (not to destroy the vitamins). Preparation guidelines state to prepare the meal as usual, add QBmix® to the dish and mix well.

Recommended dose: One 210 g sachet meets the needs of 10 people for 2 weeks. A daily intake is not necessary – 21 g per person for a period of 2 weeks is sufficient (1.5 g/day) in 2 or 3 intakes per week. Overdosing is unlikely due to the very salty taste.

One 1.5 g dose of QBmix contains 7 mg iron, 400 mg folic acid, 34 mg selenium, 7 mg zinc, 600 mg vitamin A, 1.2 mg vitamin B1, 1.3 mg vitamin B2, 16 mg niacin, 5 mg vitamin B5, 1.3 mg vitamin B6, 2.4 mg vitamin B12, 90 mg vitamin C and 10 mg vitamin D. The equivalent of the height of the screw top gives 1.5 g of QBmix.

Adapted from the Nutriset QBmix guidelines for usage

all people vulnerable to deficiency consume the food ‘vehicle’, while the use of supplement tablets or capsules may place a considerable strain on an already overworked local health system.

The recent development of QBmix, a mineral and vitamin rich condiment, offers an alternative to the vitamin deficiency diseases. In order to assess the feasibility and acceptability of using QBmix in an emergency-affected and food aid dependent population, MSF-B and Epicentre collaborated with the Nutrition Department in the Ministry of Health to test the product out in Angola. Specific objectives of the study were to:

• compare the overall cost involved of using Corn Soy blend (CSB) and QBmix
• describe advantages and difficulties related to introduction and use of QBmix
• describe the population’s perception and acceptance
• make recommendations to MSF regarding the integration of QBmix in their future response to nutritional emergencies.

Study design

Two target groups were sampled for the study. The first group consisted of pellagra patients admitted in the MSF treatment programme, while the second group targeted recently displaced families dependent on external food aid, and therefore at risk of micronutrient deficiency disease.

As the two target populations were different, they were treated as independent samples. Overall, 116 of the 168 pellagra patients who had received QBmix, and a random selection of 233 displaced families in Kalaapanda, were interviewed.

Acceptability of QBmix was assessed through a questionnaire administered during a population survey and was expressed as the proportion of families that used the product correctly and liked it. A total of 10 interviewers were trained to administer the questionnaire. Questions address-

Table 1  Acceptance of QBmix in pellagra patients and displaced families in Kuito, Angola

<table>
<thead>
<tr>
<th>Pellagra patients (n = 116)</th>
<th>Displaced families (n = 232)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency of QBmix use</td>
<td></td>
</tr>
<tr>
<td>• Every day</td>
<td>108</td>
</tr>
<tr>
<td>• 2 or 3 times a week</td>
<td>7</td>
</tr>
<tr>
<td>• Other</td>
<td>1</td>
</tr>
<tr>
<td>Easy to use QBmix</td>
<td>109</td>
</tr>
<tr>
<td>Easy to add right quantity</td>
<td>111†</td>
</tr>
<tr>
<td>Used screw top as measure</td>
<td>112</td>
</tr>
<tr>
<td>Added QBmix after cooking</td>
<td>115</td>
</tr>
<tr>
<td>QBmix left over</td>
<td>80</td>
</tr>
<tr>
<td>Like to use</td>
<td>115†</td>
</tr>
<tr>
<td>Like the sachet (packing)</td>
<td>114†</td>
</tr>
<tr>
<td>Easy to dose</td>
<td>111†</td>
</tr>
<tr>
<td>Clotting</td>
<td>32†</td>
</tr>
<tr>
<td>Like the texture</td>
<td>113</td>
</tr>
<tr>
<td>Like the colour</td>
<td>116</td>
</tr>
<tr>
<td>Like the smell</td>
<td>112</td>
</tr>
<tr>
<td>Like the taste</td>
<td>116</td>
</tr>
<tr>
<td>Too salty</td>
<td>5</td>
</tr>
<tr>
<td>Refused by family</td>
<td>10†</td>
</tr>
<tr>
<td>Family wants more</td>
<td>110</td>
</tr>
<tr>
<td>Someone felt unwell</td>
<td>7†</td>
</tr>
</tbody>
</table>

* The one family who did not use the QBmix is no longer included in the denominator
† One missing value, ‡ two missing values, § three missing values

Table 2  Comparison of CSB and QBmix needs for 1000 persons for 30 days

<table>
<thead>
<tr>
<th>Total quantity</th>
<th>60g CSB/p/d</th>
<th>100g CSB/p/d</th>
<th>QBmix</th>
</tr>
</thead>
<tbody>
<tr>
<td>Volume</td>
<td>1800 kg</td>
<td>3000 kg</td>
<td>45 kg</td>
</tr>
<tr>
<td>Buying price</td>
<td>72 bags</td>
<td>120 bags</td>
<td>215 sachets</td>
</tr>
<tr>
<td>International transport</td>
<td>3600 euro</td>
<td>6000 euro</td>
<td>361.2 euro</td>
</tr>
<tr>
<td>MSF truck</td>
<td>28 euro</td>
<td>16.8 euro</td>
<td>0.42 euro</td>
</tr>
<tr>
<td>Rented truck</td>
<td>223.2 euro</td>
<td>372 euro</td>
<td>5.58 euro</td>
</tr>
</tbody>
</table>

Source: MSF-B Logistics in Luanda, Feasibility and costs assessment, Kuito, Angola, October 2003

Note: Prices originally given in US dollar, were converted to euro at the rate of 1.25 USD for 1 Euro.

Table 2 shows a comparison, in volume and cost, between CSB and QBmix. In order to meet micronutrient needs for a food aid
dependent population, 60 100g / person / day of CSB are needed compared to 1.5g of QBmix / person / day. Thus for the equivalent micronutrient supply for 1000 people for 30 days, 40-66 times the weight of CSB is needed compared to QBmix. CSB needs to be transported by ship, which takes about 3 weeks to arrive in Luanda and 2-3 weeks for custom clearance. For QBmix, transport can be by plane (and therefore quicker) or ship.

Storage conditions for CSB and QBmix are similar, both needing dry conditions. CSB comes in plastic bags of 25 kg, while QBmix comes in aluminum sachets of 210g (70 sachets in 1 carton box). QBmix must be stored below 30 Centigrade. The shelf life for CSB is between 6-18 months but vitamin content declines over time. Shelf life for QBmix is at least 12 months, during which time the micronutrient content remains stable.

As required quantities of CSB are much greater, there is a time element involved in setting up appropriate distribution systems, whereas sachets of QBmix can be given out quickly. However, given its unfamiliarity, it does take time to explain why and how to use QBmix. For beneficiaries, it is obviously easier to take home a few sachets compared to a 9-15 kg bag.

Discussion

Nearly all QBmix recipients found it easy to use, liked the taste and smell and would like to have more of it available in the future. Moreover, they would be ready to buy the product on the market if it were available. The majority of sachets were empty and many people spontaneously asked to receive more. Also, experience has shown that people in sub-saharan African like salty tastes, e.g. QBmix has been used to prepare meals in a prison in the Ivory coast after an outbreak of beriberi and was well accepted.

Compared to CSB, the volume and weight needed is considerably less for QBmix, leading to lower international and national transport costs. However, CSB also provides calories (380kcal per 100g) and people are familiar with it. In contrast, QBmix has few calories and people are unfamiliar with it, so resources are needed to explain the role and use of the product.

The results of this study cannot be generalised or extrapolated to other situations. For example, in Afghanistan, mothers in a therapeutic feeding centre did not like the earlier version of the product. A standardised questionnaire has limitations, e.g. it may not capture all the information available from respondents. Furthermore, recipients were in a position of dependence on food aid so they may have not felt free to say what they really thought. They may have been afraid of being excluded from food distribution and felt that if they said what was expected, this would ensure they received the product again.

In the pelagra group, interviews were not necessarily conducted with those who prepared the meal. It was the patient who received the QBmix who was interviewed, so that the information was second hand.

In Angola, the need for QBmix has become less relevant, as fortified maize is scheduled for distribution and the situation is increasingly stable, with more people having access to a diversified diet. In other situations where MSF intervenes, QBmix and/or other products now on the market such as Topnutri-Fam, a nutrient concentrate that comes in the form of powder, may be more appropriate, and clear operational indications have now been defined. Even though these products are not the solution, they do provide one possible tool to prevent micronutrient deficiencies where there are no other sources of vitamins or minerals.

In large-scale emergencies, when the general ration programme is erratic, or unbalanced in terms of micronutrients, ready-to-use micronutrient supplementation products should systematically be distributed to vulnerable populations. This type of supplement can also be used in other situations. For example, for hospitalised patients, patients in TB or HIV treatment programmes, or in a prison setting, where the product could be systematically added to prepared meals 2 or 3 times per week. Although medical humanitarian agencies may not be directly involved in the distribution of general food rations, they do have a role in ensuring people have an adequate supply of micronutrients. Activities for such agencies could, therefore, involve lobbying for the use of this form of micronutrient supplementation with those agencies resourcing and/or implementing nutritional interventions, and social marketing in order to promote and explain the use of this type of product.

When introducing this type of new product onto the market, clear and adapted information should be given to the target population. For example, specifically for QBmix, key information to be used in the formulation of micronutrient supplementation should be given to the target population. For example, specifically for QBmix, key information to be used in the formulation of micronutrient supplementation should include the following practical messages:

- the mix contains vitamins and minerals essential for health
- use one screw top per person
- use every day if possible, but 2-3 times per week is sufficient
- salt can be added if desired
- the mix should be added to the meal after cooking

In order that the recipient population fully comprehend the role and significance of a product like QBmix, ‘reference’ persons from the community should be appointed who can be referred to at all times.

In conclusion, new products are now available on the market, which should facilitate the prevention of micronutrient deficiencies in food-aid-dependent populations in emergencies. Aid agencies should be aware of the existence of these products and be ready to use them when indicated.

For further information, contact: Evelyn Depoortere, Epicentre, p/a MSF-Belgium, Dupréstraat 94, 1090 Brussels, Belgium. Email: evelyn.depoortere@brussels.msf.org

Explanation of the use of QBmix

Strategies for the future

1 Produced by DNature Foods/Compact AS, Norway.
WHO/TALC materials on the Management of Severe Malnutrition

Given the recent debate and rapidly evolving developments in the management of severe malnutrition, knowledge of current guidelines and training materials and how to access them is essential for field workers. A listing of recent materials on the management of severe malnutrition, distributed by WHO and TALC, is being included in this issue along with details on pricing, language and contact addresses.

<table>
<thead>
<tr>
<th>Item</th>
<th>Date</th>
<th>Title</th>
<th>Type material Authors</th>
<th>Description</th>
<th>Distributor</th>
<th>Approximate price</th>
<th>Language**</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1999</td>
<td>Management of severely malnourished children: a manual for physicians and other senior health workers</td>
<td>WHO Manual 60 pages.</td>
<td>Internationally agreed guidelines on the management of severe malnutrition in young children (and briefly in adults and adolescents) for health staff working at central and district level.</td>
<td>NHD/WHO</td>
<td>NHD/WHO</td>
<td>ENG, Fre, Spa, Port</td>
</tr>
<tr>
<td>2</td>
<td>2000</td>
<td>Management of the child with a serious infection or severe malnutrition WHO/FCH/CAH/00.1</td>
<td>Manual with 20-page chapter ‘Severe Malnutrition’ + appendices. WHO-IMCI</td>
<td>IMCI guidelines for senior health staff responsible for the care of young children at the first referral level in developing countries</td>
<td>CAH/WHO</td>
<td>CAH/WHO</td>
<td>Eng, Fre, Rus, TALC</td>
</tr>
<tr>
<td>3</td>
<td>2000</td>
<td>Treatment of severely malnourished children</td>
<td>Slides + notes for facilitators. Schofield/Ashworth/Burgess</td>
<td>Set of 24 teaching/learning slides for staff in health centres, hospitals and emergency feeding programmes.</td>
<td>TALC</td>
<td>TALC</td>
<td>£3.50 +pp Eng</td>
</tr>
<tr>
<td>4</td>
<td>2001</td>
<td>Improving the management of severe malnutrition</td>
<td>Training modules (300 pages) on CD-ROM. Ashworth/Schofield (LSHTM) &amp; Puaone/Sanders (UWC)</td>
<td>Trainers’ Guide for those running training workshops. It tells how to plan a workshop and contains course materials, handouts and transparencies that participants can use to train their own staff, especially nurses. Clinical setting not required.</td>
<td>LSHTM &amp; UWC</td>
<td>LSHTM &amp; UWC</td>
<td>Free TALC (see item 7 below) Eng</td>
</tr>
<tr>
<td>5</td>
<td>2002</td>
<td>Training course on the management of severe malnutrition WHO/NHD/02.04</td>
<td>Training guides and 7 modules with support material including a video. WHO</td>
<td>Instructor and Participant Guides (with exercises and photos) for 3-day orientation course for instructors and 6-day training course for senior health workers</td>
<td>NHD/WHO</td>
<td>NHD/WHO</td>
<td>Eng, Span (Fre/Port under prep.)</td>
</tr>
<tr>
<td>6</td>
<td>2003</td>
<td>Caring for severely malnourished children</td>
<td>Book 82 pages. Ashworth/Burgess</td>
<td>Based on items 1, 2 and 4 and written for nurses and other health professionals working in resource-poor settings. Sets out the 10 steps and briefly explains the rationale for each. Includes how to involve mothers in care.</td>
<td>TALC</td>
<td>TALC</td>
<td>£3.15 +pp Eng</td>
</tr>
<tr>
<td>7</td>
<td>2003</td>
<td>Caring for severely malnourished children</td>
<td>Book 96 pages. WHO/NHD</td>
<td>Contains items 3, 4, 6 and a list of related websites.</td>
<td>TALC</td>
<td>TALC</td>
<td>£4.50 +pp + includes hard copy of item 6 – CD-ROM not sold separately Eng</td>
</tr>
<tr>
<td>8</td>
<td>2003</td>
<td>Guidelines for the inpatient treatment of severely malnourished children</td>
<td>Handbook 48 pages. Ashworth/Khanum/Jackson/Schofield NHD/WHO</td>
<td>Practical 10-step treatment guidelines similar to the malnutrition section of item 2. Support material for item 5.</td>
<td>NHD/WHO</td>
<td>NHD/WHO</td>
<td>US$ 9.00 or SwFr 10.00 (7.0)* Eng</td>
</tr>
</tbody>
</table>

Abbreviations, Addresses and Websites

- IMCI - Integrated management of childhood illness
- LSHTM - London School of Hygiene and Tropical Medicine, Nutrition and Public Health Intervention Research Unit, Keppel Street, London WC1E 7HT, UK. Fax: +44 207 958 8111, email: ann.hill@lshtm.ac.uk, http://www.lshtm.ac.uk/nphiru
- pp - post and packing
- TALC - Teaching-aids At Low Cost, P O Box 49, St Albans AL1 1TX, UK. Fax: +44 1727 846852, email: info@talckuk.org, http://www.talckuk.org
- UWC - University of Western Cape, School of Public Health, Private Bag X17, Bellville 7535 Cape, South Africa. Fax: +27 21 959 2872, email: tpoane@uwc.ac.za or dsanders@uwc.ac.za, http://www.soph.uwc.ac.za
- WHO - World Health Organisation; Marketing & Dissemination, 1211 Geneva 27, Switzerland. Fax: +41 22 791 4857, email: publications@who.int, http://bookorders.who.int

Additional materials are also available from several other organisations. Relating to infant feeding in emergencies, Module 1, Infant Feeding in Emergencies for emergency relief staff, is available and accessible online or in print form from ENN. An online version of Module 2, Infant Feeding in Emergencies, for health and nutrition workers, will soon be available from ENN, and will include a section on managing severely malnourished infants aged under 6 months. ENN has also recently published an interoperable workshop report, Community based approaches to managing severe malnutrition. For further details, email: office@ennonline.net, or see online at http://www.ennonline.net.
Nutrition in emergencies working group, SCN 2004

A t the 31st Standing Committee on Nutrition (SCN) session held recently in New York (21-25 March, 2004), progress of the Nutrition in Emergencies Working Group (NEWG) was reviewed. Chairied by Saskia van der Kam (Médecins Sans Frontières), work was presented in six subject areas (theme groups). The contribu-
tion of the NEWG activities to the realization of the Millennium Development Goals, the central theme of the 31st session, was also consid-
ered at the meeting.

Adult malnutrition
Bradley Woodruff (CDC) and Jane Knight (University of Aberdeen) presented a joint re-
search initiative by University of Aberdeen (leading). Partners: Research Emergency Nutrition (PREN), the Humanitarian Scientific Advisory Group (including ENN, CDC, EpiCentre) and the NGO Support Group. The study aims to explore and develop a model to increase the generalisability and robustness of current indicators of severe adult malnutrition during complex emergencies, by literature review (published and unpublished) and analy-
sis of data including context. Agencies were requested to forward any related information including reports, raw data, patient cards, surveys and articles.

Community based therapeutic care (CTC)
Kate Sadler (Valid International) outlined the considerable progress made in managing severe malnutrition in a community setting. Working

New Measuring Scoops for F75 Therapeutic Milk

T o respond to frequent requests for measuring scoops for the preparation of small quanti-
ties of F-75, Nutriset with the approval of UNICEF, are including measuring scoops in every carton of F-75.

The Nutriset measuring scoops are red with the NUTRISET logo printed on the handle.

Preparation of F75 therapeutic milk using the red NUTRISET scoop: Mix one level measuring scoopful of Nutriset F-75 therapeutic milk powder in with 20 ml of water. This dilution is only valid for F75.

To dilute Resomal or F100 therapeutic milk using the red scoop, a different dilution is required. For further infor-
mation on dilution, contact Christelle Lecossais, Product Manager, email: clecossais@nutriset.fr

ECOWAS Nutrition Forum on Nutrition and HIV

The West African Health Organization (WAHO), a specialist agency of ECOWAS (Economic Community of West Africa States), welcomes the 20th Annual ECOWAS Nutrition Forum, from the 20-24 September, 2004 in Cotonou, Benin. The Forum brings together nutritionists from the 15 member states of ECOWAS, and partners who support the forum.

The main objectives of the forum are to:

• Develop common, pertinent and appropriate strategies for preventing nutritional problems in the ECOWAS sub-region
• Promote information and experiences exchange amongst nutrition actors, and the operation-
alisation and strengthening of national nutrition networks in ECOWAS member states.

The forum devotes a day to providing a techni-
cal update for participants on a pertinent nutrition issue in the region. The technical theme for this year’s forum will be “Nutrition and HIV/AIDS”. In spite of considerable efforts made in the man-
agement of persons living with HIV/AIDS (PLWHA), the prevention of mother-to-child transmission of the HIV virus and access to anti retroviral drugs, the involvement of nutritionists in the planning and implementation of national

Nutrition and disease

In view of the the many emerging issues and initiatives relating to nutrition and HIV/AIDS, it was decided that a representative of the nutriti-

on in emergencies working group join the Nutrition and HIV/AIDS working group, to encourage a working link between the two groups.

Capacity development

A written update on capacity development for nutrition in emergencies was submitted by Annales Borrel (Tufs University). This included a list of available courses, which have a focus on emergency nutrition, and is available on NutritionNet (www.nutritionnet.net), and will be updated in June 2004. Other initiatives inclu-
de the publication of the second edition of the Sphere manual, and the ongoing SMART project.

Plans for the SCN 2005

The NEWG will be chaired by Fathia Abdallah (UNHCR) and Caroline Wilkinson (ACF France). Each of the theme groups which comprise the working group are represented by a focal person(s). In 2005, a larger meeting is planned just before the SCN annual meeting, as there are many issues to be discussed in depth.

For further information or to contribute to the activities of the working group, contact Fathia Abdallah, email: fabdallah@unhcr.org or Caroline Wilkinson, email: ecw@acf.imaginet.fr

A full report on the NEWG meeting can be found at http://www.unsystem.org/scn/
Two short articles in a recent issue of the Lancet question the overall level of aid given and pledged to post-conflict Iraq. One author (Singh) highlights the uncritical appraisal of the $33 billion dollars allocated and pledged at the US-driven, and UN endorsed, Madrid donor conference in October 2003. He argues that many countries in Africa, south America and Asia are beset by lower levels of human development, deadlier pandemics, higher infant mortality rates and greater social instability than Iraq. Like Iraq, Rwanda and Sierra Leone are wracked with continuing political instability and strife, yet the international community failed to react with the swiftness and urgency it has shown in the case of Iraq. Singh asks if the threat of terrorist opportunism in Iraq is being cited as a reason for the urgency in donor aid to that country, then why is the same reasoning not being used to rally massive aid to Somalia, where lawlessness is just as bad and the country offers a likely centre for terrorist activities? Furthermore, life expectancy and child mortality in Somalia paint a grimmer picture than in Iraq. Singh asks whether other countries are being sidelined for strategic reasons, i.e. the mounting casualties incurred in Iraq by troops, and the draw on workers from developed countries. In July 2003, the total amount pledged to the Global fund to fight AIDS, TB and Malaria, since its creation in January 2002, stood at $4.7 billion dollars. Inexplicably, some countries pledged more to Iraq in 2 days, at the behest of the USA, than they have contributed to the fund since its inception.

Singh suggests that rich donor countries do not have infinite funds and that an inequitable or disproportionate allocation to Iraq now, could beget and exacerbate donor shortfalls to other needy nations in the future. Conversely, if future aid to other countries in need will not be affected by the pledges to Iraq, another disturbing question is raised; why have such swiftly pledged and generous funds not been raised for other needy countries in the past? Is it because the world’s most powerful country was not doing the soliciting?

A piece written in response to this article by staff from the World Health Organisation (WHO) broadly agrees with these points. The authors draw attention to the June 2003 Sweden convened meeting, entitled ‘Good Humanitarian Donorship’. This meeting endorsed a series of principles of good practice amongst donors. One of these principles was identified as the need to ‘allocate humanitarian funding in proportion to needs and on the basis of needs assessments’. The WHO piece argues that donor pledges at the Madrid conference were generous but necessary. However, support for Iraq’s recovery and reconstruction should not be provided at the expense of other crises. They further conclude that it would be excellent if the UN system and World Bank were to be in a position to undertake a cross-sectoral, standardised needs assessment, similar to the one done in Iraq, for every post conflict nation, followed by a high level Madrid-style reconstruction conference. Such an approach will make good donorship a reality, hasten the repair of vital systems that bring lifelines to crisis-affected people, and accelerate progress towards fulfilment of the millennium development goals.


Photos from top: Loading food aid in Iraq, Distributing food aid in Iraq

The next Public Health in Complex Emergencies training programme will take place between 26th July and 7th August in Thailand, and 1-14 November at the Institute of Public Health, Uganda.

This two-week residential course focuses on critical public health issues faced by NGOs working in complex emergencies. The goal of the course is to enhance the capacity of humanitarian assistance workers and their organisations to respond to the health needs of refugees and internally displaced persons affected by these emergencies. Participants will master key competencies in a range of sectors including epidemiology, communicable disease, nutrition, reproductive health, protection & security, psychosocial issues, and coordination.

For more information, contact Lorna Stevens, email: shortcourse@theirc.org, http://www.theirc.org/phce

The training programme is implemented by World Education, Inc., Columbia University Mailman School Of Public Health, International Rescue Committee, American University Of Beirut, Asian Disaster Preparedness Centre, and the Institute Of Public Health, Makerere University
second meeting of the Food Security, Livelihoods & HIV/AIDS Working Group (WG), co-chaired by Rebecca Brown (AAH) and Laura Phelps (Oxfam), was held on Tuesday 20th April 2004. The premise for the WG, which first met in December 2003, was to fill a perceived gap and provide an ongoing forum for exchanging views, skills and knowledge about Food Security, Livelihoods & HIV/AIDS. The meeting began with a summary of the first meeting’s key points.

Key points to emerge were:

• Before undertaking external advocacy, the group should carry out some internal research to highlight commonalities amongst the agencies involved. Internal summaries of organisational strengths and weaknesses in terms of HIV/AIDS programming would be useful.
• There is a need for the WG to focus on more specific fields of activities within the sector. Exploring a specific issue at each meeting was suggested as one way of maintaining focus.
• The group could provide a forum to stimulate and engage in discussion about how we understand the problems and address solutions. Sharing the Working Group thinking with field partners would be valuable to get guidance on what the group should be considering.
• Potential joint projects between agencies should be explored, and may simply mean defining pieces of work each is doing and comparing and sharing the results.

The meeting concluded that there is a need to document the wealth of field experience, especially in high HIV prevalence areas, and use this to develop an advocacy or programming tool.

It was agreed that operating within the UK Consortium structure would facilitate the working group’s activities. The next meeting is scheduled for July 20th, and will likely focus on terms of reference for working within the Consortium, identifying next steps and further sharing of agency experiences.

For further information, or to contribute ideas on what you think the group should be looking at, contact: Laura Phelps, email: l.phelps@oxfam.org.uk or Rebecca Brown, email: r.brown@aaah.org.uk

Proceedings of the working group meetings can be viewed on the UK Consortium website, http://www.aidsconsortium.org.uk

1 See Field Exchange 22, HIV/AIDS and Food Security, summary of meeting, p22-23
3 Also Plan International suggested as a reference for mainstreaming HIV throughout organisations, see http://www.plan-international.org
Dear Editor

I was amazed, and greatly disappoin-
ted, to read the report of the workshop on Community Based Approaches to Managing Severe Malnutrition, and the piece on this subject in Field Exchange, March 2004, pp 16-19. Why was there no mention, whatsoever, about any of the micronutrient deficiencies? These almost invariably accompany severe protein-energy malnutrition, and therefore consti-
tute a very important part of “severe malnutrition”. All those concerned should surely know that deficiency of vitamin A, iron, iodine, and zinc, and possibly others, are responsible in large part for the very high rates of mortality and morbidity among young children and pregnant and lactating women, and others, in developing countries. I find it ironic that on the very next pages you have printed an excellent article by Dr Andre Briend, which rightly draws attention to the scandal, and reflects an area in which I was actively involved in over several decades, in trying to combat the criminal micronutrient inadequacy of many refugee rations. The most startling feature of Table 1 in Dr Briend’s article is the absence of both vitamins A and C. Even to this day, there are constantly recurring reports of frank scurvy and non-blinding and blinding xerophthal-
mia.

Yours faithfully

Donald S. McLaren, MD, PhD, FRCP

The ENN would like to point out that the report referred to in the letter above was the proceedings of a meeting summarised by the ENN, and included with issue 21 of Field Exchange. While micronutrient deficiencies were discussed at the meeting, the main focus of discussions was around the ‘new’ strategy of addressing severe malnutrition through community based care. It should also be noted that all diets used in projects described in the Dublin report used foods that were highly fortified with all micronutrients (along the WHO recommendations for F100 rehabilite-
tion diets). Nonetheless, Dr. McLaren’s letter, and the article by Andre Briend to which he refers, do highlight how we can never be complacent about micronutrient deficiencies. Sadly, the steady flow of articles about micro-
nutrient deficiency outbreaks in humanita-
rian crises received by the ENN, and often published in Field Exchange bears testimony to this.

Anita Gurney
Nutrition Advisor, SC UK

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News & Views

**FAO/WHO Meeting Warn of Contaminated Infant Formula**

People caring for infants at high risk of infection should be warned that powdered infant formula is not a sterile product, a joint Food and Agricultural Organisation (FAO) and World Health Organization (WHO) meeting has concluded, and recently highlighted in a BMJ news piece.

Attendees by experts, the joint FAO/WHO workshop on Enterobacter sakazakii and other micro-organisms in powdered infant formula found that intrinsic contamination of powde-
red infant formula with E sakazakii and Salmonella had caused cases of infection and illness in infants, including severe disease, and could lead to serious developmental sequelae and death.

Neonates (up to 4 weeks of age), particu-
larly those born prematurely, with low birth-
weight, or immunocompromised babies, were considered to be at greatest risk of E sakazakii infection. Infants of HIV positive mothers were also at risk because they may require infant formula and may be more susceptible to infec-
tion. E sakazakii has been implicated in outbre-
daks causing meningitis or enteritis. In the few outbreaks reported, the death rate among infants who contracted the disease ranged from 20% to over 50%, while some survivors experienced severe and lasting complications. The bacterium has been detected in a range of foods, but only powdered infant formula has been linked to outbreaks of disease. Its preva-
ience is unknown.

The expert meeting recommended that carers, particularly of high risk infants, should be encouraged to use commercially sterile liquid formula or formula that has undergone an effective decontamination procedure, such as boiling boiling water to reconstitute formula or heating reconstituted formula.

The meeting was called in response to a request made by the Codex Committee on Food Hygiene for scientific advice to be used in the revision of the Recommended International Code of Hygienic Practice for Foods for Infants and Children. On the basis of its findings, the workshop recommended that the code should include microbiological specification for E sakazakii in powdered infant formula.

A summary report of the joint FAO/WHO workshop on E sakazakii and other micro-
organisms in powdered infant formula is available at http://www.who.int/foodsafety/micro/meet ings/feb2004/en/

1 News extra. FAO/WHO meeting warns of contamina-
tion of powdered infant formula. BMJ 2004;328:426. (21 February); See online at: http://www.bmj.com/content/full/328/7437/4 26-427c

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Dear Editor

The targeting of food aid is widely assumed to be the most effective and efficient way of ensuring that the limited food aid resources available in emergen-
cies reach those who need them most.

Targeting is conducted at multiple levels - from the selection of countries, down to the selection of individuals who will receive it and those that won’t. Food aid targeting is a central aspect of the food aid system, which is itself driven by multiple objectives: shifting surplus-
es, keeping world prices high, humani-
tarian, political contract between coun-
tries, etc. This means that the quantity and quality of food aid at any given emergency is unlikely to be commensu-
rate with the need experienced by those affected by the emergency. Within this context, humanitarian agencies are often required to target food aid to the house-
holds or individuals that need it most.

In most emergency situations, it is not possible to target food aid more specifi-
cally than to geographical areas. The contexts where within-community targe-
ting of households is possible are very few, unless costly administrative systems are put in place (which out-weight the cost savings of targeting). Wide imple-
mentation of feeding programmes, often in the absence of a general household ration, can ensure that certain individu-
als receive food (there are few guaran-
tees that these individuals will consume the food). These programmes rarely contribute to the longer term viability of the household and targeted individuals are likely to experience very low reco-
very rates because, in fact, the targeting has failed and food is shared or replaces the normal diet. Food for work is rarely practical in an emergency, because of the administrative burden it carries. Targeting according to socio-economic criteria can only feasibly be done using community managed approaches and only then, in stable communities, where needs vary considerably between house-
holds and food is sufficient to address households’ food deficit.

In practice, however, these approa-
ches are applied in many emergency situations. Monitoring and evaluation is very poor and rarely documented. Inclusion and exclusion errors are undoubtedly huge in many contexts but generally ignored. Therefore, the myth of the appropriateness of targeting in emergencies continues.

Isn’t it time we challenged the perci-
ved wisdom, made a clear statement of when it may be appropriate to target food aid in emergencies and when it is likely to fail, and began to explore other ways of targeting resources at individu-
als and households needed most, e.g. cash, market intervention, etc?

Anna Taylor
Nutrition Advisor, SC UK
The past 23 years of unrest in Afghanistan have had a significant impact on Kabul, with up to 60% of housing destroyed and infrastructure decimated. Since the fall of the Taliban, there has been a massive return of refugees to Afghanistan, mainly coming back from Pakistan and Iran, and placing an enormous strain on municipal resources. In 2002, a total of 393,582 refugees and internally displaced people (IDPs) arrived in Kabul in a matter of only ten months. The Central Statistics Office’s current estimate of numbers in the city is 2,799,300 persons.

Action Contre la Faim (ACF) has been working in Kabul for eight years, implementing nutrition, food security, water and sanitation, and medical programmes. In light of the returning population, a vulnerability assessment was undertaken by ACF between October and November 2003. The assessment aimed to provide an overview of the main determinants of vulnerability, as well as map vulnerability in the city, and so provide qualitative and quantitative information that could be used both by ACF and other agencies, to guide programming. This type of assessment has rarely been carried out in a post-conflict urban setting.

Mapping method

Vulnerability can be delineated by two types: structural vulnerability and inherent vulnerability. Structural vulnerability is determined geographically by where one lives, which affects access to, and availability of, health services and quality of services, including water and sanitation and housing conditions. Inherent vulnerability is determined by the socio-economic characteristics of a family or household, in particular, being a woman of childbearing age, lack of regular income and renting accommodation.

This article describes vulnerability mapping carried out by ACF in Kabul, and how it has been used to inform programming and tailor interventions in the field.

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Action Contre la Faim (ACF) has been working in Kabul for eight years, implementing nutrition, food security, water and sanitation, and medical programmes. In light of the returning population, a vulnerability assessment was undertaken by ACF between October and November 2003. The assessment aimed to provide an overview of the main determinants of vulnerability, as well as map vulnerability in the city, and so provide qualitative and quantitative information that could be used both by ACF and other agencies, to guide programming. This type of assessment has rarely been carried out in a post-conflict urban setting.

Mapping method

Vulnerability can be delineated by two types: structural vulnerability and inherent vulnerability. Structural vulnerability is determined geographically by where one lives, which affects access to, and availability of, health services and quality of services, including water and sanitation and housing conditions. Inherent vulnerability is determined by the socio-economic characteristics of a family or household, in particular, being a woman of childbearing age, lack of regular income and renting accommodation.
In addition to reviewing ACF and external agency reports on Kabul, two levels of mapping were used to explore types of vulnerability in the city:

i) Mapping livelihood zones. Livelihood zones are areas that share similar characteristics such as sources and level of income, food security, shocks, and resources. Services and infrastructure, as well as the way populations respond to food insecurity or shocks, were used to define areas with similar vulnerabilities. Semi-directive and group interviews were used to examine types of vulnerability in the areas. A total of six extensive group discussions (randomly selected) were conducted in each zone. The team then undertook further interviews in order to define key criteria of vulnerability. Fieldwork took place over a three-week period in October 2003. Depending on the size of each livelihood zone, one to two neighborhood representatives were selected to represent the zone. Once selected, the team then undertook further data collection at the community and household level. On average, 50 household interviews were conducted in each zone. A total of six extensive group discussions were also held with women throughout the city, where livelihoods are determined largely by community influence, including electricity coverage, water and sanitation, health centers, and markets. A series of workshops were then held with representatives from ACF Kabul’s technical departments, in order to define key criteria of vulnerability. The team identified the most vulnerable gozars, regardless of their zone location, to ensure a qualitative coverage of these areas. Focus group and semi-directive interviews were conducted in these gozars, to develop a profile of living conditions and coping strategies. In parallel, discussions were also held with returnee families from different parts of the city, in order to be registered for humanitarian assistance.

ACF carried out a systematic screening at Pol E Chariki encashment centre and the team met with several returnee families, to understand their living conditions upon arrival in Kabul.

Main findings

The assessment allowed ACF to draw a map of the livelihood zones (see figure 1). Within the livelihood zones, vulnerabilities varied. The inner-city area (Zone A-central Bazaar), for instance, had serious house destruction but enjoyed nearby services and job opportunities. One of the most significant factors determining the level of vulnerability of an area in the city of Kabul was its relation to the urban plan, laid out in the late 1970s. This city ‘master plan’, as is known, determined the quality of roads, drainage and sewage networks, the level of water provision and the quality of housing.

Under serviced areas
Eleven gozars stood out within their zones as highly vulnerable. These neighbourhoods physically lie outside the boundaries of the city ‘master plan’ and are, therefore, excluded from any present or future scheme to improve access to basic services. However, the large number of families in these gozars rules out any possibility of either expelling or relocating inhabitants. The original urban plan, laid out in 1978, was only meant for a population of 2 million people. These vulnerable gozars are not really targeted by the municipal authorities, although exceptions have been made for drinking water projects. Current water access, and above all, sanitation conditions in these areas raise serious public health concerns and need immediate intervention, e.g. water access, night soil and refuse collection.

Status as a returnee does not seem to determine vulnerability. Indeed, many people returning from Pakistan and Iran arrived with assets. They already had social networks in Kabul, they received significant assistance from international and non-governmental organisations, and had at least one able-bodied male in the household. Similarly, those in temporary settlements were found to be no more vulnerable than other groups.

Fieldwork

Fieldwork took place over a three-week period in October 2003. Depending on the size of each livelihood zone, one to two neighborhood representatives were selected to represent the zone. Once selected, the team then undertook further data collection at the community and household level. On average, 50 household interviews (randomly selected) were conducted in each zone. A total of six extensive group discussions were also held with women throughout the city, where livelihoods are determined largely by community influence, including electricity coverage, water and sanitation, health centers, and markets. A series of workshops were then held with representatives from ACF Kabul’s technical departments, in order to define key criteria of vulnerability. The team identified the most vulnerable gozars, regardless of their zone location, to ensure a qualitative coverage of these areas. Focus group and semi-directive interviews were conducted in these gozars, to develop a profile of living conditions and coping strategies. In parallel, discussions were also held with returnee families from different parts of the city, in order to be registered for humanitarian assistance.

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Within these 11 highly vulnerable gozars, five appeared to be specifically at risk due to their physical location, i.e. they were hillside communities. The lack of available land in the city has pushed people to settle in more and more precarious locales. Hundreds of new houses being built illegally can be seen all over the city, the majority perched on steep hillsides. These are characterized by greater exposure to environmental hazards, poor water and sanitation, with latrines being difficult to empty. They are also at higher risk in case of earthquake or flooding.

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Field Article
A number of coping strategies were identified in focus group discussions and household interviews. These included:

- buying food on credit
- borrowing money from relatives
- taking loans
- sharing accommodation
- renting out rooms in own house to others
- reducing food diversity
- women secretly saving small portions of husbands daily allowance
- sale of jewellery
- sale of assets

Though no conclusions can be drawn, there is a striking correlation between the average income in a given area and the percentage of families who do not have children under five with diarrhoea (see figure 4).

In summary, the main household constraints identified were financial insecurity and irregularity of income opportunities for the majority of the population, increasing insecurity in housing due to increased demand, dependence on the purchase of food, and the need to borrow or take out loans to meet food needs.

Conclusions and recommendations

At the time of the assessment, the perception of most of those in Kabul was that their current situation was positive with noticeable improvements, especially in the provision of services. ACF’s recommendations arising from the assessment translate into geographic and sector specific interventions, first concentrating on the highly vulnerable zones – A, D, H and G respectively, and at risk vulnerable households, with comprehensive programmes related to health, water and sanitation, income generation and housing capacity (see table 1).

The food security analysis component of the assessment highlighted a number of issues. Insecurity of regular income is the one most significant threat to livelihoods in Kabul where the majority of the population has to purchase food with no, or limited, alternative food sources. Unskilled workers (those working in construction, as porters, physical or manual labour) cannot depend on finding work on a regular basis, especially in winter. Demand for labour fluctuates with the markets and seasons. Subsequently, they are the least able to cope when shocks occur. Similarly, civil servants receive a modest salary and have been known to go unpaid for months at a time. Efforts to promote regular income among vulnerable groups should therefore focus on strengthening existing coping strategies.

The main ACF recommendations for strengthening food security are:

- Skills training for unskilled workers
- Developing sustainable income-generating activities: stability of income over time should be favoured over one shot cash inputs that are limited in time
- Developing sustainable income generating activities for women in the home
- Identifying constraints to kitchen gardening in the most vulnerable gozars and developing kitchen garden projects in these gozars
- Supporting and encouraging education at all levels, for both boys and girls

Even though the influx of newcomers is receding, Kabul remains a very attractive city for many, with people continuing to arrive from rural areas. The very high population concentrations justify continued support to the city, with a specific focus on neighbourhoods deprived of sufficient services.

For further information, contact: Lisa Ernoul, Head of Food Security Services, ACF Paris.

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Table 1 Recommended interventions related to vulnerability assessment findings

| Zone A: District 1 | - Extremely high global vulnerability
- Urgent need for assistance to Saraji, Bagh Ali Mardan, Reka Khana, Shor Bazar, and Kohi Chindawol
- Sanitation: latrine rehabilitation
- Health and hygiene education
- Income generation and skills training
- Lobbying for housing security |

| Zones D, H and G: Districts 7, 8, 9, 16 and north of District 10 | - Outside master plan, overall lack of services
- Water provision
- Sanitation
- Health education
- Income generation
- Lobbying for housing security |

| At-risk | - Dispersed extremely vulnerable neighbourhoods
- Gozar Gah (District 7)
- Cement Khana (District 16)
- Deh Afghanan (District 2)
- Afshar Selo (District 5)
- Deh Dana (District 7)
- Shaharak Khurassan (District 16)
- Deh Begi (District 5) |
its impact. An evaluation was carried out in November 2003 and was conducted as a participatory process involving SC UK’s health and nutrition team and government partners.

Information was gathered through:
- A review of programme documents
- Key informant interviews
- Group discussions with the health and nutrition programme
- Observation visits and discussions with staff and patients at nine SC UK supported health/nutrition/ cholera facilities, and two other health centres in a total of six health zones
- A review of registers and patient records at each of the feeding centres visited
- Group discussions with community health volunteers involved in cholera prevention work in Kyondo and nutrition activities in Masini. Therapeutic and Supplementary Feeding Centres (TFC/SFC)

Key findings
Since June 2002, SC UK’s emergency nutrition and health programme in eastern DRC has made considerable progress in implementation of planned activities and delivery of inputs/outputs. Box 1 details the main project activities of the programme.

The programme has contributed to enhanced skills, attitudes and practice of health and NGO staff – especially in nutrition and cholera prevention, improved access to basic health and nutrition services, and greater involvement of communities, including children, in health, nutrition and HIV/AIDS interventions. Implementation of the National Nutrition Protocol is well underway. Routine monitoring reports suggest that therapeutic and supplementary feeding centres have achieved Sphere Minimum Standards on several key indicators.

On the other hand, the performance and quality of the work has been constrained by a number of factors, not least the wide geographical spread of the programme, engaged in a diverse range of activities and often lacking in clear focus. Difficulties working at a distance through poorly motivated government partners and the absence of a ‘Protocol’ (memorandum of understanding) with Provincial/Zonal Health Bureaux to delineate roles and responsibilities between SC UK and government have also hindered progress. Other limitations have included weak logistics support for the programme activities, reported problems with cash flows to carry out the work, and weaknesses in management and administration capacity internally and in government structures. Episodes of insecurity have also hampered activities.

The decision to work through existing structures, in partnership with local government authorities, local NGOs, UN agencies and other international agencies was appropriate for the context of eastern DRC. A significant strength of the programme approach has been the flexibility to switch to an emergency mode, while following developmental principles - for example, the flexibility to open and close nutrition centres according to findings of nutrition surveys and local needs in specific localities. The project has adapted to the changing needs and policies of government as the national security and political situation improved. It has also seized opportunities for working with and through local NGOs.

The evaluation highlighted a number of gaps and weaknesses in project design. Key amongst these were the following:

- The large number of activities and wide geographical spread of the programme were ambitious, given SC UK’s understanding of the constraints of working through partners in the context of chronic complex emergencies.
- There has been insufficient understanding of the impact of training on the knowledge, skills, attitudes and practice of the health staff and supported volunteers in the workplace.
- The critical question of the long-term recurrent costs of maintaining and staffing the newly constructed nutrition facilities (e.g. Kitatumba, Bulembo) does not appear to have been considered in the project design.
- The activities selected did not adequately address gender related issues or other non-economic factors affecting decision making processes at household level.
- There has been lack of clarity over whether the intention was to try and reach as many communities and community based organisations (CBOs) as possible, or to use the experience in a few selected areas as a demonstration for advocacy and influencing purposes. Consequently, there is a risk of allowing project staff to initiate activities in more communities than can reasonably be managed.
- The project plan to train families and support staff for integrated livelihood activities calls for a very different set of skills and experience than is usually found in an emergency health and nutrition team.
- The appropriateness of the seeds and tools distribution component in collaboration with the Food and Agricultural Organisation (FAO) is questionable. It appears that no studies were conducted by FAO or others to find out if seeds and tools were needed, if people had land for cultivation, or indeed, if seeds and tools were an appropriate means of reducing the recurrence of malnutrition in the DRC context.

Lessons learned
Amongst the many lessons learnt, the following were key to nutrition programming:

A realistic assessment of the capacity, skills, time and resources required to implement a project in a context such as eastern DRC is essential at the design stage. A programme with a wide geographical spread and many different activities and partners makes heavy demands on management and logistics. Supervision and support carried out at a distance is costly, particularly if it involves travel by air.

The investment in time, skills and resources to ensure a high quality of service at therapeutic and supplementary feeding centres should not be under-estimated, particularly where services are implemented through local partners.

A clear, comprehensive National Nutrition Protocol is an important tool for improving the management of severe malnutrition. However, a system needs to be developed so that TFC staff can provide feedback on the practical lessons, observations and issues from implementation of the Protocol. This information could be used to inform further refinement of the Protocol at national level.

Health officials/hospital directors need to appreciate the importance of ensuring that TFCs are staffed by teams of nutritionists and nurses trained and supervised to implement the National Nutrition Protocol. The practice of rotating teams as a ‘solution’ is not an effective strategy. The management of severe malnutrition calls for a combination of nursing and nutrition skills, these skills can only be built over a period of time working in feeding centres.

When planning rehabilitation/construction work for health/nutrition facilities, it is important to consider the full package of requirements to meet international standards for emergencies. If it is not possible for the project to support all aspects of the package (e.g. water and sanitation facilities, incinerators), steps should be taken to try and secure support from government, communities or other agencies.

The recurrent cost implications of constructing new buildings should be careful considered before finalising plans. Temporary structures for feeding centres may be a more cost effective option.

Prompt analysis of nutrition survey data is essential for mounting a timely response to high levels of malnutrition. If there is limited capacity within the government system for this work, SC UK could offer technical support.

For further information, contact Anna Taylor, Nutrition Advisor, SC UK, email: A.Taylor@scuk.org.uk

Box 1 Main project activities

- Construction/rehabilitation of health and nutrition facilities at selected sites
- Provision of essential equipment and recurrent supplies (medical/non-medical)
- Training and support to health staff on topics such as nutrition, cholera prevention/management, disease surveillance, malaria, rational drug prescribing, vaccination, supervision systems and PRA/PLA techniques
- Facilitating vaccination activities in areas where coverage rates are low
- Strengthening early warning systems for communicable diseases
- Awareness raising on HIV/AIDS among youth/school children
- Conducting nutrition surveys/screening for malnutrition, and establishing, supporting and closing feeding centres
- Distribution of seeds and tools provided by the Food and Agricultural Organisation (FAO) and training local agronomists and community volunteers in improved agricultural techniques
- Studies to get a better understanding of the health/nutrition situation and needs of communities
- Pilot activities such as operational research on community financing mechanisms, community nutrition and early warning systems to test out approaches for scaling up or replication by others
- Documentation and dissemination of lessons learned and advocacy
On a freezing cold Tuesday in February, at nine o’clock in the morning, I was the only person to get off the Eurostar service at Frethun, Calais. Met by Beatrice Simkins (in charge of NUTRISET’s international communication and development), we embarked on a two hour drive through fairly uninspiring Normandy countryside until we arrived at the NUTRISET premises nestled amongst fields of cows and horses. The distinctive blue and white building, although out of place in such a rural setting, seemed somehow appropriate for an organisation which is unique in the humanitarian field.

On my arrival, I was introduced to two of the directors, Isabelle Sauguet and Michel Lescanne. Michel, who is the founder of NUTRISET, originally worked in the Research and Development section of a dairy industry. He had long wanted to set up a department specifically for developing food aid products within the industry but ‘met with resistance’. Hence the birth of NUTRISET.

NUTRISET was established in 1986. It is a private company and was the first company to produce a fortified milk based product for nutritional rehabilitation of the severely malnourished. The now ubiquitous F100 and F75 therapeutic milks produced by NUTRISET were developed out of the work of the ACF Scientific Committee. NUTRISET’s primary aim is to produce food exclusively for humanitarian emergencies. It is independent of any financial or industrial lobby and food is only provided for NGOs and UN agencies. NUTRISET has a production capacity of around 30 metric tons a day, with 35 staff working in production, logistics, development, finances and quality and research. As Isabelle explained, ‘all new staff receive lengthy instructions about the ethics of NUTRISET and the fact that it is primarily geared towards helping children through humanitarian relief.’

NUTRISET has a large research and development section, which devotes itself to improving and adapting products to emergency conditions. In other words, ‘developing products that can withstand lengthy transport, harsh climates and can be used in areas where there is limited or contaminated water supplies’. Much of the department effort goes into improving product specification, e.g. increasing the shelf-life of products. Isabelle described how NUTRISET may occasionally be contacted by agencies who have not been able to use donated therapeutic milks due to excessive orders or mis-planning, i.e. predicting demand that never materialised. “This happened recently in Zimbabwe. Agencies may be worried about expiry dates and wastage. In these situations, NUTRISET are able to issue a checklist of questions and tests, which if followed, can show whether the product’s shelf-life can be extended. If the product is still viable NUTRISET will re-issue a certificate with an extended shelf-life”.

After dressing up in sterile clothing (blue and white), I was shown around the production plant. On the day of my visit, the plant was idle with no batches due for production. This allowed me to see the plant and hear about its workings and the rigorous quality control measures that are in place – food science was never my strong point.

NUTRISET receives support from the French government agency for innovation (ANVAR) to develop products. However, if successful (and so far, most products have been), then the loan has to be repaid. Technical advisors include a nutritionist, biochemist and polymer scientist. The company is involved in many research projects with NGOs and academics striving to improve food products for emergencies. A large proportion of profits are re-invested in research, with 80% of products developed through research. Products are either standardised or customised.

Products can be classified under four headings:

i) Foods for treatment of severely malnourished, e.g. therapeutic milks (F100 and F75), Plumpy’nut, ReSoMal, therapeutic CMV (Minerals and Vitamins Complex)
ii) Supplementary food for the general population, e.g. SP 450
iii) Micronutrient supplements, e.g. QBmix, zinc tablets, Plumpy’sauce
iv) Foods for infants and young children, including a special food for children born to HIV+ mothers

Current new products include QBmix, designed to prevent micronutrient deficiencies (especially Niacin, B1 and C). This is an aromatic paste, which is a condiment for meals (see field article in this issue). NUTRISET are also working on designing new alternatives for infant milk formula for HIV programmes.

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* All products are patented by Nutriset
NUTRISET have introduced quality control standards that combine food and pharmaceutical industry standards. The factory follows the Hazard Analysis Control of Critical Points system (HACCP), which is acknowledged good manufacturing practice. There have been a number of successful audits by French government and clients. Each product has to receive a NUTRISET certificate of conformity before dispatch and all products are traceable to batch numbers and raw materials in case of problems.

NUTRISET have five packaging lines and are able to respond to emergencies all year round by working 1-3 shifts per day. The strategic location of the factory provides easy access to main European ports and airports and NUTRISET have their own customs clearance on site by special agreement with French customs. This obviously saves time. The company maintains stocks of fresh finished products, allowing it to meet any order immediately (around 40 tons of Plumpy’nut and 100 tons of F100). NUTRISET can organise transport to final distribution points if required, although “agencies like MSF want to use their own logistics systems”. They can set up a 24 hour or day crisis unit if needed and load produce within an hour. When there are large emergencies, extra temporary staff will be recruited (many regularly work for NUTRISET). As Michel remarked “all staff feel responsible and there is a ‘hands on deck’ mentality when there is a need to prepare large quantities of food urgently”. Their turnover of products is of about 80% to Africa and 4% to Middle East countries, with the remainder going elsewhere.

Isabelle explained that “as NUTRISET is a private company with only three directors, there is a lot of autonomy and little prospect of the ideals of the organisation being compromised”. Unlike agencies in the public sector, they are able to work in areas they want to work in and the financial independence of the company means they don’t have to look for funds to other shareholders who may subvert direction.

NUTRISET are constantly developing new products to assist in research. For example, there is currently a study in Malawi on a product based on the idea that amino-acid deficiency is a cause of Kwashiorkor. Another study is ongoing in Malawi on selenium and B vitamin tablets and their impact on HIV positive adults. A third study in Tanzania is comparing the impact of a combined zinc and iron tablet with placebos. Nutriset has developed quick dispersible zinc tablets for World Health Organisation (WHO) studies on diarrhoea in India, Zanzibar and Nepal. This is now leading to a technology transfer in Bangladesh for scaling up nation wide. The WHO wants Nutriset to transfer this technology to other countries also.

Isabelle and Michel both agreed that the two biggest, and not unrelated, problems that NUTRISET face are the perception that they are like some kind of money seeking agribusiness, and the difficulties of getting NGOs to start using new products. Some donors are reluctant to fund NGOs for trials. MSF seem to be an exception and readily try new products.

Having spent a day meeting staff and being shown around the production plants and research and development areas, I was dropped off at the nearby medieval city of Rouen to spend the night before catching a train back to London. My over-riding impression of NUTRISET is that it is a unique entity, which although run along commercial lines, fulfils an essential role in a public sector arena where risk taking and innovation is unusual, unless born out of the necessity of crisis. Basically, NUTRISET stands or falls on the basis of producing affordable foods that do the job. Therein lies their accountability. In a profession where the knee-jerk perception of the private sector is negative, NUTRISET would seem to offer a refreshing antidote and an ideal model for potential private and public sector partnership.
The HIV pandemic sweeping southern Africa and other parts of Sub-Saharan Africa is increasingly being perceived and described as a chronic emergency. Innovative and relatively new types of nutrition/food security/HIV programming are emerging to address the growing HIV crisis. These include PMTCT, MTCT plus, OVC and NCP programming and home based care. Many of these programmes are being rolled out under Protracted Relief and Recovery Operation (PRRO) arrangements in regions recovering from recent emergencies, i.e. southern Africa. However, as these programmes are relatively new, there is enormous headway to be made in defining optimal design and practice. The article below describes a study undertaken to help inform PMTCT programming practice. It highlights the dilemma for HIV positive mothers between using home prepared formula (in this case using cow’s milk) which is extremely poor in micronutrient content, and infant formula which is nutritionally better but may be impractical for many contexts in terms of cost, supply and sustainability (ed).

Mother-to-child Transmission (MTCT) rates for HIV are estimated at 25-45% in the primarily breastfed population of Sub-Saharan Africa. In Kenya, an estimated 300,000 newborn babies are at risk if HIV infection every year, with between 75,000 and 135,000 infants actually infected. Over 75% of these do not even celebrate their fifth birthday. If a mother is infected with HIV, it may thus be preferable to replace breastmilk to reduce the risk of HIV transmission to her infant.

For infected mothers living in poor conditions in developing countries, however, it is important to consider very carefully the risks related to not breastfeeding and whether there are alternative feeding methods. In a rural community, where access to clean water and sanitation is inadequate, where families are too poor to afford enough fuel to prepare food and to sterilise feeding bottles or to buy sufficient infant formula, deaths from diarrhoea and respiratory infections could far outnumber those from HIV. The problem is further aggravated by cultural or social stigmas that a community may attach to substitute feeding and to HIV/AIDS in general. Hitherto, there has not been good data available on the relative risks and benefits of different feeding options.

As part of a concerted effort within Kenya to prevent MTCT of HIV, a collaborative programme was initiated in three pilot sites where HIV positive pregnant women were identified and provided with free anti-retroviral (ARV) drug and infant formula feed regimens. In order to inform this study, the Applied Nutrition Programme at the University of Nairobi was asked to conduct a study on alternative feeding practices in one of the project sites (Homa Bay District)1.

The purpose of this study was to assess the feeding alternatives for infants born to HIV-positive mothers in the context of vertical transmission of HIV. The specific objectives of the study were:

- To explore the prevailing alternative feeding practices in the community and among the HIV-positive mothers.
- To explore the factors affecting mother’s decision and choice of the various feeding options.

Tom Oguta is currently a PhD student of Nutrition at the University of Nairobi. He has worked as a Research Officer at KIRDI (Kenya Industrial Research & Development Institute) in several research programmes, including HIV/AIDS & Infant Feeding studies, food security evaluations and micronutrient-fortified food efficacy studies in Kenyan children.

Dr. Abiud Omwega is a Senior Lecturer in the Applied Nutrition Programme, Department of Food Technology and Nutrition, University of Nairobi. He has worked with many NGOs and CBOs to develop community based nutrition programmes, including those for the care and support of people affected with HIV/AIDS.

Dr. Jaswant Sehmi is a Lecturer in the Department of Food Technology & Nutrition at the University of Nairobi. She has wide experience in food analysis, nutrition surveys, epidemiological studies (including HIV/AIDS) and monitoring of clinical & malnutrition cases.

The co-authors would like to express sincere thanks to UNICEF-Eastern & Southern Africa Regional Office (ESARO) for financing this study, and to Homa Bay District Hospital Management for the logistical support they provided during the study.

List of abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tr>
<td>ARV</td>
<td>Anti-retroviral</td>
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<tr>
<td>MTCT</td>
<td>Mother To Child Transmission</td>
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<tr>
<td>NCP</td>
<td>Neighbourhood Care Programmes</td>
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<td>OVC</td>
<td>Orphans and Vulnerable Children</td>
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<tr>
<td>PMTCT</td>
<td>Prevention of Mother to Child Transmission</td>
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1 Other parts of the study, not including this article, have been accepted for publication in the East African Medical Journal.

2 Case Study: Infant Feeding Alternatives for HIV positive mothers in Homa Bay District. West Kenya. OGUTA Tom J, OMWEWA Abiud M and Sehmi Jaswant K.
Profile of study group

The study population consisted of an observation group of HIV positive mothers with children aged 0-2 years in Homa-Bay District Hospital, and selected respondents from the rural population as case studies, key informants or focus discussion members. Homa-Bay district (with a population of about 350,000) is inhabited by the Luo ethnic group and is one of the Kenyan districts with the highest HIV prevalence (24%). A number of socio-economic factors are thought to have contributed to the rapid spread of HIV/AIDS in this community:

- Widow inheritance/remarriage
- As the majority of the population do not know their sero-status, the cultural practice of remarriage is likely to favour the spread of HIV/AIDS.

Table 1 Alternatives to maternal breastfeeding considered for feeding infants of HIV positive mothers in Homa-Bay District

<table>
<thead>
<tr>
<th>Option</th>
<th>Characteristics</th>
<th>Indications/ Contra-indications</th>
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<tbody>
<tr>
<td>Commercial infant formula/ formula milk</td>
<td>Based on modified cow’s milk or soy protein. Closest in nutrition composition to breastmilk</td>
<td>The family has reliable access to sufficient formula, clean water, fuel, utensil, skills and time to prepare it accurately and hygienically.</td>
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<tr>
<td>Home prepared formula</td>
<td>Made with fresh animal milks, dried milk powder or evaporated milk. Additional micronutrients, like iron, zinc and vitamins A, C and folic acid are required</td>
<td>Care is needed to avoid over-concentration or over-dilution.</td>
</tr>
<tr>
<td>Unmodified cow’s milk</td>
<td>Unmodified cow’s milk is not recommended for infants under six months of age</td>
<td>Unmodified cow’s milk could be considered as an exceptional option by the HIV positive mother when the supply of cow’s milk is reliable and affordable for the six months; the family lacks resources, time and fuel to modify cow’s milk to make home prepared formula; the family will be able to offer extra water and monitor dehydration; and commercial infant formula is not available/affordable for the family.</td>
</tr>
<tr>
<td>Early cessation of breastfeeding and heat-treatment of expressed breastmilk</td>
<td>Early cessation of breastfeeding and heat-treatment of expressed breastmilk reduces the risk of MTCT. Early cessation reduces the length of time for which an infant is exposed to HIV through breast milk. The optimum time for early cessation of breastfeeding is not known.</td>
<td>It is advisable for an HIV positive mother to stop breastfeeding as soon as she is able to prepare and give her infant adequate and hygienic alternative feed (WHO, 1998)*. It could be a good option for those who find it difficult for social and cultural reasons to avoid breastfeeding completely.</td>
</tr>
<tr>
<td>Pasteurised breastmilk</td>
<td>Pasteurisation of expressed breastmilk involves heating to about 65°C for 30 minutes, or boiling and then cooling in a refrigerator or cold water. Heat-treated expressed breast milk is still nutritionally superior to other milks, though heat-treatment reduces the level of the antibodies.</td>
<td>May be a good option especially for sick and low birth weight (LBW) babies in a hospital setting.</td>
</tr>
<tr>
<td>Wet nursing</td>
<td>Wet-nursing is practicable in some traditional settings where a relative breastfeeds the infant</td>
<td>UNICEF/UNAIDS/WHO recommends that wet-nursing be considered only when a potential nurse is informed of her risk of acquiring HIV from the infant in question; she has been offered HIV counselling &amp; testing; she voluntarily takes a test and is found to be HIV negative; and when wet-nursing takes place in a family context with no payment involved.†</td>
</tr>
<tr>
<td>Breastmilk banks</td>
<td>May be an option in some settings, for example as a source of breastmilk for a short time especially for the sick and LBW newborn.</td>
<td>It should be certain that donors are screened for HIV and that donated milk is correctly pasteurised.</td>
</tr>
</tbody>
</table>


Table 2 Comparisons and Contrast between AIDS and Chira

<table>
<thead>
<tr>
<th>AIDS</th>
<th>Chira</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Is recent, never heard of or hardly known 20 years ago.</td>
<td>Is traditional and is as old as the Luo tradition itself.</td>
</tr>
<tr>
<td>2. Mostly caused by sexual contact with an infected person irrespective of the social approval of the relationship between the persons.</td>
<td>Results from a divergence/deviance from the social norms, even though this can be, but not necessarily related to, sexual contact.</td>
</tr>
<tr>
<td>3. Has no known cure. It is a final clearance to death (fatal). Treatment cannot prevent the resulting death.</td>
<td>Is curable, by administration of manyasi – a herbal preparation to cleanse against social/cultural evil done by an individual.</td>
</tr>
<tr>
<td>4. Has multiple rather than single opportunistic infections (associated illnesses) including diarrhoea, TB, skin infections, loss of hair, etc.</td>
<td>Mono-symptomatic, the commonest being gradual weight loss by a seemingly healthy individual, but if many, then comes sequentially with diarrhoea only coming in advanced stages.</td>
</tr>
<tr>
<td>5. Can be diagnosed in the hospital.</td>
<td>Cannot be scientifically diagnosed in medical laboratory, but the victim’s health continues deteriorating.</td>
</tr>
<tr>
<td>6. Is prevalent among the sexually active youth and reproductive age.</td>
<td>Knows no age. Even children can suffer because of their parents’ misdeeds.</td>
</tr>
<tr>
<td>7. There is severe weight loss (wasting).</td>
<td>There is severe weight loss (wasting).</td>
</tr>
</tbody>
</table>

Field Article
were using different feeding methods - see table 1 for infant feeding options considered.

Two of the four women were HIV positive, of whom one opted for infant formula and one continued breastfeeding. The remaining two were not tested for HIV- the first used cow’s milk to feed her infant, while the second woman was a wet-nurse.

Culture and knowledge of HIV/AIDS and MTCT

The respondents were asked a number of questions about HIV/AIDS, e.g. whether it is preventable and curable, and possibilities of transmission from mother to child. The key-informants and members of the FGD were also asked for differences, or similarities, between AIDS and chiva (see Table 2).

The FGDs found that women do not have authority over their sexual lives. The Luo cultural norms demand that a woman must have particular sexual contact with her husband to mark certain events like planting, harvesting, marriage and death rituals. One woman complained loudly:

“How can you stop the spread of HIV/AIDS when some of our men move all over the villages luring widows even where it was strongly suspected the husbands died of AIDS? To make it worse, they do it secretly and the wife only discovers later when the damage has been caused!”

Alternative infant feeding practices amongst case studies

The four case studies are summarised in Table 3, and illustrate alternative feeding methods as practiced in the study area. They show examples of cow’s milk feeding, wet-nursing, formula feeding and breastfeeding among those with unknown sero-status and confirmed sero-status cases of HIV.

The four case studies looked at socio-economic profile, feeding choice, health and environment conditions, and knowledge of MTCT. Education varied from no formal education to tertiary level. Number of births ranged from 1 – 11. Feeding choices were influenced by practicalities (e.g. mother died and so was wet nursed, or infant formula was provided free and so was used) and social influences (e.g. HIV positive mother feared stigmatisation if she did not breastfeed). The household conditions varied from poor, to acceptable. The health and nutritional status of the infants also varied, from wasted to well nourished. Three of the four women had good knowledge of how HIV may be transmitted in breastmilk and how feeding choice can influence transmission. All accepted cow’s milk and milk powder based feeds, and infant formula as feeding alternatives. Three of the four accepted wet nursing, while only one accepted expressed breast milk/heat treated milk as an option.

Infant feeding practice and beliefs amongst the HIV-positive mothers (Homa Bay District Hospital)

Cow’s milk feeding was practiced by the majority of the HIV-positive mothers as an alternative to breastfeeding. Knowledge regarding dilution was very poor, with some mothers over-diluting and others over-concentrating rendering the practice inappropriate.

Attitudes to surrogate breastfeeding are governed by rigid cultural norms. It is believed that a wet-nurse should not have sexual intercourse until the baby is old enough (about 3 years), otherwise the baby, if touched (‘soiled’) by such a person, would die. Consequently, elderly women who have reached menopause are preferred as carers, in the belief that they are more likely to abstain from sexual intercourse. However, the increase in numbers of orphans due to HIV/AIDS

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Socio-economic profile</strong></td>
<td>Case I</td>
</tr>
<tr>
<td>Aged 210</td>
<td>Aged 27</td>
</tr>
<tr>
<td>Married, monogamous</td>
<td>Married, monogamous</td>
</tr>
<tr>
<td>Peasant farmer with annual income of about Ksh. 12,000 (US$ 155)</td>
<td>Secondary education</td>
</tr>
<tr>
<td>Given birth 3 times and has lost 2, last born, a boy was 3 weeks old</td>
<td>Runs a business with annual income of more than Ksh. 60,000 (US$ 770)</td>
</tr>
<tr>
<td>Cow milk, due to breast infections</td>
<td>Wet-nursing, mother died after delivery</td>
</tr>
<tr>
<td>Baby has never been breastfed</td>
<td>Has to bathe and take a cleansing herbal concoction before she can breastfeed the surrogate daughter</td>
</tr>
<tr>
<td>Milk is donated by grandmother</td>
<td>Introduced cow milk after growth faltering</td>
</tr>
<tr>
<td>Milk is boiled and diluted with a pre-boiled water</td>
<td>Milk is bought, boiled and diluted with pre-boiled water</td>
</tr>
<tr>
<td>Dilution ratio is 1:1</td>
<td>Dilution ratio is 1:1</td>
</tr>
<tr>
<td>Fed on demand using a spoon</td>
<td>Baby fed 8 times a day using a cup</td>
</tr>
<tr>
<td>Left- over taken by the mother</td>
<td>Left-overs taken by other children</td>
</tr>
<tr>
<td><strong>Health/ environmental conditions</strong></td>
<td></td>
</tr>
<tr>
<td>Mother non-tested for HIV</td>
<td>Surrogate mother non-tested for HIV</td>
</tr>
<tr>
<td>Mother is sickling and suffers breast infections</td>
<td>Baby is well and healthy</td>
</tr>
<tr>
<td>Delivered under a TBA, birth weight not established</td>
<td>Baby has episodes of diarrhoea and slow growth</td>
</tr>
<tr>
<td>Baby looks healthy, but has not received any immunization</td>
<td>From a birth weight of 2.7 kg, the baby weighs 4.1 kg after 6 weeks</td>
</tr>
<tr>
<td>Latrine available, but mother does not use her hands regularly</td>
<td>Mother maintains high sanitary and hygienic conditions</td>
</tr>
<tr>
<td>Drinking water fetched from a borehole is not treated</td>
<td></td>
</tr>
<tr>
<td><strong>MTCT Knowledge</strong></td>
<td></td>
</tr>
<tr>
<td>Has some knowledge about MTCT, but does not know it is preventable</td>
<td>Has high knowledge about MTCT- timing of transmission and prevention</td>
</tr>
<tr>
<td>Accepts wet-nursing, formula, cow milk and milk powder as possible feeding alternatives</td>
<td>Accepts formula, cow milk, milk powder and expressed heat treated breast milk as possible feeding alternatives</td>
</tr>
</tbody>
</table>

The MTCT programme provided free infant formula and ABV to only mothers who were registered into the programme and counselled at the district hospital. However, the case studies included other women who did not have access to free infant formula supplies.
has led to more younger women wet-nursing. This is accepted, provided the surrogate mother bathes before she touches the baby every time she is involved in any sexual intercourse or the wet-nurse and the baby take some manyasi (herbal concoctions for cleansing purposes) to guard/protect against chira affecting the baby. In certain cases, mothers argue that wet-nursing is safe without these practices provided the baby is closely related (by blood) to the husband of the surrogate mother, e.g., wet-nursed by a co-wife. It is accepted that wet-nursed babies are more likely to survive than the ones fed on other alternative foods.

The idea of expressing and/or heating breastmilk was alien and unacceptable to mothers. Ideas about this included, it is not normal to milk a human, breastmilk cannot be expressed to produce enough to satisfy the baby, milking would make the breasts painful, and that breastmilk is so volatile that on heating all of it would evaporate.

The infant formula milks were believed to be good, in that they are hygienic and prepared to suit the baby’s nutritional needs. However, they are expensive and not available in the local markets.

All of the 11 HIV positive subjects reported that if they were to choose, given their sero-status, cow’s milk would be the most viable breast milk alternative due to its availability and accessibility. However, eight of the eleven also believed that infant formula would be the best option if it could be provided cheaply and made available.

Conclusions and recommendations

The choice of a breastmilk alternative is influenced by many factors, among them knowledge of MTCT, wealth, cultural attitudes (stigmatisation) and information attained from health facilities. Whilst wet-nursing may be a practicable infant feeding alternative at family level among the non-tested mothers, it was not for these HIV positive mothers. The use of infant formula as a breastmilk alternative by HIV positive mothers is limited by its cost, but would be the most suitable if it were provided freely or at a subsidised price. Cow’s milk was the most practicable breastmilk alternative in the study area. It is culturally acceptable, common/familiar and relatively accessible (produced or purchased) to many. However, micronutrient supplements were not available locally, at the district headquarters or through the PMTCT.

Based on our findings, we recommend that mothers attending antenatal care should be sensitised regarding vertical transmission of HIV.

Counselling of HIV positive mothers on cow’s milk feeding would be appropriate for those who produce the milk or have sufficient money to buy it, and PMTCT programmes should endeavour to improve the supply of cow’s milk in the area. The women should also be guided on how to prepare and modify cow’s milk and micronutrient supplements should be made available for them.

The UNICEF/UNAIDS/WHO recommendation that any potential wet-nurse should be confirmed HIV-negative and well informed of her risk of getting HIV from the infant is supported.

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Valid International, 2004

People in Aid

Course participants at Help Age International Course on Ageing in Africa, held in February 2004, in Kenya
SCN
Between 21-25 March, 2004 the 31st session of the Standing Committee on Nutrition (SCN) was held in New York.

Emily Levitt (Cornell Uni), Andrea Moreira (SCN) and Lidan Du (Cornell Uni)

Moses Sinkala (Zambia) and Lackson Kasonka (University teaching hospital, Zambia)

Anne Sophie Fournier (AAH USA) and Charlotte Dufour (Groupe URD)

Lane Vanderslice, Thomas Marchione (USAID) and Jeremy Shoahm (ENN)

Lane Vanderslice, Robin Brinkley (USAID), Cheryl Jackson (USAID) and Alberta Rost (US Dept Agriculture)

Fatmia Abdalilah (UNHCR), Marie McGrath (ENN) and Hussein Mursal (SC Uganda)

Kiersten Israel-Ballard (Uni of California, Berkeley), Jay Ross (Linkages/AED) and Judy Canahuati (FFP)
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 newsletter, 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 Newsletter 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.

On the cover:
Processing local Enset plants
Sodo district, Ethiopia.
G. Jacob, 2003

One of the pictures on the cover of the report of the Dublin meeting, circulated with the last issue of Field Exchange, was incompletely acknowledged. The picture of a young infant with a mother in North Darfur, South Sudan in 2001 was taken by Yvonne Grellerty, during an evaluation with SC UK.

Yvonne Grellerty, S. Sudan, 2001