

Community Based Approaches to Managing Severe Malnutrition

ENN REPORT ON THE PROCEEDINGS
OF AN INTER-AGENCY WORKSHOP



Dublin 8–10th October 2003

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Acronyms

| | |
|-----------|--|
| ACF | Action Contre la Faim |
| CDC | Centres for Disease Control and Prevention |
| CSAS | Centric systematic sampling |
| CSB | Corn Soy Blend |
| CTC | Community Therapeutic Care |
| DALY | Disability-adjusted life years |
| DCI | Development Cooperation Ireland |
| DSM | Dry skimmed milk |
| ECHO | European Commission Humanitarian Office |
| EPSeM | Equal probability selection method |
| ENN | Emergency Nutrition Network |
| FANTA | Food and Nutrition Technical Assistance |
| GAM | Global Acute Malnutrition |
| GFD | General food distribution |
| GM | Genetically modified |
| HBT | Home based treatment |
| HSAs | Health surveillance assistants |
| IMCI | Integrated Management of Childhood Illness |
| INGO | International NGO |
| IRD | Institut de Recherche pour le Développement |
| LRTI | Lower Respiratory Tract Infection |
| MoH | Ministry of Health |
| MSF | Medecins Sans Frontieres |
| NGO | Non-governmental organisation |
| NRU | Nutrition rehabilitation unit |
| OECD | Organisation of Economic Cooperation and Development |
| OFDA | Office of US Foreign Disaster Assistance |
| OTP | Outpatient Therapeutic Programme |
| PPS | Population proportional sampling |
| QA | Quality assurance |
| RUTF | Ready To Use Therapeutic Food |
| SAM | Severe Acute Malnutrition |
| SC | Stabilisation Centre |
| SC UK | Save the Children UK |
| SFP | Supplementary Feeding Programme |
| TFC | Therapeutic Feeding Centre |
| TFP | Therapeutic Feeding Programme |
| UK | United Kingdom |
| US | United States |
| USAID | US Agency for International Development |
| WH or WFH | Weight for height |
| WHO | World Health Organisation |
| WHM | Weight for Height % of the median |

On the Cover

Background:

Decentralisation, walking to distribution in Hulla, 2003, Valid International.

Front cover inset from left to right:

- Happy child eating RUTF, Domasi Rural Health Clinic, Malawi, 2003, Heidi Sandige, St Louis Nutrition Project.
- Cooking demonstration by traditional birth attendant as part of OTP, Hulla, 2003, Ellen van der Velden.
- Child eating RUTF with fingers, Pirimiti Rural Health Clinic, Malawi, 2003, Heidi Sandige, St Louis Nutrition Project.
- Graduate of RUTF programme with happy mother, Namitambo District Health Clinic, Malawi, 2003, Heidi Sandige, St Louis Nutrition Project.

Back cover inset from left to right:

- Setting up registration, Malawi, 2003, Valid International.
- RUTF enrolment procedure completing consent form, Namitambo Rural Health Clinic, Malawi, 2003, Heidi Sandige, St Louis Nutrition Project.
- Plumpy'nut group in OTP, Hulla, 2003, Ellen van der Velden.
- Young infant with mother presenting to programme, North Dafur, South Sudan, 2001, Save the Children UK.

Executive summary

A three day meeting was held in Dublin hosted by Concern and Valid International between 8-10th of October, 2003 on community-based approaches to managing severe malnutrition.¹

The objectives of the meeting were:

- To compare lessons learnt after 3 years of experience with Community Based Therapeutic Care (CTC).
- To describe substantive differences in protocols for non-centre based treatment of severe malnutrition between agencies.
- To focus on gaps in our knowledge of non-centre based treatment of severe malnutrition.
- To clear up misconceptions about CTC.

On the first day of the meeting, presentations were made on eight programmes (Malawi, Ethiopia, north Sudan, south Sudan, Afghanistan, Niger, and two randomised clinical trials (Senegal and Sierra Leone) which employed non-centre based feeding as part of a protocol to treat severe malnutrition. There was considerable variation in both the context of the programmes and the protocols applied. However, the programmes all had at least two components in common.

Firstly, when in-patient care was provided (either in stabilisation centres, hospitals or traditional therapeutic feeding centres (TFCs)) all programmes followed the WHO phase I protocol, with a few minor modifications according to national or agency protocols. Secondly, a ready to use Therapeutic food (RUTF) – normally Plumpy'nut or a locally produced equivalent – was provided during the non-centre based feeding phase of the protocol.

The case study programmes demonstrated that mortality rates remained low, though rates of weight gain were generally not as high as in standard TFCs. RUTF was acceptable to all the beneficiaries and HIV+ beneficiaries also recovered, although their rates of weight gain were lower than other beneficiaries. Furthermore, coverage was increased using a non-centre based approach.

There was general agreement in the meeting that severely malnourished children with no medical complications, no oedema and an appetite could be safely treated for severe malnutrition in their homes using a non-centre based approach in phase II of the treatment of severe malnutrition. However, severely malnourished children with medical complications, or severe kwashiorkor cases (oedema grade III), or children with no appetite are best treated in an inpatient facility following standard WHO protocols for phase I until they have been stabilised.

Based on the presentations, there was no clear agreement on whether an initial phase of inpatient treatment was necessary in the treatment of severe (very low weight for height, <-3 z-scores or <70% median) and/or oedematous but uncomplicated malnutrition. There was also no agreement on the management of infants under 12 months of age.

It was generally agreed that non-centre based treatment was another "tool" to add to the box of implementation strategies to deal with severe malnutrition. However, issues were raised about the sustainability of CTC programme, cost-effectiveness, the importance of sectoral integration and the unknown impact of RUTF on breastfeeding.

The second day of the meeting began with cultural and ethical considerations of CTC and home based approaches. Presentations were made on the use of anthropology to improve coverage of a CTC programme in Malawi, and on anthropological studies looking at the acceptability of non-centre based treatment compared to traditional TFC models (Sierra Leone and Malawi).

There were also presentations on the history of Plumpy'nut, local experiences of production of RUTF in Malawi and Ethiopia, and development of alternative RUTF formulations addressing issues such as the groundnut/peanut content of RUTF.

A number of presentations by donor organisation representatives expressed the hope that the approach could improve both the flexibility of emergency responses to severe malnutrition and increase coverage of current programmes. There was consensus that the choice of which tool to use will be context specific.

Issues raised in plenary discussion throughout the three days included the need for operational research on non-centre based programmes, and the need for more experience of integrating CTC activities and Ministry of Health (MoH) programmes to treat malnutrition. There was also an expressed need to clarify terminology and definitions of community-based approaches to treating severe malnutrition.

Social issues raised included the appropriateness of using local leaders to mobilise the community for nutrition programmes, and the likelihood that displacement may lead to decreased social cohesion, thereby undermining the CTC strategy. A number of issues were raised regarding RUTF. These included the need to change the mineral mix used in production of new RUTFs and to consider anti-nutrients in complementary infant foods. There were also questions over the wider implications of RUTFs, for example, whether RUTFs could be used to help children to recover from diarrhoea or malaria, and is there a role for RUTFs as a transition food in resource poor environments. Research on some of these questions is ongoing.

A note on nomenclature

The terms Community based Therapeutic Care (CTC) and home based treatment (HBT) are both used in these proceedings. On occasion, the terms are used in association with the practices of particular agencies, for example CTC with Concern and VALID International, and HBT with ACF and MSF. On other occasions, the terms are used more inter-changeably, reflecting the fluid use of terms in plenary and working group discussions during the meeting. It is probably true to say that some individuals and agencies make clear distinctions between CTC and HBT in terms of principles, objectives and protocols. However, others might resist or contest such stereotyping. As editors of these proceedings, the ENN believes that those agencies which use the term CTC have a clearer model and set of underlying principles for how care of the severely malnourished should be conducted in the community, while those that utilise the term HBT have a more pragmatic and context specific approach. However, the extent to which real and consistent difference in approach and practice exist between those who utilise the two terms is not clear and cannot be easily specified at this time.

In the last session of this meeting (see section 8) it was agreed that a small group of interested agencies should work together over the next few months to define important terminology for CTC and HBT.

Copies of the full presentations from the workshop are available online at <http://www.fantaproject.org/ctc/workshop2003.shtml>.

¹ No standard nomenclature exists to describe this approach. Preferred nomenclature, which may not reflect differences in programming, varies between practitioners and researchers. Therefore the terms 'community-based', 'home-based', 'non-centre based' treatment or approaches are used interchangeably in this report.

1 Introduction to the Workshop and Background on CTC

Tom Arnold from Concern made the welcoming address to workshop participants. He stated that CTC was very much at the cutting edge of innovative programme approaches in humanitarian emergencies and that the workshop was an opportunity to bring all up to date on CTC experiences, while providing a forum for information exchange and debate. He said that ultimately the main purpose of the meeting was about 'saving lives'.

Dr Steve Collins from Valid International (co-organiser of the workshop) set out the main objectives of the workshop and presented a background on CTC, which included strategy and principles, programme description and points of comparison with traditional TFCs.

Objectives of the meeting

- To compare lessons learnt after 3 years of experience of CTC and other HBTs of severe malnutrition.
- To describe substantive differences in protocols for non-centre based treatment of severe malnutrition between agencies.
- Focus on gaps in our knowledge of non-centre based treatment of severe malnutrition.
- Clear up misconceptions about CTC.

1.1 CTC Strategy and Principles

CTC is a public health approach to dealing with severe malnutrition. The strategy aims to maximise impact and fairness whilst minimising risk. CTC is a deliberate strategy which should be complementary to traditional TFCs; CTC is not implemented simply because TFCs can not be set up (for security or other reasons). The main principles of CTC are:

- High coverage and good access.
- Timeliness - because mortality often occurs before TFC interventions are up and running.
- Sectoral integration - nutrition interventions must be integrated with other programmes including food security, health, water, sanitation and peace.
- Capacity building - an active commitment to building on existing structures through consultation, training and ongoing support, avoiding parallel interventions.

Description of CTC

A CTC programme has the following elements:

- Supplementary feeding programme (SFP)
- Stabilisation phase - this is the initial phase of treatment of severe malnutrition for children with complications. Life-threatening problems are identified and treated, specific deficiencies are corrected, metabolic abnormalities are reversed and RUTF feeding is begun. This is an inpatient phase and takes place in a stabilisation centre (SC), which may be located in a hospital or clinic.
- Outpatient Therapeutic Programme (OTP) - providing specialised (RUTF) and simple medical protocols through existing health infrastructure to severely malnourished children.
- Community mobilisation component - identifies traditional leaders, healers and other people within the community to maximise participation and engagement in the programme leading to increased impact. Later, the programme identifies community resources, works with the community to develop other interventions, engages mother to mother mobilisations and follow-up case finding, etc.

Evolution of CTC (see figure 1)

A CTC programme will start-up as an OTP attached to an SFP. The programme may then evolve into a CTC. Initially, severely malnourished children will receive RUTF and medicines will be administered following simple protocols. In the early stages, the critical strategy is to increase the impact of the programme by maximising coverage. An OTP attached to a SFP can be established in days. This phase will be followed by greater focus on community mobilisation to increase the population's engagement, as well as improving stabilisation centres and, thereby, the individual care for very sick and malnourished children. The final phase in evolving to a 'full' CTC programme involves improved follow up support to malnourished cases and case finding. Efforts will also be made to embed the programme in food security and other sectoral programmes, such as water and sanitation and health, as well as assisting in the development of local production of RUTF where appropriate.

CTC compared to a standard TFC approach

The TFC model has been very successful in terms of clinical outcomes. Mortality rates treating severely malnourished children in metabolic units have been <2% and <10% in TFCs administered by experienced NGOs. However, the TFC model ignores the socio-economic factors involved in severe malnutrition. Severe malnutrition is characterised by economic deprivation (poverty, high work loads of women) and social exclusion (it is clustered in the poorest households and often siblings are malnourished). Moreover, severe malnutrition often re-occurs – it is a chronic problem. Severely malnourished children are also immuno-suppressed and therefore, at higher risk of infection.

In the TFC model, the primary carer must leave their homes for approximately 30 days, which may have negative consequences for the children left behind at home, as well as for future food security. Resources are highly centralised and the centres may be over-crowded, leading to an increased risk of nosocomial infection (cross-infection) in an immuno-compromised population. Coverage is often low because the centres are far from the beneficiaries' homes and either they may not know about the service, or are unable to make the journey.

In the CTC model, services are brought closer to the malnourished children's principle carers. This results in higher coverage (for example, in Malawi, Ethiopia and North Sudan) and ultimately greater impact and more equitable access to resources. As geographical access improves, carers will present their malnourished children earlier. This means that the malnutrition will not be as severe and with less complications, hence easier to treat. Also, the risk of nosocomial infection is reduced if the child is treated at home and the micro-biological environment is familiar (leading to less infection).

A further advantage of CTC is that the programme strategy is based on the idea that emergency programmes should 'leave something behind', i.e. lead into development programming and sustainability. Because of CTC's emphasis on strengthening inter-sectoral links, the programme aids the transition from, for example, emergency feeding to food security programming.

CTC's emphasis on encouraging community members to promote CTC and actively find malnourished children also means that the programme should be more sustainable than a TFC approach. Mothers who have successfully passed through the programme are encouraged to talk to and educate other mothers in their villages about the causes and treatment of

malnutrition. This transmission of information from mother to mother should not be lost when the programme finishes. Also, MoH staff are normally seconded and trained to help with the OTP, which should mean that in future crises, they are better informed about the treatment of severe malnutrition.

A common misconception is that CTC is expensive. However there is evidence that this is not the case. Costs per beneficiary in the Concern Malawi programme are estimated at €257 for the OTP and €115 for the SFP (note that this was a new programme area for Concern and hence included start-up costs, but that programme implementation was relatively

straightforward in Doha, Malawi). This compares favourably with TFC costs.

OTP/CTCs are not meant to be a replacement for TFCs. On the contrary, there is a synergy between TFC and OTP, as OTP removes the uncomplicated cases allowing greater focus on the most complicated and problematic cases within stabilisation centres.

New classification of malnutrition

The use of the CTC model of treatment of severe malnutrition may lead to a change in how we classify and treat malnutrition, as outlined in figure 2.

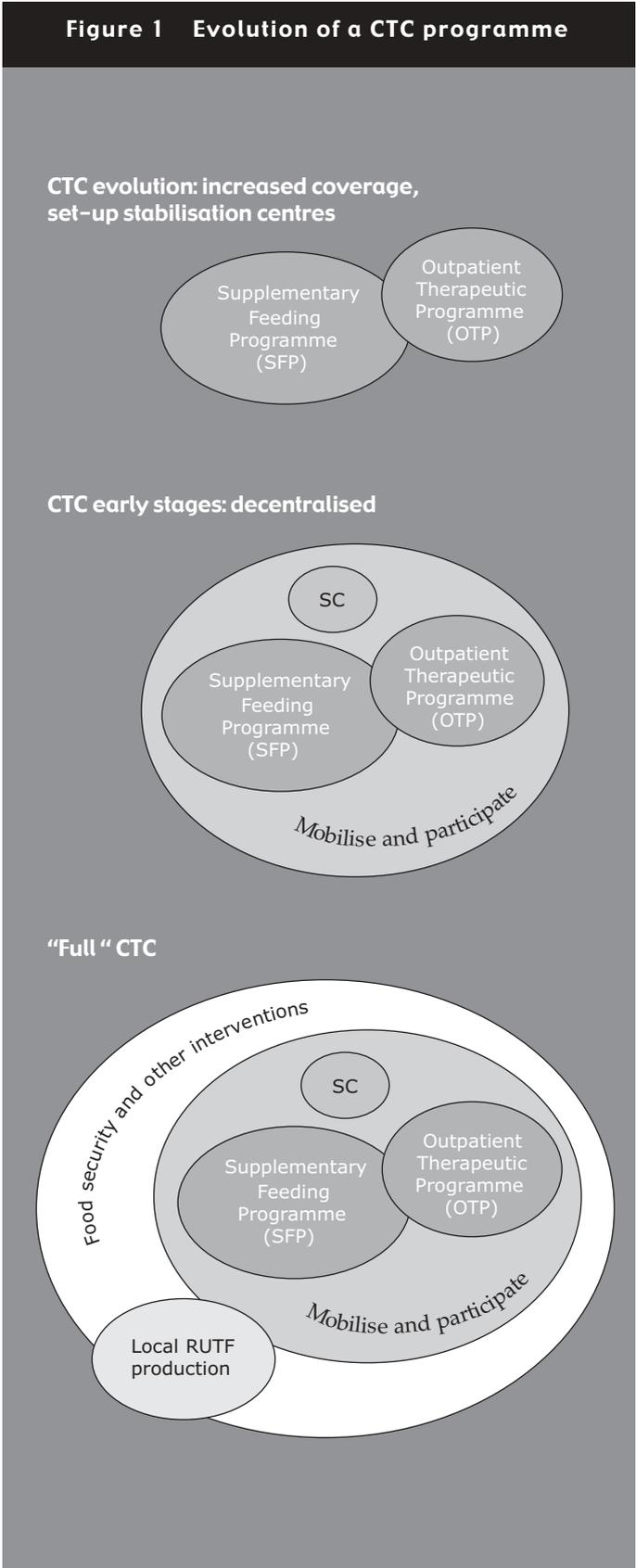


Figure 2 Suggested classification and treatment schedule for acute malnutrition

| Acute malnutrition | | |
|--|--|---|
| Complicated malnutrition | Severe uncomplicated malnutrition | Moderate uncomplicated malnutrition |
| < 80% of median weight for height, OR bilateral pitting oedema, OR MUAC < 110mm AND one of the following: <ul style="list-style-type: none"> • Anorexia • LRTI • High fever • Severe dehydration • Severe anaemia • Not alert | < 70% of median weight for height, OR bilateral pitting oedema, OR MUAC < 110 mm AND: <ul style="list-style-type: none"> • Appetite • Clinically well • Alert | 70-80% of median weight for height, AND no oedema OR MUAC 110-125mm AND: <ul style="list-style-type: none"> • Appetite • Clinically well • Alert |
| Inpatient IMCI/WHO protocols | Outpatient Therapeutic Care | Outpatient Supplementary feeding |
| Notes on the classification: | | |
| <p>(i) When reviewing these proceedings, several participants pointed out that the classification of malnutrition presented above does not match the WHO-IMCI protocol. WHO-IMCI does not have a protocol for the category of complicated moderate malnutrition (<80% weight-for-height). WHO-IMCI deals with children with a serious infection (all need treatment, regardless of their malnutrition status) and children with 'severe' malnutrition. WHO-IMCI takes the view that there is no need to stabilise children with moderate malnutrition, even if they have an infection. There is a need for agencies to discuss this classification with WHO further.</p> <p>(ii) This classification does not take into account the different grades of oedema. Some agencies have treated children with grade I oedema (and no other medical complications) as having "uncomplicated" malnutrition and children with grade II and III as having "complicated" malnutrition. However, other agencies have also treated grade II oedema (and no other medical complications) as "uncomplicated". Further research is needed on this topic.</p> | | |

2 Coverage

2.1 Presentation on Methods to Analyse Coverage of Nutrition Programmes : Mark Myatt

Currently, standard approaches to assessing therapeutic programme coverage involve making use of two-stage cluster sampling nutritional anthropometry surveys, either directly using survey data or indirectly using survey data, programme enrolment data, and population estimates.

Direct method:

Coverage % =

$$\frac{\text{Number of eligible children found attending the programme during the survey}}{\text{Number of eligible children found during the survey}} * 100$$

Indirect method:

Coverage % =

$$\frac{\text{Number of children attending the feeding programme}}{\text{Estimated prevalence of severe acute under-nutrition * estimated population}} * 100$$

The two-stage cluster sampling approach includes:

- Population proportional sampling (PPS) in first stage (select clusters).
- Proximity sampling in second stage (select households and children).
- Assumes homogeneity of coverage.
- Coverage surveys 'bolted-on' to nutrition surveys, which leads to sample size problems.

The PPS approach is not satisfactory because:

- ▶ The bulk of data are collected from the most populous areas/communities. Therefore, some low population density areas are not sampled and there is potential for upward bias in the coverage estimate.
- ▶ There is no guarantee of an even spatial sample - some areas are usually unrepresented in sample.
- ▶ It relies on population estimates.

The proximity sampling is not satisfactory because:

- ▶ It is not an equal probability selection method (EPSeM) since the 30 households are not selected at random, but are selected because they are in proximity to the first household. To have an EPSeM at the cluster level, it would be necessary to undertake random or systematic sampling of the households within each cluster.
- ▶ Even if an EPSeM sampling method is used, within-cluster sample size is too small to estimate coverage within cluster. For example, assume a sample size of 900 children and a prevalence of severe acute malnutrition of 5%. Then $n = 900$, $p = 5\%$ and there are an expected 45 cases ($900 * 0.05$) in the whole survey. This means only 1.5 cases per cluster ($45/30$). This is too small a number to estimate coverage within a cluster.

These problems are not important if the homogeneity assumption is true. However, the assumption is unlikely to be true of some centre-based programmes or during start-up phase, because coverage will be greater for areas close to centres. Also, in the start up phase, some villages may not have information about the existence of centre-based facilities. If the

homogeneity assumption is untrue and coverage is uneven, then it is useful to be able to identify where coverage is good and where coverage is poor. But the current standard methods only provide a single wide-area coverage estimate.

Furthermore, the standard method has large data-entry overheads and requires data management expertise (to calculate nutritional indices and apply case-definitions). The multi-stage design also requires specialist software to calculate confidence intervals.

A new method² to estimate coverage with the following characteristics is needed:

- Plausible homogeneity assumption.
- Even spatial sampling.
- Adequate within-community sample size to allow local estimation and comparison.
- Denominator from survey.
- Little data-entry and management.
- Simple data analysis.

The centric systematic area sampling (CSAS) approach has these characteristics and can be usefully employed to undertake coverage surveys. The method abandons probability sampling and adopts active case-finding instead. The project area is split into 30 or so equal sized quadrats (squares of approximately equal area) and cases of severe malnutrition are sought. A simple count of cases enrolled in the programme compared to cases not enrolled in the programme is made. This figure can be compiled for all the quadrats to give an overall project coverage figure, or used separately to estimate coverage in each area. As more cases are seen using the CSAS methods, the confidence intervals are much tighter .

Active case-finding returns an exhaustive sample, allowing small and wide area estimates / comparisons. The active case-finding is rapid, six communities can be screened by one team in one day. However, the new method is more expensive than the standard method takes more time (120 vs 80 person days) but as it uses active case finding, it could be incorporated into standard programme strategies of outreach/screening.

A study in Malawi compared the coverage of a TFC programme to the coverage of a CTC programme in two adjacent districts, using the CSAS approach. The study estimated the TFC coverage at 26.3% (95% CI = 19.1%, 34.5%) and the CTC coverage at 73.9% (95% CI = 64.7%, 81.8%). In the CTC programme, the bulk of quadrats had more than 80% coverage. TFC coverage was highest around the TFCs and along roads leading to the TFCs. Coverage was low or zero in areas distant from the TFCs or distant from roads leading to the TFCs. In contrast, CTC coverage showed a uniform spatial distribution with coverage at acceptable levels in both urban centres and rural areas. CTC coverage was consistently higher than TFC coverage.

2.2 Synthesis of Main Discussion Points

Proxies for the prevalence of severe malnutrition

Given the difficulty of locating an adequate sample size for severely malnourished children and hence issues around confidence intervals, could a proxy indicator be used to estimate prevalence of severe wasting, e.g. prevalence of moderate malnutrition?

Research has shown that as populations become malnourished, the normal distribution for weight-for-height shifts to the left. This means that we could use the mean weight-for-height to predict the number of children who will be severely malnourished in terms of low weight for height in any given population. However, a key problem is oedema, which tends to cluster. Furthermore, there may also be problems in countries like South Africa where the HIV epidemic means that the shape of the distribution for population nutritional status is not normal, i.e. there are a higher proportion of severely malnourished children compared to those with moderate malnutrition than would be expected.

Sensitivity and specificity analysis of active case finding for severe malnutrition

What is the sensitivity and specificity of active case finding with regard to severe malnutrition?

Using capture-recapture methods, it has been found that the sensitivity of active case finding is around 100%. Specificity (including moderately malnourished children) is low at about 50%. This is not a concern for this application (coverage examination) where exhaustivity (i.e. high sensitivity) is required to calculate the spatial pattern of coverage. As in many 'screening' contexts, specificity is sacrificed in order to achieve 100% sensitivity.

Many TFCs do not have active case finding as part of the programme activities because it is difficult from centre based locations covering large geographic areas. Also, donors often do not support the costs of such activities.

Usefulness and accuracy of the two-stage cluster sampling method to estimate the prevalence of malnutrition

Is the two-stage cluster sampling method accurate for estimating prevalence of malnutrition?

Some participants expressed concern that this method is not the correct one to use to estimate the prevalence of malnutrition and that this may explain why agencies periodically over-estimate the prevalence of severe malnutrition. Research by CDC in the Horn of Africa has shown that as few as 5% of surveys were implemented correctly and that the method was 'a little too complicated' for those responsible.

² Scheduled Field Exchange 21. New method for estimating programme coverage, by Mark Myatt. In production

3 Field Presentations on CTC and Home-Based Feeding

Chairperson: Anna Taylor (Save the Children UK)

Presenters: Kate Sadler (Valid International) talking about the Concern CTC programme in Malawi, Tanya Khara and Alem Hadera Abay (Valid International, talking about the Concern CTC programme in Ethiopia), Anna Taylor (Save the Children UK talking about the CTC programme in North Sudan³), Jennifer Martin and Joseph Kalalu (Concern, talking about the CTC programme in South Sudan), Sophie Baquet (MSF-B, talking about the HBT programme in Afghanistan⁴), Montserrat Saboya (MSF-F, talking about the HBT programme in Niger), Anne Nesbit (MoH Malawi, talking about the HBT programme in Blantyre urban), Mark Manary (University of Malawi/University of Washington, talking about the HBT programme in Blantyre rural⁵), El Hadji Issakha Diop (University of Dakar talking about the HBT trial in Senegal⁶) and Carlos Navarro-Colorado (ACE, talking about the HBT trial in Sierra Leone⁷).

Presentations were made on eight programmes and two randomised clinical trials employing non-centre based feeding as part of a protocol to treat severe malnutrition. There was considerable variation in both the context of the programmes and the protocols applied - this means that the reader should be wary of making direct comparisons of the outcomes presented.

The programmes and trials were implemented in seven different countries. Hence the contexts varied in terms of access to the population, size of population covered, patterns and prevalence of disease including HIV/AIDS, health infrastructure, security conditions, implementing agency capacity, aetiology of malnutrition and the populations' understanding of the causes of malnutrition.

Admission criteria varied in terms of age and definition of malnutrition. The protocols ranged from a compulsory stay in a stabilisation centre or traditional therapeutic feeding centre or hospital for all severely malnourished children, to no inpatient care at all. Most of the programmes, although not all, were attached to an SFP. Coverage rates varied from 19% to 70%. Defaulter rates were also very variable. However, the

programmes all had at least two components in common:

- When in-patient care was provided (either in stabilisation centres, hospitals or traditional TFCs) all programmes followed the WHO phase I protocol, with a few minor modifications according to national or agency protocols.
- A RUTF - normally Plumpy'nut, or alocally produced equivalent - was provided during the non-centre based feeding phase of the protocol.

In spite of the difficulties inherent in comparing and contrasting the outcomes of such diverse programmes and contexts, we have produced a table (table 1a and table 1b) which summarily describes some of the key factors in determining programme outcomes, and includes the outcome data themselves.

A separate table (table 2) is presented for the data from the clinical trials of non-centre based treatment in phase II, because data from programme and clinical trials are not strictly comparable.

Note that some of the figures in the outcome indicators presented in table 1a do not add up. In some programmes, this is because the programme was ongoing at the time of the meeting and hence not all the cases could be accounted for (Afghanistan, Ethiopia, South Sudan, Blantyre mixed urban, and Dowa). The reasons are less clear for the programmes that had finished by the time the meeting took place. Readers are asked to contact the relevant agencies directly if they have any queries about the outcome figures - the editors of the ENN have no further information. Again, this suggests that the reader is advised to compare the outcome data cautiously.

³ See Field Exchange 16. OTP: An evaluation of a new SCUUK venture in N. Dafur, Sudan (2001). Evaluation. p26-27. August 2002

⁴ See Field Exchange 19. Ambulatory treatment of severe malnutrition in Afghanistan. Field article. p14-15. July 2003

⁵ Scheduled Field Exchange 21, in production

⁶ See Field Exchange 20. Comparison of the Efficacy of a Solid RTUF and Liquid, Milk-Based Diet in Treating Severe Malnutrition. Research summary. p5, November 2003.

⁷ Scheduled Field Exchange 21. In production.

Table 1a Summary of key outcomes and influencing factors in field programmes

| | Faryab Province Afghanistan | South Wollo, Ethiopia | North Darfur, N.Sudan | Bahr El Ghazal S. Sudan |
|--|--|--|-------------------------------------|--|
| BACKGROUND | | | | |
| Agency | MSF-B | Concern/Valid | SCF/Valid | Concern/Valid |
| Access to population (poor/moderate/good) | Very Poor | Poor | Poor | Very Poor |
| Security (poor/moderate/good) | Poor | Good | Good | Poor |
| Prevalence of GAM | 4-10% (over 2000-2003) | 17.0% (16.6-17.2%) | 23.4% (21.8-25.0) | 24.3% |
| Prevalence of SAM and oedema | • 0.5-1.3% (over 2000-2003) • 0-0.5% oedema | • 3.6% (3.1-4.0%) • 2.6% (1.8-3.3)% oedema | 2.1% (1.6-2.6) | • 4.7% • 0.7% oedema |
| Food Security | • Poor • Inadequate GFD | • 50% receiving GFD | Poor GFD very late | • Poor • 50% targeted for GFD, only 24% delivered |
| Health infrastructure Clinics/person | 1: 100,000 | 1:22,000 | N/A | 1: 266,500 |
| Epidemiology | • Malaria: around 15% clinic consultations • HIV ??? | • 11% HIV national adult prevalence • Seasonal malaria | • Seasonal malaria • HIV data NA | • Seasonal malaria • HIV data NA |

Table 1a cont.... Summary of key outcomes and influencing factors in field programmes

| | Faryab Province Afghanistan | South Wollo, Ethiopia | North Darfur, N.Sudan | Bahr El Ghazal S. Sudan |
|---|---|--|--|--|
| PROGRAMME DATA | | | | |
| Agency | MSF-B | Concern/Valid | SCF/Valid | Concern/Valid |
| Attached to SFP? | Yes | Yes | Yes | Yes |
| Compulsory stabilisation (inpatient) phase? | No | No | No | No |
| Proportion admitted directly as outpatient | 100% | 97% | 98% | 81% |
| Criteria for direct entry to OTP (outpatient phase) | <ul style="list-style-type: none"> • WH<70% • Oedema • MUAC<110mm • WH<80% and acute medical problem | Without medical complications & appetite: <ul style="list-style-type: none"> • WH<70% • Oedema + or ++ • MUAC <110 mm • >6m <4kg | 6-59 months WH<70% and none of complications below | Without medical complications & appetite: <ul style="list-style-type: none"> • WH<70% • Oedema + • MUAC <110 mm • >6m <4kg |
| Criteria for entry to stabilisation clinic (inpatient) | N/A | <ul style="list-style-type: none"> • Oedema +++ • As OTP with anorexia and/or severe medical problems | <ul style="list-style-type: none"> • Oedema • Severe dehydration • no appetite and visibly not eating RUTF when offered • temperature >39 degrees • increased respiratory rate (>35 if over 2 years>40 if 1-2 years or>50 if less than 1 year), or • any sign of illness | <ul style="list-style-type: none"> • Oedema >=+++ • Age<6m and/or <4kg >6 m • As OTP with anorexia and/or severe medical problems |
| Criteria to go from stabilisation clinic (inpatient) to OTP (outpatient) | N/A | <ul style="list-style-type: none"> • Return of appetite • Severe infection under control • Oedema reduced | Appetite was shown to have returned by the successful eating of RUTF for more than one day | <ul style="list-style-type: none"> • Return of appetite • Severe infection under control • Oedema reduced |
| “Alert criteria” to swap from OTP (outpatient) to stabilisation clinic (inpatient) | N/A | <ul style="list-style-type: none"> • Wt. loss over 3 consecutive weeks • Medical complications | None | <ul style="list-style-type: none"> • Wt. loss over 2 consecutive weeks • Static wt. over 5 weighings • Medical complications |
| OTP (outpatient) discharge to supplementary feeding programme | <ul style="list-style-type: none"> • WH>=80% for two consecutive weeks • Absence of oedema • Discharged to SFP | <ul style="list-style-type: none"> • >85% WHM for 2 consecutive weeks • No medical complications • Discharged to SFP | WFH>75% for four consecutive weeks | <ul style="list-style-type: none"> • >85% WHM for 2 consecutive weeks • No medical complications • Discharged to SFP |
| Community sensitisation / mobilisation methods | <ul style="list-style-type: none"> • SFP workers | <ul style="list-style-type: none"> • Mobilisation through outreach workers • MoH staff • SFP workers • Community volunteers using MUAC • Principle carers who had been through the programme • Local authorities | Community nutrition workers who screened and followed up children in their homes | <ul style="list-style-type: none"> • Chiefs and other local authorities |
| Outcomes | 2002-programme ongoing | Only for Feb-August 2003, programme ongoing* | Mid August - mid November 2001 | June 2003 - Programme ongoing* |
| Numbers of children treated in different structures | OTP – 756 | OTP & SC – 517, with outcome data on 240 SFP – 10,530 | SC - 17 OTP - 836 SFP- c24,000 | OTP - 563 SC - 139 SFP – 3,119 Data on 319 exits |
| Deaths (not including deaths in default category) | 6% (OTP only) | 8.6% (5.3% in OTP, others in hospital) INCLUDES MORTALITY IN DEFAULTERS | 2.9% | <ul style="list-style-type: none"> • 1% in OTP • 4.3% in SC |
| Recovered | 63% (OTP only) | 65.4% | 81.4% | <ul style="list-style-type: none"> • 54.2% in OTP • 87.2% in SC |
| Default | 6% (OTP only) | 9.8% | 10.1% | <ul style="list-style-type: none"> • 24.9% from OTP (rains caused problems) |
| Weight gain | 5.6g/kg/day | <ul style="list-style-type: none"> • 4.5g/kg/day marasmus • 4.0g/kg/day kwashiorkor | 6.6g/kg/d marasmus 1.8g/kg/d kwashiorkor | NA |
| Average length of stay for cured | 66.3 days in OTP | 80 days in OTP *discharge delayed during first three months | 25 days marasmus 35 days kwashiorkor | <ul style="list-style-type: none"> • OTP – 44 days • SC – 6.1 days |
| Coverage estimated by new / traditional method | Coverage estimated using nutrition survey, but survey and programme area not identical: 16.7%(13.3-20.1%) | Using CSAS/ active case finding method: <ul style="list-style-type: none"> • 69.0% point estimate • 77.5% recent estimate | Traditional method: 32% (CI 15-71%) | Based on estimation from predicted figures & programme figures: 19% |

* Programme ongoing will result in an upward bias of mortality and a downward bias in recovery.

Table 1b Summary of key outcomes and influencing factors in field programmes

| | Maradi Region, Niger | Blantyre mixed urban/rural Malawi | Southern Region rural, Malawi | Dowa, Malawi |
|---|--|---|--|--|
| BACKGROUND | | | | |
| Agency | MSF-F | Queen Elizabeth Hospital | College of Medicine, University of Malawi | Concern/Valid |
| Access to population (poor/moderate/good) | Medium-poor | Medium | Medium | Good |
| Security (poor/moderate/good) | Good | Good | Good | Good |
| Prevalence of GAM | 8.4% (6.7%-10.5%) in September 2001 | 2.8% | 2.5% | 4.8% |
| Prevalence of SAM and oedema | <ul style="list-style-type: none"> • 1.6% (0.7-3.3%) • 0.1% oedema | <ul style="list-style-type: none"> • 0.3% • 0.2% oedema | <ul style="list-style-type: none"> • 1% • 0.3% oedema | <ul style="list-style-type: none"> • 1% • 0.5% oedema |
| Food security | Varies seasonally | Medium | Poor | Medium |
| Health infrastructure Clinics/person | 1:70,000 | 3.1 nurses/10,000 people | 3.1 nurses/10,000 people | 1:27,000 |
| Epidemiology | <ul style="list-style-type: none"> • Seasonal malaria • HIV estimated at 4% (adults aged 15-49 years) | <ul style="list-style-type: none"> • Malaria all year, with seasonal peak • HIV – 17% ANC in Blantyre • HIV -35% in nutrition unit in March 2003 | <ul style="list-style-type: none"> • Malaria all year, with seasonal peak • HIV 16% population prevalence • HIV – about 25% of all children enrolled in programme | <ul style="list-style-type: none"> • 19.5% HIV national adult prevalence • Malaria all year, with seasonal peaks |
| PROGRAMME DATA | | | | |
| Attached to SFP? | No | No | No | Yes |
| Compulsory stabilisation (inpatient) phase? | No | Yes. All patients go through phase I inpatient care. | No | Yes for first 5 months of implementation. No thereafter. |
| Proportion admitted directly as outpatient | 16.7% | 0% | 72% | 20% , from Feb 03 |
| Criteria for direct entry to OTP (outpatient phase) | Without medical complications & appetite & >=12 months: <ul style="list-style-type: none"> • WH<-3 z-scores • Oedema | NA | Without medical complications & appetite: <ul style="list-style-type: none"> • WH<-2 z-scores • Oedema +1 | Without medical complications & appetite: <ul style="list-style-type: none"> • WH<70% • Oedema + • MUAC <110mm |
| Criteria for entry to stabilisation clinic (inpatient) | Bad clinical condition and/or: <ul style="list-style-type: none"> • Oedema • MUAC<110mm • WH<-3z-scores • Children <12 months | <ul style="list-style-type: none"> • WFH<70% • Oedema • WFH<80% and medical problems | <ul style="list-style-type: none"> • Oedema>=+2 • Anorexia • Systemic infection | <ul style="list-style-type: none"> • M-K oedema >=+++ • WH<60%, • Age<6m and/or <4kg >6 m • As OTP with anorexia and/or severe medical problems |
| Criteria to go from stabilisation clinic (inpatient) to OTP (outpatient) | <ul style="list-style-type: none"> • Return of appetite • Severe infection under control • Oedema reduced • Socio-economic criteria: carer understands OTP | <ul style="list-style-type: none"> • Return of appetite • Severe infection under control • Carer happy with care plan | <ul style="list-style-type: none"> • Good appetite | <ul style="list-style-type: none"> • Consumed required amount RUTF for weight at least 1 day • Severe infection under control • Oedema reduced |
| | treatment and no access problems | | | |
| “Alert criteria” to swap from OTP (outpatient) to stabilisation clinic (inpatient) | <ul style="list-style-type: none"> • Wt. loss • Appearance of oedema • Not gaining wt after second week in programme • Medical complication | <ul style="list-style-type: none"> • Significant wt. loss • Loss of appetite • Acute infection requiring inpatient treatment | <ul style="list-style-type: none"> • Poor appetite | <ul style="list-style-type: none"> • Wt. loss over 3 consecutive weeks • Development of any indicator used for referral to SC (as described above) |
| OTP (outpatient) discharge criteria | <ul style="list-style-type: none"> • WH > - 2 z-scores for 2 consecutive weeks • MUAC >=110mm • No oedema • No medical complication | <ul style="list-style-type: none"> • WH > 85% for 2 consecutive visits • No health concerns • Then linked to clinic based SFP | <ul style="list-style-type: none"> • WH > - 2 z-scores for 2 consecutive weeks • No oedema | <ul style="list-style-type: none"> • >85% WHM for 2 consecutive weeks • Absence oedema 2 consecutive weeks • Discharged to SFP |
| Community sensitisation / mobilisation methods | <ul style="list-style-type: none"> • Contacts with village chiefs • Sensitisation and training health staff | <ul style="list-style-type: none"> • Health surveillance assistants • Government clinic workers • Local NGOs | <ul style="list-style-type: none"> • Health surveillance assistants | <ul style="list-style-type: none"> • Government health surveillance assistants (HSAs) • Traditional authority structure • Traditional healers • Agricultural workers |
| Outcomes | August 2001- August 2003 Programme ongoing* | May-September 2003 Programme ongoing* | November 2002-July 2003 | Aug 02 – Aug 03 Programme ongoing* |

Table 1b cont.... Summary of key outcomes and influencing factors in field programmes

| | Maradi Region, Niger | Blantyre mixed urban/rural Malawi | Southern Region rural, Malawi | Dowa, Malawi |
|--|---|--|--|--|
| Numbers of children treated in different structures | Outpatient & inpatient: 12,694. 7,597 in outpatient (direct admissions or final period for phase II) | Stabilisation Unit - 356 Outpatients - 316 | Only severely malnourished, OTP - 458 | OTP & SC - 1791 SFP - 5831 Analysis of outcome data on 730 |
| Deaths (not including deaths in default category) | 7.7% | 11% stabilisation unit 5.6% outpatient unit (INCLUDES DEFAULTERS) | 8% | 7.4% |
| Recovered | 65% | 50% | 74% | 59.6 % |
| Default | 27.3% | 3% | 9% | 18.1 % |
| Weight gain | 10g/kg/day | Maras. 8.1g/kg/day Kwashi 5.8g/kg/day | Maras. 4.8g/kg/day Kwashi 3.7g/kg/day | Maras. 5.9g/kg/day Kwashi. 5.0g/kg/day |
| Average length of stay for cured | 33.6 days | In post-stabilisation programme 38 days | Not available | 42 days total (6 SC, 35 OTP) |
| Coverage estimated by new / traditional | Using nutrition survey method: 53% | Using traditional methods: 65% | Based on estimation from predicted figures & programme figures: 66% | Using CSAS/ active case finding method: 73% (63.6-80.8%) |

* Programme ongoing will result in an upward bias of mortality and a downward bias in recovery.

Table 2 Summary of key factors and outcomes from clinical trial data

| | Sierra Leone | Senegal |
|---|---|---|
| BACKGROUND INFORMATION | | |
| Agency | ACF | University Cheik Anta Diop de Dakar, Senegal |
| Access to population (poor/moderate/good) | Medium | Good |
| Security (poor/moderate/good) | Medium to good | Good |
| Prevalence of GAM | Bombali district – February 2002 Z Score: 4.9% (3.1 %- 7.5%) Bombali seboria chiefdom – Nov 2002 Z-Score : 8.0% (5.8%- 11.0%) | 8.3% (national figure) |
| Prevalence of SAM and oedema | Bombali district – February 2002 Z Score: 0.6% (0.1%- 2.0%) Bombali seboria chiefdom – Nov 2002 Z-Score : 0.5% (0.1% - 1.8%) | No data |
| Food security | Good | Good |
| Health infrastructure Clinics/person | N/A | N/A |
| Epidemiology | <ul style="list-style-type: none"> • Typical west African • No epidemics at time of the study | <ul style="list-style-type: none"> • Continuous malaria • HIV prevalence : 1.2% in adults |
| INFORMATION ON TRIAL | | |
| Objective of trial | Compare individual outcomes of phase II treatment of severe malnutrition in a standard TFC setting and at home (in ambulatory bases) | Comparison of the efficacy of phase II home based nutritional rehabilitation with locally produced or imported RTUF |
| Inclusion criteria | <ul style="list-style-type: none"> • Children >12= to <=60 months. • Live within 6 hours walking distance to SFP | <ul style="list-style-type: none"> • Age 6-59 months • WFH < 70% and/or oedema |
| Exclusion criteria | <ul style="list-style-type: none"> • Chronic disease (TB) • Acute or contagious disease • Severe oedema (++++) | <ul style="list-style-type: none"> • Chronic disease (TB, HIV) |
| Technique to decide which patients get which treatment | Randomisation | Randomisation |

Table 2 cont.... Summary of key factors and outcomes from clinical trial data

| | Sierra Leone | Senegal |
|--|---|--|
| PROGRAMME INFORMATION | | |
| Attached to SFP? | Yes | No |
| Compulsory stabilisation (inpatient) phase? | Yes. All patients go through standard phase I inpatient care. | Yes. All patients go through standard phase I inpatient care using f75. |
| Proportion admitted directly as outpatient | 0% | 0% |
| Criteria for direct entry to OTP (outpatient phase) | NA | NA |
| Criteria for entry to stabilisation clinic (inpatient) | <ul style="list-style-type: none"> • WFH < 70% and/or oedema • MUAC < 110mm | <ul style="list-style-type: none"> • WFH < 70% and/or oedema |
| Criteria to go from stabilisation clinic (inpatient) to OTP (outpatient) | <ul style="list-style-type: none"> • Eat correct amount of RUTF in presence of nurse during a full day (three meals) • No oedema • Received health education | <ul style="list-style-type: none"> • No oedema and 2 days acceptability test of RUTF and 3 or 4 days inpatient care in phase 2. |
| “Alert criteria” to swap from OTP (outpatient) to stabilisation clinic (inpatient) | Weight gain < 5g/kg/day | Principle carer feels the child is ill and medical examination |
| OTP (outpatient) discharge criteria | <ul style="list-style-type: none"> • WFH > 85 % & no oedema • Admitted to SFP for 3 months | WFH ≥ 85% |
| Community sensitisation / mobilisation methods | <ul style="list-style-type: none"> • Screening in villages • SFP • Defaulter tracing | None |
| OUTCOMES | | |
| Numbers of children treated | <ul style="list-style-type: none"> • 50 control (standard phase II inpatient treatment) • 45 intervention (home based treatment for phase II) | <ul style="list-style-type: none"> • 32 local RUTF • 34 imported RUTF |
| Deaths (not including deaths in default category) | <ul style="list-style-type: none"> • 2% control • 2.2% intervention | <ul style="list-style-type: none"> • 6% local RUTF • 3% imported RUTF |
| Recovered | <ul style="list-style-type: none"> • 90 % control • 95 % intervention | <ul style="list-style-type: none"> • 72% local RUTF • 71% imported RUTF |
| Default | <ul style="list-style-type: none"> • 8% control • 0% intervention | <ul style="list-style-type: none"> • 22% local RUTF • 18% imported RUTF |
| Weight gain* | <ul style="list-style-type: none"> • 13.4 g/kg/day control • 11.9 g/kg/day intervention | <ul style="list-style-type: none"> • 7.9g/kg/day local RUTF • 8.1g/kg/day imported RUTF |
| Average length of stay for cured | <ul style="list-style-type: none"> • 33.5 days control • 39.6 days intervention | <ul style="list-style-type: none"> • 35 days local RUTF • 33 days imported RUTF |
| Conclusion | No significant differences in outcomes | No significant differences in weight gain, duration of rehabilitation, % recovered, and % default, between imported and locally made products |

* Weight gain for ACF calculated using minimum and maximum recorded weights.
 Weight gain for Senegal study calculated using first and final day weights.

3.1 Analysis of the presentations and discussion of programme and clinical trial data

There was general agreement that:

- Severely malnourished children with no medical complications, no oedema and an appetite could be safely treated for severe malnutrition in their homes using a non-centre based approach in phase II of the treatment of severe malnutrition. During home-based treatment of this category of children:
 - ▶ Mortality rates remained low (below SPHERE in all of the programmes).
 - ▶ Rates of weight gains were generally not as high as in standard TFCs, but this was not considered to be a critical problem because once children are at home the risk of

- nosocomial infection (cross-infection) is reduced.
- ▶ RUTF was acceptable to all the beneficiaries⁸.
- ▶ HIV+ beneficiaries can also recover, although their rates of weight gain were lower than other beneficiaries.
- Severely malnourished children with medical complications or severe kwashiorkor cases (oedema grade III) or children with no appetite are best treated in an inpatient facility, following standard WHO protocols for phase I until they have been stabilised.
- Coverage is increased using a non-centre based approach because :
 - ▶ Beneficiaries have to travel less far to obtain treatment so they are more likely to ‘hear about it and try it’ – a proximity effect.

⁸ Some agencies feel that RUTF is not appropriate for infants under 12 months of age and did not give this age-group the product. However, none of the agencies that gave RUTF to infants reported that they did not like it.

- ▶ The treatment is less disruptive to their every-day lives so they are more likely to accept (and stay in) the programme.
- ▶ The approach is more likely to employ active case finding than traditional TFC models where large distances preclude such activities.

Based on the presentations there was no clear agreement on:

- Whether an initial phase of inpatient treatment was necessary in the treatment of severe (very low weight for height - <-3 z-scores or <70% median) and/or oedematous but uncomplicated malnutrition.

Programmes in several countries (Ethiopia, North Sudan, South Sudan, Malawi, Niger, Afghanistan) have admitted either or both of the categories of children described above directly into non-centre based treatment. The results reported here suggest that there is little or no excess mortality associated with direct admission to an outpatient programme. Other agencies kept these children in a TFC for only a few days and then discharged them to HBT, again with low mortality rates. These agencies felt that there was still insufficient experience to state with certainty what the protocols for HBT of severe malnutrition for this group of children should be.

- Treatment of infants under 12 months. The protocols for infants under 12 months presented varied enormously.

Programmes in several countries (Ethiopia, North Sudan, South Sudan, Malawi, Afghanistan) and the clinical trial in Senegal have treated infants aged 6-12 months in a non-centre based setting. Other programmes (Niger) treated this age-group in a TFC or hospital. Very few programmes had attempted to treat severely malnourished children aged less than six months on an outpatient basis (Ethiopia, North Sudan and South Sudan – carers of young infants in Dowa were given the choice).

3.2 Synthesis of discussion following the presentations

Flexibility

Many of the participants stressed the need to be flexible in the approach to dealing with severe malnutrition and that context should determine what approach needs to be taken. It was generally agreed that non-centre based treatment was another “tool” to add to the box of implementation strategies to deal with severe malnutrition. However, there was no clear agreement that this model was always appropriate to treat severe malnutrition.

Community mobilisation

Several of the programme presentations stressed the importance of community mobilisation and participation as an essential strategy to improve uptake, and eventually coverage, of a non-centre based model as well as the TFC model (or any other public health activity). Some participants noted that it is not always feasible to implement good quality community mobilisation in an emergency context (Afghanistan and Liberia).

Staffing issues for non-centre based treatment

In many African countries, the numbers of MoH staff are low

and seconding them to a therapeutic feeding programme may result in decreased coverage of other essential services. Although CTC and other models of non-based centre treatment require large number of outreach workers, the model may have an advantage over other strategies in this respect because they are able to treat severely malnourished children at home using fewer medically qualified staff.

In some of the HBT programmes it was reported that project staff motivation was difficult, as MoH staff and others were convinced that inpatient care is required to rehabilitate severely malnourished children. This issue may be overcome by proper training and explanation.

Sustainability of CTC programmes

Although the CTC programme supports capacity building of MoH staff and the community to recognise and treat malnutrition, there is no evidence as yet of the impact this will have in the long-term. CTC programme experience is still limited so that lessons regarding hand-over to MoH are still being learnt, for example in Malawi.

Referral to NRUs in non-emergency context

Several participants pointed out that, while referral to NRUs is easier during emergency programmes when INGO vehicles are on hand, once the emergency is over, referred cases may need to walk or cycle to stabilisation centres. In a non-emergency situation (such as Bangladesh) it may be difficult to arrange for referrals to stabilisation centres, etc. This difficulty may make the programme less easy to sustain – but the same would be true for a traditional TFC model.

Type of weight gain

Not all weight gain is the same. Fat deposition does not equate with physiological recovery. For example, weight gain may mask immuno-incompetence, failure of the thymus to re-grow and improper glucose metabolism.

Cost-effectiveness

Better information on costs for both TFCs and CTC is required. This information is particularly important for governments and donors.

Sectoral integration

The food security situation will affect both traditional TFPs and non-centre based programmes’ outcomes. Dependence on an existing SFP and/or general ration for rapid start-up of a CTC or home treatment programme raises questions about use of these approaches in situations where SFPs are absent. (Although, note from table 1b that in Malawi, CTC type programmes seem to have been successfully integrated within existing NRU programmes).

Breastfeeding

There is no information to explain what will be the impact on breastfeeding of giving RUTFs to children who are currently being breastfed⁹. This subject needs further research.

The importance of good practical organisation

Several participants pointed out that one of the advantages of a non-centre based treatment programme attached to an SFP is that the child is given just one admission number. This means that it is easier to track through the system, and information on illness and re-admission will be available for this child making treatment easier.

⁹ A similar remark could apply to traditional TFC’s; the impact of high energy feeding with F100 for 3 weeks whilst breastfeeding is not yet fully understood.

4 Cultural and Ethical Considerations of CTC and HBT Approaches

Chaired by Johan Pottier (London School of Oriental and African Studies)

Speakers: Jamie Lee (consultant for Valid International), Nellie Kabwazi (University of Malawi), Chiwoza Bandaawe (University of Malawi) Joseph Mfutso Bengo (University of Malawi), Adrienne Daudet (ACF)

The introduction by Johan Pottier stressed the importance, or primacy, of engagement with communities. When there is a good engagement with local communities, there is a better chance of programmes achieving good impact and results. In this regard, the importance of understanding 'culture' is key. Culture is an organised system of shared meanings which govern behaviour. Communities tend to be fairly heterogeneous - this is important to remember, even in an emergency situation. Not all sections of the community will have similar opinions and thus there is a need to seek out the opinions of different groups within a community, even in an emergency situation.

Current guidelines for ethical research in anthropology (produced by the Association for Social Anthropologists of the UK and the Commonwealth) include the following points:

- The need to protect research participants and honour their trust. This is a process, not a one-off event and is especially important for long-term research.
- The need to be sensitive to the consequences of research. Research may have unintended consequences. There is a need to be clear about anticipated consequences and a need to discuss these consequences with communities when first contact is made.
- Avoid undue intrusion. Researchers do not have a licence to look at everything.
- The right to confidentiality and anonymity. Again, this is especially important for long-term research, and there is a need to discuss the issues carefully with people you are working with. Be aware that different communities will see the need for different things to be kept confidential.
- The need for fair return for assistance. It is important not to make promises that we cannot fulfil.
- Respect for participants' intellectual property rights. There is a need to acknowledge how people have assisted you in your analysis.
- The need for consent.

4.1 Field Presentations on the Cultural and Ethical Aspects of CTC and Home-Based Feeding

Presentations on the cultural and ethical aspects of non-centre based treatment were made on the basis of studies in Malawi and Sierra Leone. Three sets of work on CTC in Malawi have

been undertaken: the first study was conducted in order to examine local social institutions as a basis for nutritional rehabilitation at a local level, and to re-direct the Malawi CTC programme's strategy to improve coverage and acceptance. The second study presented some of the ethical difficulties faced when implementing a CTC or TFC programme. Two further studies looked at the cultural acceptability of non-centre based feeding compared to standard TFCs, one in Malawi and the second in Sierra Leone. The findings of these presentations are summarised below.

4.1.1 Use of anthropology to improve coverage of a CTC programme in Malawi

In the early stages of the Malawi CTC programme, rates of admittance into the programme were lower than expected. Anthropological work using structured interview and observations were undertaken over a three week period to better understand the reasons for this. Two main reasons emerged from the study.

Firstly, mothers were unhappy with both the process and outcome of the project screening phase. They communicated this discontent back to other principle carers who were therefore reluctant to attend the screenings. The discontent was mainly due to:

- Over-crowding and long hours waiting in the heat at the screenings.
- Anxiety about transfers to stabilisation centres (mothers' experience of stabilisation centres were influenced by earlier programmes which involved long stays in TFCs).
- The vast majority of people who had come to the screening were turned away. This was further complicated by the fact that routine growth monitoring was on-going in the area and many children who were low weight-for-age (and diagnosed as malnourished by the MoH staff) but not low weight-for-height (and therefore not eligible for the CTC programme) had expected to enter the programme but were in fact not admitted.

Secondly, there were a rich variety of ideas in the community related to causes of swelling and wasting. These are not encompassed by translation of the term "malnutrition". The community believed in a strong moral element in causation of 'swelling'. Moreover, many 'swollen' children probably were seeing a traditional practitioner before visiting MoH or CTC project for assistance.

The anthropological work suggested several ways to improve the situation:

All women and children were being sent to the screenings by the village leaders, who had been informed about the programme by the health staff. However, clearly not all women and children needed to attend the screenings because not all were malnourished or even marginally malnourished. The principles of screening and what the programme was actually looking for – thin and sick children – should be more clearly explained directly to the local leaders as well as the local growth monitoring staff. This would be courteous, as well as lead to greater clarity. These measures were taken so that the local leaders were then able to pass on the message to potential beneficiaries. Consequently, women understood why the programme was running and whom it would benefit. In addition, women were given some compensation for attending a screening, even if their child was not admitted.

The project also needed to explain the definition and causes of malnutrition and refer specifically to local names of diseases of wasting and swelling. Given the moral element of understanding around causes of swelling, outreach and case-finding should be treated cautiously and sensitively, and preferably using community members. The project needed to try and enrol traditional practitioners as allies as they were probably seeing the malnourished children first. If the project could encourage the traditional practitioners to send the children to the OTP, it would increase coverage and access to treatment.

4.1.2 Anthropological studies looking at the acceptability of non-centre based treatment compared to traditional TFC models (Sierra Leone and Malawi)

The research found that non-centre based treatments had the following advantages over traditional TFC approaches:

- ▶ There was less disruption to home life. In Sierra Leone, half of the beneficiaries reported that farming activities were still disrupted by a HBT model because women preferred to stay at home while the child was taking the food/medicine. However, all the women reported that HBT caused less disruption because they were able to undertake their household work. In Malawi, women also reported less “long-term” disruption to their lives because they were able to work in their farms if necessary, preventing (or at least decreasing) future food insecurity.
- ▶ Carers are able to fulfil their social responsibilities. This is particularly important in a situation where women have to look after other relations (such as sick older people).
- ▶ Improved access. The decentralised model brings the services closer to home, so less need for difficult travel.
- ▶ Carers felt a sense of empowerment because they were trusted to look after their own child and could make their child better. In a TFC they often feel like responsibility is being taken out of their hands. There is also some

evidence to show that carers absorbed and started to use advice given to them about caring for their children when they are based at home rather than in a TFC (Sierra Leone).

- ▶ Non-centre based programmes tap into the community ethos of looking after each other.
- ▶ Women in Malawi noted that the difficult decision about whether or not to take one child for treatment at a TFC and leave the others behind at home is no longer necessary with a non-centre based approach because the programme is home based. This decision-making is often difficult without discussion with other members of the family and hence can be problematic in a screening setting. In Sierra Leone, the situation was slightly different: women knew the TFC programme very well and hence even before going to the screening, they probably knew what choices might have to be made. It is probable that these carers had already discussed the issue and made the decision with their families prior to attending the screening.
- ▶ CTC makes use of, and influences, existing networks. Traditional authorities were appreciative of CTC while women’s networks supported and encouraged the approach. Traditional healers are an integral part of the pathway to care, especially with regard to changing practices and beliefs. It was possible to change their perceptions so that they no longer adhered to moral causes of malnutrition. (Malawi)

The research in Sierra Leone found that when asked how they would like their severely malnourished children to be treated in the future, carers whose children had been through the TFC programme preferred the TFC model and that those who had been through the HBT programme preferred the HBT model. Carers of children in the TFC programme were afraid to take the responsibility of looking after their sick children alone and were also grateful to be able to rest in the TFC. Carers whose children were in the HBT programme felt that the programme worked better and that they could still get on with their work and look after other relatives.

4.1.3 Presentation on ethics of CTC

This presentation explained that many of the problems encountered when trying to think about the advantages of a non-centre based treatment for severe malnutrition versus the traditional TFC approach are actually ethical dilemmas. For example, we need to consider:

- Right to access versus right to best individual medical care
 - ▶ Efficacy versus access
- Long term impact versus short term impact
- Emergency events as opportunity as well as crisis
- Interests of people versus medical interests
- Self determination versus necessity
- Rights based approach versus service oriented approach.

It is possible that ethical dilemmas such as those described above may only be resolved according to individual value systems.

The Belmont report¹¹ emphasises the importance of three ethical principles: beneficence (or non-maleficence), respect and justice. When thinking about whether standard TFCs or non-centre based treatment approaches are appropriate, we can think about the following issues:

- Beneficence
 - ▶ Maximising benefits - access for all, individual care, sustainability, community empowerment
 - ▶ Minimising physical harm - food sharing, cross infection, food security
 - ▶ Minimising social and psychological harm - loss of privacy, dependence syndrome, marital tension, loss of income, depression
- Respect
 - ▶ Autonomy and self determination - people's right to freedom and choice
 - ▶ Respect of culture and privacy
 - ▶ Empowering people - informed decisions about themselves
 - ▶ Informed consent
 - ▶ Respect for medical procedures
- Justice
 - ▶ The right to access services versus the right to the best available standard of care – judgements on this may differ between cultures.
 - ▶ Conflict of interest between patient's medical needs and the family or patient's social and economic needs (for example food security).

Medical ethics are part of the toolkit for decision making when trying to decide what type of programme to alleviate severe malnutrition is suitable for, a given situation.

4.2 Synthesis of discussion around the presentations

The appropriateness of using local leaders to mobilise the community for nutrition programmes

Malnutrition is often associated with political and/or social exclusion. If this is so, local leaders may not always be the best people to help locate malnourished children.

Social cohesion in communities

High rates of severe malnutrition are often associated with, or caused by, population displacement. Displacement may lead to decreased social cohesion. There is a need to think about how the CTC/HBT models would work in these circumstances. However, communities often move en masse and social connections remain, which can be positively used in emergency programming. In some situations (for example, Ethiopian refugees in the Ethiopian-Eritrean war) cohesion may actually increase due to fear of outsiders.

Was seasonality a factor in improving the coverage of the CTC programme in Malawi?

There may have been a seasonal aspect to the coverage

pattern of the programme. How significantly this contributed was not possible to ascertain, but it was considered that anthropological aspects played a greater role.

Beneficiary choice between different types of programme

In Burundi, adult beneficiaries were given the choice between treatment for severe malnutrition at a TFC or at home. Many chose the TFC (some because they needed a rest from home). Some who chose the TFC later opted to have treatment at home. Some who chose the HBT later opted for the TFC. The decisions were often related to the severity of the disease. Decisions about treatment will be context specific and depends on a household's needs but we should try and provide a choice to communities. In addition, flexibility in treatment protocols is important. The costs of providing choices could be very high. In some situations it may simply not be possible to offer choice so that the decision of programme type may be left up to government and the implementing agency.

There was a recognised need for guidelines or a decision making tree to help planners assess most appropriate programme type for treatment of severe malnutrition in any given context

The ACF (Sierra Leone) presentation provided a list of socio-anthropological indicators, which may be useful for guiding decision-making. The indicators included security; causes of malnutrition, including global food availability (sharing will be more common where food security is poor); access to water; caretaker psychological health; characteristics of society and structure (if society is weak it may be difficult to implement non-centre based approach); family life and rhythms; local food habits; NGO image, skills and resources; medical follow-up, and type and availability of therapeutic product.

What are the ethics of piloting new programmes such as CTC/HBT when there are already reasonably efficacious models to treat severe malnutrition (standard TFCs)?

International guidelines (Helsinki) give provision for this if (a) efficacy improves or (b) cost decreases so that access will improve. CTC and other HBT programmes qualify for this. We need to balance the risk of denying many people a new therapy against the risk of undermining a treatment that works.

Decision making tensions between improving the right to access and providing the right to good quality care

For example, in South Sudan it is possible that too many resources were allocated to establishing the stabilisation centres compared to outreach work mobilising the community to treat non-complicated cases of severe malnutrition. There is a legitimate and difficult question about what is the best care available in any given country. For example, before the end of apartheid in South Africa, medical care available was among the best in the world but 70% of people were not accessing this care. The new government had to drop standards to allow increased access. Standards are a very difficult subject - efficacy and access need balancing.

¹¹ <http://ohsr.od.nih.gov/mpa/belmont.php3>

5 Presentations on Ready to Use Therapeutic Foods

Chair: Jeya Henry (Oxford Brookes University)

Presenters: André Briend (IRD), Peter Fellows (consultant for Valid International), Isabelle Sauguet (Nutrisset), Jeya Henry (Oxford Brookes University)

5.1 History of Plumpy'nut

Presented by André Briend

Initially, Nutrisset attempted to produce a bar with the same ingredients as F100. This failed because the high fat content of the product meant that it melted at high temperatures (>37°C). Using a fat with a higher melting point to make a more stable product resulted in an unpalatable bar. The alternative options were to (i) change the carbohydrate content and use sophisticated compression technique to make the bar (this option was followed by Compact when designing BP 100), and (ii) abandon the idea of a bar, and instead make a spread to be packaged in a sachet and forget about the mechanical properties of the food. This second approach was developed and co-patented by Nutrisset and IRD in 1997.

Plumpy'nut® was the name given to the spread and has almost identical ingredients to F100. The only difference is the use of peanut butter to replace part of the dried skimmed milk used in the F100 formula.

The advantages of Plumpy' nut are that:

- It has a straightforward production technology.
- It has a low surface area to volume ratio. This means a reduced exposure to oxygen and longer shelf life compared to powdered products.
- A spread can be eaten without water. Bacteria need water to grow. No bacteria will grow in Plumpy'nut if accidentally contaminated.
- It is not a water soluble food and its water soluble ingredients are released from the stomach more slowly than with F100. This minimises problems associated with high osmolarity.
- Tests in Tchad and Senegal have shown that Plumpy'nut is very well accepted. There is some evidence, however, that sick children may prefer liquid F100 to Plumpy'nut.

Initially, it was feared that the high energy density of Plumpy'nut would result in poor tolerance as a result of osmolarity problems, despite the low osmolarity observed in vitro, even after chewing. This led to the inclusion of powdered whey and maltodextrine as the main sources of carbohydrate in Plumpy'nut. This may be unnecessary, however, as locally made Plumpy'nut, prepared with sugar as main source of carbohydrate, seems well tolerated and does not lead to increased numbers of diarrhoea episodes compared to the industrially made version.

Plumpy'nut was designed for outpatient therapeutic programmes and should not be used in hospitals with the objective of increasing weight gain. Indeed, there is a theoretical risk of excessive fat tissue synthesis when very high weight gains are achieved.

5.2 Local Production of RUTF in Malawi and Ethiopia

Presented by Peter Fellows

Local production of RUTF has started in Malawi. Potential problems before the start of production were identified as:

- Quality of ingredients - especially peanut butter and oil
- Suitability of production facilities
- Management expertise – particularly an issue for village level production
- Adequate process control
- Adequate independent laboratory facilities for routine quality assurance (QA).

In order to avoid these problems, Concern and Valid International undertook the following activities:

- An audit of Tambala factory and management procedures - checking buildings, raw material supplies, equipment and production facilities, hygiene and sanitation, record keeping, stock control, and ingredient supplies (this was a problem as the groundnuts were not properly labelled).
- A comparative trial of laboratories to identify one that had accurate, reliable and affordable testing. The team compared the results of three local laboratories to one in the UK.
- Preparation of a production manual.
- Training of Tambala workers and guidance for production and QA managers.
- Preparation of a written contract with Tambala.

The analytical results of the first batch of the product were acceptable:

- The oil was not rancid.
- The iodine value and peroxide value indicated that the oil was not particularly fresh, but this was not considered a problem.
- The groundnuts and RUTF had low levels of aflatoxins, which passed the stringent European standards.
- The water content of the RUTF was slightly lower than Plumpy'nut.
- The RUTF protein and moisture contents were similar to Plumpy'nut, however energy and fat values were slightly lower than Plumpy'nut.
- An analysis of spectral photometry found that the copper content was similar throughout the batch, but that the iron content was inconsistent. This meant that it was necessary to pre-mix the dry ingredients to achieve a uniform final mixture.

Training was straightforward. Staff at the factory learnt how to make the product very easily. These people were then employed to train people at the village level.

Since the contract was signed at Tambala, the RUTF supply has been generally satisfactory, after an initial settling down period.

Routine QA detected an increase in aflatoxin levels on one occasion. It was agreed that the factory would undertake a 100% inspection of peanuts to prevent recurrence. It was also agreed to issue contracts to farmers in order to ensure traceability of nuts in the future. They will eventually train factory buyers to help instruct farmers on storage to prevent development of aflatoxin. There were also some problems with the Sales/Accounts Department, with incorrect charging and wrong quantities delivered. In the future, the aim is to link groundnut supplies to the Concern Agricultural Extension programme.

Village level production has started in Nambuma. Set-up was very easy. However, the ingredients are still all produced in Lilongwe. This will be a problem for any village based production because QA testing cannot be done at this level. It will be necessary to determine whether or not it is cheaper to produce the RUTF centrally and then distribute it, or whether bringing the ingredients to the village and making up the product there is more cost-effective. There is also a need to consider if production of RUTF could be a useful local food security project.

Valid International is looking at production of RUTF in Ethiopia. This is still at the early stages of development. Production is likely to be in Addis Ababa. There is potentially a larger demand for RUTF and a larger production capacity than Malawi. However, groundnut/peanut butter and dried milk supplies are less secure than in Malawi and there are no aflatoxin testing facilities in-country.

5.3 Producing Plumpy'nut in developing countries (Nutriset)

Presented by Isabelle Sauguet

Nutriset was established in 1986. Local production of Plumpy'nut was always a key aim of Nutriset. Three partners are necessary for local production – local manufacturer, users (NGOs or hospitals) and Nutriset. A local manufacturer first has to be convinced of the scheme and then Nutriset has to assess their skills and resources. It is then necessary to set up a royalty-free agreement to manufacture and sell under licence. The agreement ensures that the local Plumpy'nut contains the right premix and that this is regularly available at a fair price.

Nutriset also provides quality support by helping to set up quality protocols, analysing the product (vitamin, aflatoxins and fat oxidation) and collaborating with external laboratories. Nutriset has produced guidelines for the setting up local production of Plumpy'nut.

Nutriset have faced a number of difficulties over the years in setting up local production. These include the following;

- Irregular production and variable quality of product
- Fluctuations in commodity supplies and prices
- Shorter shelf life of Plumpy'nut (3-5 months)
- Irregular demand
- Cash flow problems
- Unavailability of machines

However, in conclusion, local production of Plumpy'nut is possible and sustainable¹².

¹² See Field Exchange 20. Local Production of Plumpy'Nut, by Anne-Laure Glaisner and Beatrice Simkins, Nutriset. p14, November 2003

5.4 Development of alternative RUTF formulations

Presented by Jeya Henry

There are a number of issues around the local production of RUTF:

Peanuts are highly susceptible to mycotoxins and a fairly sophisticated technology is required to test for mycotoxins. The level of aflatoxins allowable in food products varies worldwide. Europe is very strict regarding aflatoxin contamination, about 30% of peanuts coming to Europe are rejected because of their aflatoxin levels. The US is less stringent.

In African countries, allergies to peanuts are relatively rare, but in other countries, e.g. Latin America and Asia, rates of allergies may be higher. Moreover, there are also issues of taboos around peanuts.

There is a large variation in linoleic acid range in peanuts (13-43%).

Milk powder still remains a relatively expensive commodity.

Hence, there is a need to develop other formulations of RUTF. Work is on-going at Oxford Brookes University to develop alternative formulations. Such formulations need the following characteristics:

- Long shelf life
- Good nutritional quality
- Highly palatable
- Consistency suitable for young children
- Requires no additional processing prior to feeding.

Oxford Brookes University are using the food square concept to design new RUTFs. The RUTF formulations are developed from the complementary effect of combining two or more ingredients, mainly oilseeds, grains and legumes, with appropriate vitamins and minerals as shown below.

| | |
|--|---|
| A The staple Cereals (tubers and roots) | B Protein source Includes all legumes and animal foods |
| C Vitamin and mineral mixture Vegetables and fruits | D Energy Source Fats, oils and sugars |

An example of a food mixture could be: rice 25%, soybean 30%, Nutriset mineral mix (1-2%), oil (20%) and sugar (20%). The rice and soybean would need to be roasted.

Plumpy'nut is being used as a benchmark by which to judge the new RUTF formulations. Testing is ongoing but so far, Oxford Brookes University has been able to produce over 15 low cost RUTFs with comparable shelf lives, and protein quality and energy density suitable for feeding young children, without the use of peanuts and milk powder.

5.5 Synthesis of discussion around the presentations

Cost-effectiveness for production at village level

It would be useful to have a breakdown of costs of different components of RUTF production (ingredients/labour etc) to assess whether or not it will be cost-effective to produce at village level. This data is not yet available, but preliminary analysis from Malawi indicates that about 75% of the costs of the ingredients are for the therapeutic CMV, and dry skimmed milk (which is imported from South Africa).

GM foods

Genetically modified (GM) foods are a big issue in Southern Africa, for example in Zambia. When designing new RUTFs we need to consider what products we will be using and make sure that they are acceptable to the community. Indeed, this is an advantage of producing the new RUTFs – we will have a wide range of foods to choose from.

Need to change the mineral mix used in production of new RUTFs

Calcium and phosphorus were left out in the design of the original mineral and vitamin mix (CMV therapeutic) because they were contained in the milk powder. We need a different vitamin-mineral mix if excluding milk from a new RUTF.

Need to consider anti-nutrients in complementary infant foods

An unpublished study measured anti-nutrients in approximately 130 situations where complementary infant foods were used in relief operations. High levels of anti-nutrients were found in many cases. However, anti-nutrients are not routinely tested in any relief programme – this must, in part, be because complementary infant foods are not listed in

the Codex Alimentarius¹³. There is a need to set up quality control measures for anti-nutrients for infant feeding. The Oxford Brookes group will look into this.

Use of BP100 (a COMPACT product)

ACF reported on a clinical trial undertaken in Freetown, with a similar methodology to the Tchad TFC study, to compare the use of BP100 and F100 in severely malnourished children¹⁴. A small number of severely malnourished children were randomly allocated to an intervention (BP100 and F100 in alternate meals) or control (F100 only) group. The study compared weight gains and energy intake and found that BP100 children had equivalent weight gain and energy intake to those receiving F100, despite the fact that energy intakes were higher for the BP100 than for the F100. BP100 has been given freely in the field in Afghanistan and Angola. It has approximately the same cost per calorie as Plumpy'nut. BP100 looks like a compressed biscuit, but is not as moist. If a child has fever or other medical problems, they generally seem to prefer a liquid diet (some agencies have also reported this for Plumpy'nut). Younger children may also prefer milks to BP100 (also reported by some agencies for Plumpy'nut). The conclusion of the study was that the choice between BP100 and Plumpy'nut should be made according to operational and social factors, rather than nutritional or medical ones.

A new research agenda

The development of Plumpy'nut may result in a whole new research agenda around the production of ideal complementary infant foods. It was suggested that in the future, Plumpy'nut could be used as the (gold) standard food with which to measure the usefulness of other products¹⁵.

¹³ A Codex Standard for Processed Cereal-Based Foods for Infants and Children does exist, Codex Stan 74-1981 (amended 1985, 1987, 1989, 1991). Codex Alimentarius.

¹⁴ Navarro-Colorado, C and Laquiere, S. Efficacy and safety of the use of BP100 on the treatment of severe malnutrition in children. A clinical trial of alternate meals of BP100 and F100. Internal report. Action Contre la Faim, Paris, 2002.

¹⁵ Since Plumpy'nut's problems with aflatoxins and variable linoleic acid content are not ideal, perhaps it might be better to use the product as an initial comparison point.

6 Working Group Meetings

Six working groups were asked to review and vote on a series of proposals related to different aspects of non-centre based treatment of severe malnutrition¹⁶. The idea behind this was to;

- i) air contentious issues
- ii) determine where there was consensus
- iii) produce a snapshot of the views of participants on some of the more contentious recommendations which have been put forward as CTC programmes have developed.

This process was difficult because:

- Many participants attending the conference work for agencies, and agencies need to discuss their strategies internally. Many individuals felt that they could not support a given statement without discussion within their agency first.
- The individuals who took part in the conference have had very different experiences with non-centre based treatment of severe malnutrition. For example, it was difficult for people, with no experience of admitting severely malnourished children without medical complications directly into an OTP, to state, with certainty, what the definition of a case of a severe uncomplicated malnutrition should be and whether or not inpatient care would be needed for these patients, in spite of evidence presented by other groups.

- All the working groups were given different statements. As any individual could only be in one working group, it was not possible for people to vote on all the statements. This was particularly problematic for the agencies from which only one or two individuals attended the meeting.
- It was difficult for the reporters to accurately gauge the amount of consensus and disagreement for each statement within a working group. In some cases, the individuals who were against a statement were more vocal. In other cases the reverse was true. Thus it was difficult to claim that any one statement had been endorsed or even agreed by the group.
- Different organisations were not represented in the same proportion in the meeting, i.e.: there were more individuals from some agencies than others and there were few participants from government.

The results of the voting have not been presented here because of the problems with the process described above. However, it should be noted that in spite of this difficult process and the general level of dissatisfaction with the process, each working group did make presentations to the plenary indicating which statements were accepted, rejected or modified¹⁷.

¹⁶ Group 1: Admission, discharge and referral criteria; Group 2: Outpatient Medical protocols; Group 3: Nutritional Products and Protocols; Group 4: Community involvement, case finding, follow up and mobilisation; Group 5: Integration and Longer term issues; Group 6: Management of infants under 6 months.

¹⁷ The statements that the groups were asked to comment on could form the basis of a future agenda for operational research on the treatment of severe malnutrition in a non-centre based programme (see panel discussion, section 9)

7

Donor Presentations

Chairperson: *Caroline Tanner (FANTA)*

Presenters: *Peter Morris (Nutrition adviser, OFDA), Tom Marchione (Nutrition adviser for USAID), Claudia Hudspeth (UNICEF Southern African Office), Enric Frexia (Health adviser, ECHO, Regional Office in Nairobi), Diarmaid McClean (Health Adviser, DCI)*

The chairperson noted how donors' interest in the CTC/HBT model of treating severe malnutrition was reflected by the large number of both bilateral and multi-lateral donor agencies present at the meeting. The development of CTC projects in the field has been supported through operational research grants from FANTA and the DCI. OFDA and ECHO have both provided funding for the implementation of CTC and HBT programmes.

The speakers were all supportive of the development of non-centre based feeding programmes to treat severe malnutrition. They expressed the hope that the approach could both improve the flexibility of emergency responses to severe malnutrition and increase coverage of current programmes. Several of the speakers stressed that they did not see the future of therapeutic feeding as either the TFC model or the CTC model. Instead, they viewed the development of CTC/HBT as a way to expand choices/tools to alleviate malnutrition. The choice of which tool to use will be context specific.

Several other common themes emerged in the donors' presentations including funding/cost issues, the emergency/development continuum, treating malnutrition at an earlier stage, and the relationship between HIV/AIDS and malnutrition. These are discussed further below.

Funding/cost issues

- Funding for severe malnutrition in emergencies is limited and difficult choices need to be made. For example, OFDA – which is the biggest funder of TFCs for USAID – also has to fund water and shelter programmes. This is also true for ECHO.
- Most of USAID's budget for nutrition programmes is tied to food aid through the PL480 legislation. This could be problematic if large-scale RUTF programmes are implemented because the legislation requires use of food produced in the US. However, it may be possible to get around this by using US manufacturers to produce RUTF.
- The costs of different programmes are difficult to calculate for several reasons:
 - ▶ There is a big discrepancy in how different agencies measure the costs of an intervention. They may use any of the following definitions: cost per child admitted /programme; cost per child recovered /programme; cost per child attended /month; cost per monthly programme operation; cost per DALY (disability-adjusted life years).
 - ▶ Expected or target numbers and actual numbers enrolled in programmes which treat malnutrition (both supplementary and therapeutic) may vary. If targets are much higher than actual numbers, then the price of treatment per child will increase.

- ECHO has a range of costs for which it will allocate grants in emergencies:
 - ▶ These are calculated as the cost per child per month the programme is running and are independent of how long the programme runs. ECHO funds SFPs at about 9 euro/child/month and TFCs at about 115-150 euro/child/month. The range for a joint SF/TFC programme is 20-25 euro/child/month (assuming that the ratio of children in a therapeutic centre: supplementary feeding is 1:20)¹⁸.
 - ▶ In reality, ECHO estimates that it spends about 329 euro/child/month (288-592 euro/child/month in an emergency situation). This figure will include costs for nutrition and expanded health prevention and care, watsan, surveillance and education activities (see below)¹⁹.
- An analysis by ECHO based on proposals for 8 TFCs, 5 SFPs and 33 mixed programmes estimated that the major costs are divided up as: 11% food, 38% staff, 19% logistics, 11% overheads and 21% medical and "others". OFDA noted that, apart from being expensive, that some of the best TFCs are almost entirely imported (in terms of expatriate staff, materials and food).
- According to ECHO's calculations, the food costs for a CTC programme are in the same range as the food costs for a TFC (approximately 25-28 euro/child/month). However, anti-retroviral drugs for HIV patients cost approximately the same as food costs for a CTC programme. Donors and agencies will need to make difficult choices about where to spend their money in the next few years, as the incidence of HIV increases in many countries which are affected by malnutrition.
- There is a need to involve beneficiary countries in discussions about CTC/HBT programmes because they will need to be absorb much of the costs in the long term. We should also involve the OECD in these discussions.

Emergency to Development continuum

Several of the donor representatives (USAID, ECHO and DCI) commented that they would like to see a stronger link between therapeutic and preventative services for nutrition²⁰. This may mean that the agencies who implement non-centre based treatment might also implement the water, expanded health prevention, watsan, nutritional surveillance, education and reproductive health programmes. This should result in development programming become more 'joined-up'. CTC, with its emphasis on community participation, may be a tool to encourage this type of programming. It was acknowledged that donors also need to link the different divisions within their own agencies.

¹⁸ The ECHO representative later pointed out that this ratio is unrealistic and that the ratio is more likely to be 1:5. Hence, ECHO's price range for a joint TFC/SFP will be altered in the near future.

¹⁹ These very high costs may in part be due to low coverage of the programmes.

²⁰ USAID alone has spent more than US \$1 billion on emergency assistance for Ethiopia in the past 7 years. More of this should be spent on programmes to prevent malnutrition rather than treat it.

Treating malnutrition at an earlier stage

A potential benefit of CTC programmes is that they offer the chance to treat malnutrition earlier in the community and 'address risk higher up the ladder'. However, if the programmes are only linked to emergency SFP programmes then this benefit may be lost as guidelines for emergency SFP only advise their establishment when high levels of wasting are recorded.

HIV/AIDS and its relationship with severe malnutrition

Most of the information presented below is drawn from the UNICEF presentation on the situation in the Southern Africa region. However, several of the donors noted that the HIV/AIDS epidemic will have important consequences in terms of how severe malnutrition is treated in the future. HIV/AIDS will result in more severely malnourished children and adults in places which are not accustomed to deal with severe malnutrition on a large scale.

UNICEF undertook an analysis looking at the relationship between HIV/AIDS and malnutrition in Southern Africa in March 2003. The data was mainly drawn from Multiple Indicator Cluster surveys (MICS) and the Demographic and Health surveys (DHS) from the region. The main findings of the analysis were:

- In general, the deterioration of malnutrition was limited to an increase in the prevalence of underweight (not wasting). The deterioration is mainly seen in younger children in Malawi.
- There is a disproportionately high proportion of severe malnutrition compared to moderate malnutrition in the region – for example, in Zimbabwe the prevalence of global acute malnutrition is 5% but the prevalence of severe acute malnutrition is 1.4%. This is thought to be linked to HIV.
- The coverage of standard TFC programmes is low in many parts of the region. In Zimbabwe, it is estimated that the programmes are missing 50-80% of severely malnourished children. Very high mortality rates have also been reported in the TFCs. The national prevalence of severe malnutrition in Zimbabwe is currently estimated at 1.4%. The Zimbabwean Government (and local agencies in the country) are not used to dealing with such high levels of malnutrition and have no institutional arrangement to deal with the problem.
- It is estimated that 10-15% of children in the region aged less than 36 months are HIV+. This has serious implications for their growth and future rates of malnutrition.
- In ecological surveys, HIV prevalence correlates negatively with underweight throughout the region. However, areas with higher HIV prevalence have recorded larger deteriorations in malnutrition.
- There are large rural/urban differences in the prevalence of HIV. Agencies need to consider how CTC can be implemented in urban or peri-urban settings in the future.
- Nutritional status is lower in orphans. The HIV epidemic will result in an increase in the number of orphans. Agencies need to consider whether centre-based feeding programmes are more or less appropriate for orphans.
- Finally, the high rates of mortality in adults in this region have implications for food security and caring practices in the future. UNICEF predicts that higher levels of malnutrition will be recorded in the region over the coming years.

UNICEF believes that a CTC model of treatment of severe malnutrition has a clear role to play in areas with high prevalence's of HIV/AIDS. UNICEF itself can help in the areas of:

- National level facilitation/co-ordination - situation analysis/information management; partnership convening; development of national protocols; integration with other community based programmes
- Provision of supplies – for centre based phase I treatment; CMV therapeutic; equipment; basic drugs
- Quality assurance of programme monitoring- training; technical support; support to MoH
- Information management and lessons learnt.

7.1 Discussion around donor Presentations

CTC as a new concept

The CTC model contains many elements that have been used to treat severe malnutrition for many years. As such, the CTC model can be used as a framework to integrate the different elements of many programmes that we already use, for example SFP, TFCs, RUTF, community participation, active case-finding and food security interventions. On occasion, the development of the CTC model has exposed gaps existing in the tools we currently use, for example in the estimation of programme coverage. As described above, a new strategy has been designed to fill the gap.

Millennium goals

A recent article published in the Lancet estimated that 11 million children die each year from preventable diseases²¹. The fifth millennium goal aims to decrease mortality rates in children. However, many of the big donors (the US and the Europeans) are actually giving proportionally less to children as a population group than they did ten years ago. An unpublished analysis suggests that the treatment of severe malnutrition will add significantly to the decrease in the mortality rates of children.

Timeliness

Donors are often slow to respond to requests for emergency nutrition programmes, and yet a programme like CTC depends on a timely response if it is to be effective. The timeliness of a response often depends on a donor's capacity to be involved at the local level. The speed of response could be increased if donors were more directly involved at the field level and therefore fully conversant with the context of the emergency. UNICEF should have relatively large sums of emergency preparedness funds in country.

Not all NGOs are equal

So far, non-centre based treatment of severe malnutrition has been implemented only by well known professional international agencies and competent MoHs. There is a concern that 'second or third string' NGOs may not be able to roll out the programmes so easily. Donors should consider funding the first rate agencies to mentor other agencies considering taking on such programmes.

²¹ Black et al, 2003. Where and why are 10 million children dying every year? The Lancet 2003;361:2226-34. Also, Jones et al, 2003. How many child deaths can we prevent this year? The Lancet 2003;362, 65-71. Part of the Child Survival series, see online at www.thelancet.com

8

Panel discussion

This section of the conference, which took place on the last afternoon, was chaired by Professor Andrew Tomkins (Institute of Child Health, London). The discussion focused on the following topics:

Future of Plumpy'nut production

The concept of using a spread instead of a powder to prepare fortified infant foods is protected by a patent owned by Nutriset and IRD, a French governmental organisation. The objective of this patent is to protect Nutriset's research and development work from major multinational food companies, and not to prevent local production. Nutriset will not use this patent to limit access of RUTF technology to NGO's and private companies working with humanitarian objectives and ensuring good quality control. Nutriset will encourage this technology transfer towards developing countries.

Following discussions with different donor agencies willing to be involved in exploring the potential use of RUTF technology, Nutriset has developed a draft code of conduct which seems acceptable to other development agencies. The draft refers to the absence of royalties for local production for humanitarian projects. In exchange, Nutriset will ask local producers to comply with a code of conduct which include quality control, quality assurance and fair price. Nutriset is planning to make this code of conduct available on its web site once it is finalised.

Integration between CTC activities and MoH programmes to treat malnutrition

There is a need for people working in CTC and other HBT programmes to be more sensitive to the skills and abilities available in the countries in which they work. Emergencies often re-occur and it is unhelpful to think that there is no-one capable of thinking about, or dealing with, nutritional problems in an emergency affected country (as was the case for many agencies in Malawi in 2002). Governments with a strong MoH will resent agencies which assume that only they know how to treat malnutrition. There are often highly capable people in beneficiary countries and agencies should try and harness their skills. However, NGOs also need to be careful not to 'poach' all the best staff.

CTC programmes involve the MoH as much as possible. In both Ethiopia and North Sudan the, MoH is integral to the programme. In many countries, TFCs operated by ACF have also been fully integrated into MoH programmes. Exit strategies are an important issue for integration. Agencies and governments must work out exit strategies before the programme starts. This will include considering problems of payments to staff and management of programmes. Lessons learnt from the handover of a CTC programme in Malawi include the need to look more closely at district-level management of MoH staff in future programmes.

Protocols for non-centre based treatment of malnutrition have not been fully incorporated into government policy in any country yet. However, agencies that work in the treatment of severe malnutrition in Malawi must discuss their protocols with the MoH.

Integration of the treatment of severe malnutrition and other programmes

There is a need to further integrate non-centre based treatment with public health and other programmes. This subject was not adequately explored at the conference. One of the major issues

will be sustainability. As CTC programmes evolve, they depend more on village level voluntary community workers. More research on what motivates these workers and how, if at all, to remunerate them should be undertaken. It is clearly unadvisable to create a parallel cadre of health/nutrition staff. However, principle carers may need some compensation for their time. We need to look into how best to empower/reward these women through credit schemes or other programmes (not necessarily money). Alternatively, some observers commented that to see a child recover from severe malnutrition may be sufficient motivation for women involved in the programme.

Emergency programmes are very expensive to implement. Better integration between emergency and non-emergency programmes can cut the costs significantly (in terms of hardware like cars and computers, etc).

Choice between different types of programme to treat severe malnutrition

It is important to give people the choice between both non-centre based treatment and standard in-patient care because many people (such as orphans) may be unable to go home and receive treatment, or certain situations (such as wars or in insecure refugee camps) may make it difficult to return home. However, keeping children within the community is more likely to lead to an understanding of, and support for, social issues. Agencies and governments should make choices about which model (or a combination of the two) is most appropriate according to the context. In fact, more research is needed to identify the factors that should be taken into account when deciding which strategy to implement in a given situation.

It should also be noted that emergency situations often occur with limited lead-in time and, organisations may be unable to scale up complex programmes very quickly so, in reality, it may be difficult to provide individuals with choice.

Use of Plumpy'nut for people living with HIV/AIDS

An unpublished study in Burundi found that adult HIV+ women had the same rate of weight gain and recovery weight as non-HIV patients in a TFC. HIV+ individuals can respond to this type of treatment. Hence there is a need to integrate HIV+ individuals into these programmes. It is important to distinguish between recovery rates of people with HIV and those with AIDS. WHO has formed a working group looking at the relationship between HIV and malnutrition, the group should produce a list of operational research questions soon.

In most places in Africa, the HIV status of individuals is unknown. There are ethical issues around testing for HIV because of evidence that nurses and other medical personnel will treat the HIV+ patients differently.

The CTC/HBT model may be a useful entry point into the community for HIV/AIDS programmes because the programme's approach results in very close contact with the community relatively quickly. It may also be a useful way to locate HIV/AIDS patients.

Operational research on non-centre based programmes

There is a need to identify the top 10 operational research questions that have arisen around the development of CTC/HBT programmes. This will certainly include the treatment protocols for infants less than 12 months and patients

with oedema. There is not enough interaction between NGOs and academics around these topics (in the UK at least).

It may be that many of the proposals/statements put to the six working groups at the meeting, and which generated a large element of controversy, could inform and help prioritise an operational research agenda. (ENN/Ed)

Terminology and definitions of non-centre based programmes to treat severe malnutrition

There is some confusion over the terminology used in non-centre based treatment programmes. The CTC model has developed its own nomenclature but this is not the same as that used by agencies working on other HBT programmes (partly because the strategies are not the same). UNICEF will take the lead on this, working with the key agencies over the next few months. A report of the preliminary discussions will be presented at the emergencies working group at the next UN sub-committee on nutrition meeting in New York (March 2004).

There is also a need to define, and if possible standardise, some of the programme outcomes and measurements used by different agencies to assess the impact of non-centre based treatment. The Sphere definitions are useful for some, but not all, impact measures.

The wider implications of RUTFs

Evidence presented at this conference has shown that children fed RUTFs have been able to achieve rapid weight gain and can recover from malnutrition. This finding has very wide implications for nutritional strategies in countries which consistently record high levels of malnutrition. For example, could RUTFs be used to help children to recover from diarrhoea or malaria? A large increase in malnutrition is seen in age groups which are being weaned. Is there a role for RUTFs as a

transition food in resource poor environments? Could it be useful for mothers who are HIV+ and would like to wean early? There is also some evidence from Malawi that RUTFs may be useful to feed disabled children (a group that it is often difficult to feed). Can we expand its use to assist these groups?

Research on some of these questions is ongoing in different areas – for example, the University of Malawi is undertaking small trials in providing RUTF to weaning age children for a limited time. The problem with all these ideas is that the RUTF will need to be much cheaper than it currently is. There may also be a need for different formulations of RUTF for children with HIV (note that there is evidence that very sick adults and children may prefer milk-based products to RUTF).

The development of RUTFs has implications for CSB production. Currently, CSB production is less expensive than RUTF production. In fact, the price of food should be assessed by its nutritional value and multiples of its micronutrient value (this can be calculated using a linear programming technique). It should be possible to lower the price of the balanced ration. There is little published evidence to show that CSB actually works. One of the reasons for the lack of evidence may be that inadequate amounts of CSB are distributed. Also, CSB is often given as part of a wider package and hence the impact of the CSB itself is unknown.

Closure of meeting

Closing remarks for the meeting were made by Tom Arnold from Concern. He stressed the responsibility of agencies to share information, as well as to listen and learn, about further developments in non-centre based treatment of severe malnutrition, in order to fulfil our obligations to the beneficiaries with whom we work.

9 Participants

Abdallah Eisa
Adrienne Daudet
Alem Hadera Abay
Ana Gerlin Hernandez Bonilla
Andre Briand Dr
Andrew Tomkins Prof
Ann Ashworth Prof
Anna Taylor
Anne Callanan
Anne Nesbitt
Anne Walsh
Arabella Duffield
Brid Kennedy
Bruce Cogill
Carlos Navarro-Colorado Dr
Carol Morgan
Caroline Abla
Caroline Tanner
Chiwoza Bandawe

Chris Brasher Dr
Claudia Hudspeth
Claudine Prudhon
Diarmuid McClean
Don Sexton
El Hadji Issakha Diop
Emily Mates
Enric Freixa
Eunyong Chung
Fiona Quinn
Frances Stevenson
Hedwig Deconinck
Howard Dalzell
Isabelle Sauguet
Jamie Lee
Jennifer Martin
Jeremy Shoham
Jeya Henry Prof
Johan Pottier Prof

Joseph Kalalu
Joseph Mfutso Bengo
Juliana Muiruri
Kate Sadler
Keith Sullivan
Laura Phelps
Marie McGrath
Marjatta Tolvanen
Mark Manary Dr
Mark Myatt
Mary Catherine Murray
Mary Corbett
Mary Sutton
Mija Tesse Ververs
Mike Golden Dr
Montserrat Saboya
Nellie Kabwazi
Nicky Dent
Patrick Webb

Paul Rees Thomas
Peter Fellows Dr
Peter Morris
Raj Mann
Rebecca Brown
Reinhard Kaiser
Salimata Wade
Saskia van der Kam
Sophie Baquet
Steve Collins
Tahmeed Ahmed Dr
Tanya Khara
Teshome Feleke
Theresa Banda
Tom Arnold
Tom Marchione
Yvonne Grellety Dr



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Published by The Emergency Nutrition Network
ENN Ltd, Unit 2.5, Trinity Enterprise Centre, Pearse Street, Dublin 2, Ireland
Tel: +353 1 6752390/8435328
Fax: +353 1 6752391
e-mail: marie@ennonline.net www.ennonline.net