Final Report:

Community-Based Management of Acute Malnutrition (CMAM)

Sri Lanka
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Valid International
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# ABBREVIATIONS AND ACRONYMS

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
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<tbody>
<tr>
<td>ACF</td>
<td>Active Case Finding</td>
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<tr>
<td>CMAM</td>
<td>Community-based Management of Acute Malnutrition</td>
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<td>CTC</td>
<td>Community-based Therapeutic Care</td>
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<td>FHB</td>
<td>Family Health Bureau</td>
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<td>GAM</td>
<td>Global Acute Malnutrition</td>
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<td>IDP</td>
<td>Internally Displaced People</td>
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<td>IYCF</td>
<td>Infant and Young Child Feeding</td>
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<td>MAM</td>
<td>Moderate Acute Malnutrition</td>
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<td>MoHN</td>
<td>Ministry of Healthcare and Nutrition</td>
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<td>MO</td>
<td>Medical Officer</td>
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<td>MRI</td>
<td>Medical Research Institute</td>
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<td>MSF-H</td>
<td>Médecins Sans Frontières Holland</td>
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<td>MUAC</td>
<td>Middle Upper Arm Circumference</td>
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<tr>
<td>NGO</td>
<td>Non Governmental Organisation</td>
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<td>NRP</td>
<td>Nutrition Rehabilitation Programme</td>
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<td>ORS</td>
<td>Oral Rehydration Solution</td>
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<td>OTP</td>
<td>Outpatient Therapeutic Programme</td>
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<td>PHC</td>
<td>Primary Health Care</td>
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<td>PHN</td>
<td>Public Health Nurse</td>
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<td>PHM</td>
<td>Public Health Midwife</td>
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<td>RUTF</td>
<td>Ready to Use Therapeutic Food</td>
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<td>SAM</td>
<td>Severe Acute Malnutrition</td>
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<td>SC</td>
<td>Stabilisation Centre</td>
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<td>SFP</td>
<td>Supplementary Feeding Programme</td>
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<td>TFP</td>
<td>Therapeutic Feeding Programme</td>
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<tr>
<td>UNICEF</td>
<td>United Nations Children Fund</td>
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<td>W/A</td>
<td>Weight for Age</td>
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<td>W/H</td>
<td>Weight for Height</td>
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<td>WFP</td>
<td>World Food Programme</td>
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<td>WHO</td>
<td>World Health Organisation</td>
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<td>LOS</td>
<td>Length of Stay</td>
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EXECUTIVE SUMMARY

It is estimated that approximately 16% of children below five years of age suffer from wasting (weight –for height below -2 standard deviations) in Sri Lanka. However, there is still an emergency situation in the North, with more than 260 000 post war displaced population, and the rapid assessment of nutritional status in Vavuniya conducted in May 2009 showed a prevalence of wasting from 28.0 to 45.2%, depending on the zones. On average, 46.9% of children under five were underweight, with 35.6% of wasting (8.8% severe) and 30% of stunting (6.6% severe). The prevalence of under nutrition had increased because the period of displacement prior to coming to Vavuniya had been long.

A lot of efforts have been made to develop an “integrated nutrition package”, which includes treatment of SAM at primary health care level, as well as the new guidelines for the management of severe undernutrition at national level. In the IDP camps, nutrition rehabilitation centres were established in each of the IDP health centres, managed mainly by public health nurses and medical officers.

UNICEF contracted Valid International from the 7th to the 17th of August 2009 to train master trainers and field workers from the IDP camps and to review the existing CMAM programme at IDP camps as well as the national guidelines.

The management of acute malnutrition started basically in the camps through the implementation of community-based therapeutic care and a supplementary feeding programme. Although children with SAM were referred to the hospital, a gap had been identified from paediatricians who were managing the cases as medical complications rather than wasting. Therefore, some of the referral hospitals, in particular Vavuniya, were not really functioning as a stabilisation centre. Other problems encountered included poor medical and nutritional management, inappropriate admission and discharge criteria and the inadequate monitoring system either at outpatient and inpatient care.

Reinforcement of the program, integration of the different levels of care, capacity building and review of protocols will be crucial for the immediate impact of CMAM. In order to assure quality of care, the capacity of the IDP camps in terms of human resources, skills and knowledge, logistics and supplies must be taken into consideration. There should be different strategies for the nutritional emergency in the North and the rest of the country. To scale up CMAM, it will be better to prioritise now the IDP camps rather than to increase the number of OTP sites at national level. On the other hand, a sustainable monitoring and supervision system must be institutionalised.
1. INTRODUCTION

Development of the “Integrated Nutrition Package” for the country which has treatment of severe acute malnutrition (SAM) at primary health care (PHC) level necessitated that health workers get oriented on treatment of SAM in relation to the newly developed but not yet disseminated guidelines.

In addition to the widespread migration, unmet need for essential services, social disruption and loss of property post conflict has lead to reports of high levels of acute malnutrition needing action. UNICEF responded by using a multi-sectoral approach focussing on targeting the underlying causes of malnutrition\(^1\) in the Internally Displaced People (IDP) camps. At the time of the mission UNICEF had constructed twelve Nutrition Rehabilitation program (NRP) centres in the PHCs, initiated active case finding and early detection and referral in the camps.

The main nutrition services that are being provided in these Nutrition Rehabilitation Centres are:

- Therapeutic feeding using ready-to-use therapeutic food (PlumpyNut and BP-100) that is given to children with severe acute malnutrition.
- Targeted supplementary feeding programme in zone 2 that treats children with moderate acute malnutrition with UNIMIX.
- Multiple micronutrient supplements and vitamin A mega doses which are given to all children under five and pregnant and lactating women.
- Parasite control through the distribution of de-worming tablets to all children under five and pregnant and lactating women.
- Infant and Young Child Feeding (IYCF) practices

1.1 Situation analysis

Sri Lanka has a total population of 21,324,791\(^2\).The community is mainly composed of two ethnic groups, the Sinhalese who constitute about 75% of the population and the Tamils. The Northern part, predominantly populated by the Tamil speaking people has been a conflict zone for the past 27 years between the Sri Lankan government and the Liberation Tamil Tigers of Eelam (LTTE). This conflict escalated to the highest level in the last 8 months. This conflict has seen thousands of people dead and 285,000 people have been displaced from their homes. Despite the war ending in May 2009, there are 285,000 people in Internally Displaced Persons camps (IDP). These camps were established by the government with support from humanitarian organisations. They are spread across the northern part of Sri Lanka from Jaffna to Vavuniya, to Trincomalee. In total there are 21 IDP camps with a large number of IDPs concentrated in Vavuniya in the Manic Farm camps. In Manic farm there are around 261,372 displaced people in the camps. This area has been divided into 5 zones (Zone 0, 1, 2, 3, 4). The Ministry of Healthcare and Nutrition (MoHN), the Medical Research Institute (MRI) and UNICEF undertook a rapid nutrition assessment in Vavuniya IDP transit camps in March 2009 and in May 2009 in order to obtain a more accurate picture of the nutritional status of the

\(^1\) Nutrition update, June 2009 UNICEF Sri Lanka
\(^2\) http://www.cia.gov/library/publications/the-world-factbook/geos/ce.html
IDPs in the camps. The studies indicated the worsening of the malnutrition problem. In March 2009, approximately 25% of children under five years of age suffered from acute malnutrition, 5% from severe acute malnutrition and 20% from moderate acute malnutrition\(^3\) whilst in May 2009 it showed a prevalence of 35.6% of the children were moderately and severely wasted and 8.7% were severely wasted.

Table 1. Evolution of the prevalence of malnutrition

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<th>March 2009</th>
<th>May 2009(^4)</th>
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<tr>
<td>Wasting</td>
<td>25%</td>
<td>35.6%</td>
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<tr>
<td>Severe wasting</td>
<td>5%</td>
<td>8.7%</td>
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UNICEF responded to this growing problem by reviewing the Sector plans for the second half of the year. With continued collaboration between Ministry of Healthcare and Nutrition (MoHN), UNICEF and other nutrition stakeholders they planned to provide more specialised care in order to implement the Health and Nutrition Master Plan for IDPs in conflict-affected area based on the development of Primary Health Centres (one PHC per every 10,000 IDPs), as well as a number of Medical Centres. A Nutrition Rehabilitation Centre (NRC) will be attached to each of these centres. Outreach workers from Non-Governmental organisations have also been engaged to facilitate functioning of these centres and its outreach activities. More than 100 volunteers (within and outside the camps) had been trained in nutrition emergencies with emphasis on screening and referral, 200 health professionals were trained (these included paediatricians, medical officers, nurses and primary health midwives (PHMs) to enhance their knowledge and skills on nutrition in emergencies, including management of severe acute malnutrition. The agencies dealing with nutrition in the IDP camps and the programmes they are currently implementing are outlined below:

- Sarvadaya runs the community outreach program for CMAM and implements targeted supplementary feeding for children under 5 in zone 2.
- World Food Programme implements a blanket supplementary feeding programme in all zones for children under 5 years and pregnant and lactating women.
- Implementing partners are Medecins san Frontiers (Holland, World Vision and Save the Children)
- World Food Program is distributing a weekly household ration

International Rescue Committee once distributed food packet. The levels of malnutrition in IDP sites have significantly increased given that recently arrived IDPs who were trapped in the conflict zone for a longer period and faced prolonged irregular and insufficient food provision combined with extreme living conditions. This was why UNICEF felt the need to train master trainers in who should be able to transfer the skills to others and review the effectiveness of the existing program as well as the guidelines being used.

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\(^3\) “Response to date, and updated strategic and sectoral response” March 2009 UNICEF Sri Lanka
\(^4\) Rapid assessment report June 2009, Medical Research institute and UNICEF
1.2 Objectives of the mission

The objective of this mission was to support UNICEF and Ministry of Health’s efforts in Sri Lanka in developing national capacity to address acute under-nutrition using the innovative community-based approach to reach and treat children at community level. This can be achieved by providing the necessary technical support to ensure an effective implementation of the CTC/CMAM in the IDP camps.

More specifically, this mission undertook the following activities:

- Training master trainers
- Training health workers from the IDP camps
- Reviewing the existing CMAM programme in the IDP camps
- Reviewing the national guidelines

2. CMAM TRAINING

2.1 TOT Training

A master trainer’s course took place in Colombo during three days. The main objectives of the TOT training were:

- To get skills and knowledge about how to train mid-level health workers on the management of acute severe malnutrition at primary health care level (mainly public health nurses)
- To gain an understanding of the Community based Therapeutic Care (CTC) approach to treatment of acute malnutrition
- To review how children with severe acute malnutrition are treated in the Outpatient Therapeutic Care Programme (OTP)
- To reinforce the link between the different levels of health care (hospital, primary health care & community)

Participants

About 40 participants attended the TOT orientation course on CMAM. Apart from key local representatives and stakeholders from the Family Health Bureau, a high number of medical officers and some paediatricians were trained. Among them were medical officers from eleven districts, two members of the nutrition coordination unit and nutrition division, paediatricians from the paediatric hospital and Colombo referral hospital and the National Institute of Health.

Two medical officers from the Vavuniya area participated in the training.

Contents

The main topics addressed during the TOT course were the following (see agenda in annex 1):

- Overview of malnutrition: types and causes (UNICEF framework)
- Principles and components of CTC/CMAM
- CTC innovations: new classification of acute malnutrition
- Identification of SAM: screening by MUAC and oedema
- Admission and discharge criteria
- Ready to Use Therapeutic Food (RUTF)
- Community mobilisation
- Treatment protocols and procedures for the supplementary feeding programme, outpatient therapeutic care and inpatient care
- Monitoring, reporting and planning
- Data collection and monitoring

Methodology
In order to build local capacity of clinical health staff and managers on the CTC approach, the training should ideally have two different components:

I  Orientation on the new approach for the management of SAM at PHC level

II  On site training and mentoring in each OTP site in order to give support during new admissions and follow-up care

However, the TOT performed in Colombo was mainly a participatory classroom based training about conceptual basis of CTC. It included oral presentations, demonstrations, a video film, practical demonstrations, role play, group discussions and exercises on admission of severely malnourished children to the programme. On-site training was not possible due to time constraints but also because the CMAM programme is just being introduced in Sri Lanka and is only functioning in the North so not functioning sites in Colombo.

All participants were supplied with the materials they are going to use as trainers during the health workers course such as handouts, protocols, guidelines, photos, RUTF packets or MUAC tapes (see annexe 2).
Evaluation and Recommendations

➢ Selection of participants
Paediatricians and medical officers from referral hospitals in Colombo are not the key health professionals to participate in this type of TOT course as it will be very difficult for them to get involved in CMAM trainings. A priority should have been established for the participation of health workers from Vavuniya and the IDP camps.

➢ Number of participants
The number was too high to make all participants to actively participate and practice their teaching skills. It is advisable for future courses to limit it to a maximum of 25-30 master trainers.

➢ Understanding of CMAM from the participants
They were not very much aware about the new community-based approach to manage SAM and the Outpatient Therapeutic Programme. In order to be able to achieve rapid and widespread impact on the mortality and morbidity of children under five especially under an emergency situation, the appointed human resources should understand well these type of simple interventions.

➢ Expectations of the participants regarding the objective of the training
As the level of health staff was quite high and mainly working as managers or at secondary or tertiary health facilities, they were expecting the training to be more focused on the physiopathology of malnutrition and inpatient care. The objectives of the course should have been very clear.

➢ Lack of clinical experience in the management of under nutrition
Participants were not very knowledgeable about marasmus and kwashiorkor as they were not attending many under nourished children at their respective health facilities. Trainers should have known previous to the course to put more emphasis on those topics.

➢ Lack of practical training
Due to time constraints and availability of participants it was not possible to include on-site training immediately after the orientation TOT course. Just few trainees had the opportunity to participate in the training of public health midwives and volunteers carried out in the IDP camps but they should have worked as well with them as they were admitting and following up children in the health centres or dispensaries.

➢ Lack of availability of the final version of the national guidelines prior to the training
It is very important that before starting any training course all the national protocols and procedures are well defined. All the CTC materials need to be locally adapted in order to avoid any confusion among the participants.

➢ Technical issues related to CMAM
There is the need during the course to remark the differences between medical and nutritional management for severely malnourished children and routine health care for children under five. For instance issues like the restricted use of ORS or paracetamol by public health midwives and medical officers in the outpatient nutrition rehabilitation programme.
2.2 Training for field health staff at the IDP camps

Capacity building of health workers in the camps, through training in primary health care and community management of acute malnutrition, was an essential component of the mission. This was necessary in order to achieve the overall objective of improving the health and nutrition status of the people in the IDP camps. Three training programs were conducted simultaneously in three out of the five zones with the assistance from the newly trained master trainers.

The two Valid consultants trained each in one zone and the third zone was trained by the UNICEF Nutrition Specialist from Colombo and UNICEF field staff. Each training session lasted for two days.

Participants
Due to security constraints the training was conducted in each zone. The IDP camps have five zones with a minimum of three to five primary health care centre (PHC) in each zone. There were a total of one hundred and forty five participants from the three zones. These participants were primary implementers of CTC/CMAM and included PHNs, PHMs, rural health assistants, Sarvadaya volunteers and ordinary labourers who were also nutrition volunteers by MOH.

Contents
The two-day theoretical training included practical exercises to apply the theoretical knowledge in preparation for the application of treatment protocols in the OTP (see annexe 2). Training materials were prepared but due to large unexpected numbers of trainees, the prepared materials were not enough for all participants. Priority was given to the PHMs and PHNs.

The following handouts and training materials were given to some participants:

- Training timetable
- Causes of malnutrition (UNICEF Causal Framework)
- Admission & discharge criteria
- Systematic drug treatment protocols
- RUTF ration protocols
- RUTF key messages
- OTP action protocols
- OTP individual monitoring card
- Ration card for carers
- OTP _ TFC referral slip
- OTP tally sheets
- OTP monthly report
- Explanation of entry / exit categories for report formats

The health workers trained showed considerable knowledge of nutrition. They not only engaged actively with the information presented, but also requested more in-depth information about nutrition and the CTC programme.
Methodology
Oral presentations, demonstrations and role plays were the methods used to impart knowledge to the participants. Visual aids and samples of the RUTFs being used in the country were also available. The theoretical training was designed to be as participatory as possible. It also included a number of exercises (see annexe 3) designed to test the participants understanding of the concepts discussed, as well as to evaluate their implementation of basic activities.

Evaluation and Recommendations

- **Selection of participants**
  Mixing of health professionals (nurses and midwives) and volunteers in the same training made it difficult for effective learning. This meant the training had to be adjusted to the level of the volunteers. This made it boring for the nurses.

- **Number of participants**
  The large number of participants was a challenge considering the need for translation. This resulted in trainers not having adequate time for each participant.

- **Need for translation**
  Major translation challenge resulted from the use of different translators over the two day session. Because of this, it took time to build a rapport between translators and the trainer. This hindered effective facilitation and flow of the training sessions. On the other hand, the handouts were not translated in the local language and some of the participants were not able to read English well. Therefore, all handouts to be given should be translated into the local language.
  The use of translators that have not yet been trained in CMAM was another challenge. They did not really understand the concepts and rationale, so it was difficult for them to give the right information. Tamil speakers who are willing to work in the district should be trained as master trainers.

- **Lack of practical training**
  It is very important to have practical training so that participants could practice and apply all the procedures they had learnt with supervision and guidance from the trainers.

- **Lack of mentorship after the theoretical training**
  After orientation, trainers should mentor field staff to make sure they have understood the procedures and protocols and to guide them along.

- **Difficulties in managing severe acute malnutrition cases**
  There was lack of understanding of the differences between management of SAM and other conditions because the country has had no cases of malnutrition for the past 25 years and there was no orientation on management of SAM. All medical officers working in the camps should be oriented in management of acute malnutrition.

- **Limited responsibilities of public health midwives**
  PHMs are not allowed to write on the patient's card after the child’s medical assessment; which led to a poor referral system. Although they examine signs and symptoms in order to identify complications, there is no information about the results found by a midwife. The NRP card should be reviewed to allow the PHMs to document their weekly monitoring of the child.
3. PROGRAMME REVIEW NRP

3.1 OTP sites at IDP camps

In the five IDP camps, there are twelve NRP centres providing management of SAM and MAM. A total of 20,158 children out of 26,772 living in the camps have been screened at PHCs for malnutrition and 16% have been treated for SAM whilst 34% have been treated for MAM. Due to time constraints just three out of the twelve health facilities were visited in zones 0, 2 and 4 randomly selected. The methodology being used included beneficiaries, non-beneficiaries and health workers as well as volunteers’ interviews, client’s records and registers review.

Programme Design and Planning

UNICEF in collaboration with the MOHN decided to start the CMAM program in the camps in response to the results of the rapid assessment which was done in May 2009 which indicated high levels of acute malnutrition in the camps. They consulted the other stakeholders e.g. Sarvadaya and MSF, who are dealing with inpatient care management. Sarvadaya is a local NGO which has volunteers trained in the community outreach component of CMAM (screening, early identification, referral and home visits). This NGO will also be running the supplementary feeding program (SFP) supported by UNICEF and the volunteers help out in the PHC during clinic days.

Although the CMAM was initiated in already existing PHCs that had growth monitoring, immunisation and de-worming programme as part of the “Integrated Nutrition Package” that is being advocated by the MOH and Family Health Bureau (FHB), in the IDP camps was established as an emergency stand alone programme.

Resources

- Human resources
  
  At each PHC there are a number of PHMs, PHNs and one Medical Officer (MO), apart from other support staff. The NRP is attached to a PHC and it is run by the PHM. The NRPs are well staffed with PHMs; some work as volunteers and others are employed by the government. However, out of the three sites visited, two of the PHMs running one of the NRPs had not had any orientation/training in management of acute malnutrition and were not well conversant with OTP procedures and protocols.

  There were more than ten Sarvadaya volunteers at each centre and four to five MOH volunteers. The Sarvadaya volunteers had some training in nutrition and were able to assist the PHMs. During the OTP session, there was a PHM available and more than four volunteers assisting. The MOs at the PHCs are clinicians from Colombo who stay just for a short period of time, and most of them had not had any orientation/training in management of acute malnutrition.

- Equipment and supplies
  
  The visited PHCs had nutrition assessment equipment like height boards, digital bathroom scales and baby (basin) scales. They did not have Salter scales for children aged between 6-24 months. They were weighing mothers and then subtracting from
the weight of mother and child to get child’s weight. This method is not very accurate and may lead to wrong measurements. Other older children were being weighed using the basin scales, which is also a bit difficult to use for an active child. There weren’t any thermometers or cups for drinking water during the appetite test and this resulted in no appetite testing being conducted.

Ready to use therapeutic food
In the camps, there were two types of RUTF being used, BP-100 and PlumpyNut as recommended by WHO for the treatment of SAM. Use of both products created confusion among the health workers who communicated wrong messages to the caretakers thinking that one is superior to the other. Some paediatricians told caretakers that PlumpyNut is bad for their children and that they should only feed them with BP-100. This resulted in wastage by caretakers who ended up giving it to other children in the home who were not sick; therefore, the sick child not getting the required dosage. In addition to this, the mothers started demanding to have their children changed the nutrition treatment to BP-100 without any good reason. This resulted in wastage and difficulties in stock management.

In all the sites visited, RUTF is stored in the office, directly on the floor and not according to expiry date. The stock book is not well balanced; only received goods are recorded but the ones distributed are not recorded. It is difficult to calculate how much had really been issued and when.

Drugs
The NRP drugs were being supplied from the PHC pharmacy and all the drugs were available. In Sri Lanka OTP national guidelines, children are not given antibiotics as routine drugs. The routine drugs include: de-worming, Vitamin A supplementation and vaccinations. In all the clinics visited, they had had no stock outs of these drugs since they started operating. Antibiotics were also available and had never run out at PHC level.

Infrastructure
All the NRPs were constructed as an attachment to the PHC and were temporary structures as other structures in the camp. Some had iron roofing whilst others were tents. The structures are well built and have enough space to conduct a clinic, however, they have open spaces on the sides and when windy and raining, the water gets in. The tents have leaking roofs and this interrupts services as caretakers have to go back home and come back for the clinic after the rains. All the clinics have running safe drinking water available and clean, functional toilets.

Effectiveness/Impact

- Medical management
All children admitted in the NRP were not given routine antibiotics unless they had signs of infection as per the national guidelines. The other drugs were given by public health midwives; all the cards reviewed showed that children had received their vaccines as well as the de-worming medicines and Vitamin A. Any medical problem was being referred to the medical officers for examination and treatment, but they did not handle the cases as a medical complication of severe acute nutrition.
The program was run like a food distribution program, as children were not examined for any development of complications and progress was not monitored as per guidelines. If a child has any medical complication, they are referred to the medical officer in the outpatient department who treats the problem not as a complication of acute malnutrition but simply as a medical condition. This results in mismanagement of the child at all levels. At all three sites visited, there were no referrals from the OTP to inpatient care but they had been referring children from inpatient care to the OTP. This was because the action protocol was not being used in the OTP and the PHC MO had not been trained in the management of SAM.

**Nutritional management**

The appetite test was not being done at all times in the clinic and the caretakers were not being given advice on how to use the RUTF. The key messages were not being given to the caretakers. This resulted in slow weight gain; for instance in a sample of five children taken from the register, the weight gain was 3.4 g/day, way below the 10 g recommended.\(^5\)

The supplementary feeding program is part of the intervention being provided for the moderately malnourished children in the camps. The children with weight/height of >-2 SD, are given high energy biscuits as prescribed. However, in the community, there are other organisations providing blanket supplementary feeding to the same children in a form, for instance, of UNIMIX and the same children are included in the household ration being distributed by WFP. As a result, it was learnt that a lot of supplementary food like UNIMIX, is thrown away by the caretakers. They do not use it as intended because the child receives a larger ration of food that it cannot manage to consume in a single day.

**Monitoring**

Individual child monitoring is not done properly. When a child reports to the clinic for follow-up, only anthropometric measurements are monitored. It was a bit difficult to have a randomly selected number of cards to review because they are kept by the caretakers and the clinic only keeps the registers with only the anthropometric measurements. However, these records are not well maintained and it is difficult to get any kind of data for programme monitoring purposes. At PHC level they do not aggregate any data. The FHB zone officer visits every week to collect data and does not give feedback to the clinic on their performance. Individual child monitoring only checked weight and height. Although they have a very good tracking system, every child is recorded in the register with the block and house number on it, children are not being followed up. If children are absent, there is no record in the register as to what happened to the children (whether they are in program/dead or defaulted). There are no tally sheets in the sites, no records of their progress in terms of sphere standards, length of stay or even the weight gain.

At zone level, data is collected by the officer from the Family Health Bureau, who does not share the information with the others but sends it to head office in Colombo where it is aggregated and analysed, then shared with partners. Partners have been implementing but do not have data sets on the progress except reports from FHB Colombo. It was not possible to check the program effectiveness because data was not available.

Relevance/Appropriateness
The CMAM program in the IDP camps was introduced at the time it was needed most. Most of the health workers when they have returned to their respective homes will be able to utilise the skills acquired in the camp.

3.2 Stabilisation centres: Vavuniya and Chettikulam Base hospital
Two referral hospitals were included for programme review: Vavuniya General hospital and Chettikulam Base district hospital, which is placed just outside the zones of the IDP camps.

The methodology included interviews with health staff, volunteers and key stakeholders, observation in the TFC and review of clinical records. Time constraints though, limited the visit to each of the health facilities to only half a day but the information gathered was quite relevant.

Programme Design and Planning
Vavuniya hospital started the therapeutic feeding programme in April-May 2009, related to the onset of the problem but Chettikulam just opened on the 3rd July due to the lack of paediatricians till that date. The existing health service capacity was therefore assessed in terms of staff but also bed capacity and 24 hours cover.

The criteria being used for the location of the stabilisation centres was different in each of them. In Vavuniya hospital, although the TFC is just besides the paediatric ward, malnourished children are scattered all over different wards: Paediatric ward, Ward eight for communicable diseases and Ward 12 for typhoid fever.

Local health authorities lead the planning for stabilisation care but it was not integrated into the wider management of the health facility. Nobody was appointed to be in charge of the TFPs. In the case of Vavuniya General hospital, a nurse from MSF-H was supervising the TFC but not being recognised officially by the MoH as he was not a doctor or nutritionist.

UNICEF is also one of the implementing partners, but mainly involved in supplies. A nutritionist will be posted soon to Vavuniya.

Resources
- Human resources

It is a striking fact that in Vavuniya hospital, human resources management depends on central government although the hospital is run at provincial level.

Stabilisation centre care in Vavuniya was set up with existing MoH staff and it seems adequate in terms of staff numbers. There are two medical officers, one nurse per shift and one person in charge of record keeping from MoH. A paediatrician from the paediatric ward is always available in case there is any medical problem. The NGOs MSF and Sarvadaya provide five feeding assistants, one supervisor per five assistants and one supervising nurse (MSF-H). In total, there are twenty volunteers, eight from MSF and twelve from Sarvadaya who are highly motivated. Despite the fact that SC adheres to the SPHERE recommendation to have one feeding assistant/health worker per ten inpatients, there is no Nutritionist.
There is the need to have more trained staff. The decision to treat malnutrition relies on paediatricians but they did not get any training on the management of children with severe malnutrition with medical complications. The role of the medical officers is limited to nutritional care and they received two days worth of lectures in April 2009. Among the nurses, only two of them have been trained, whilst volunteers had received three days training from UNICEF.

The staff in Chettikulam Base hospital comprises of two paediatricians, two relief house officers, two medical officers, a few nurses and twenty three volunteers from Sarvadaya and four from MSF. The responsibility to manage malnourished children falls basically on paediatricians as medical officers working in the stabilisation centre (SC) are rotating and just stay for a period of two weeks and do not get any specific training. Therefore, they just follow the instructions written in the medical cards and do not even get involved in nutritional care.

- **Equipment and supplies**
  
  As the SC is integrated in existing MoH services, most of the equipment needed was already available. Essential medicines are provided either by the OPD pharmacy and inpatient drug store; UNICEF, MSF and Savardaya are also giving support with other supplies such as RUTF, ReSoMal, clothes, cleaning items, bed sheets or nets. On the whole there have not been shortages of supplies and F-75 as well as F-100 was available.

  Stock management is highly dependent on donors. Although there were stock records like the “daily ward feed chart for inpatient management” from UNICEF, at health facility level there is no system in place to make estimations about the need of supplies. In Vavuniya hospital, for instance, there were many boxes of ReSoMal standing in the SC and there was no proper storage room. Furthermore, there was no control of expiry dates.

- **Infrastructure**
  
  Stabilisation centre care has been set up within the existing structure in the case of Vavuniya hospital in Chettikulam although, due to the emergency situation, the insufficient local capacity led to establishment of two temporary wards for severely malnourished children. An annexe tent was settled as a kitchen for food preparation.

  **Bed capacity** in Vavuniya hospital seems inadequate considering the needs for intensive inpatient care. In Chettikulam base district hospital the case load decreased and therefore, some of the beds were used for other medical problems. In total they had around 20 and 35 beds respectively in both hospitals.

Effectiveness/Impact

- **Action protocol**
  
  The target group for CTC is primarily children aged between 6-59 months. There are no protocols adapted for other severely acute malnourished individuals such as children less than 6 months or over 5 years who are identified according to standard assessment criteria and therefore professionals find many difficulties.

  Different action protocols have been found in the hospitals: apart from the national inpatient hospital NRP, the MSF one was also present.

  **SC admission criteria**

  In both hospitals, all children admitted in the paediatric ward were being screened for weight for height and they received coloured bands according to their nutritional
Although four cases of kwashiorkor were identified in Vavuniya hospital from May to August 2009, oedema was not being used as an admission criteria in line with the national protocol. In Vavuniya tertiary hospital, W/H was recorded in the NRP card but even if it was below -3 SD the child was not sent to the SC. Children were not admitted due to severe malnutrition but rather for a medical problem not associated with SAM. Appetite was not being tested on admission. The admission criteria at Chettikulam district hospital included W/H below -3 SD and severe medical complications.

**SC discharge criteria**
Criteria to discharge children from the SC to the NRP in the camps were not clear. Medical officers in both hospitals cited either moderate weight gain of 5-10g/Kg/day or good weight gain of 10g/Kg/day or more for two days as the main discharge criteria. In the case of Vavuniya hospital once medical complications are under control, children are transferred from the paediatric ward to the NRP in the same hospital, so it was not being used as a criteria for discharge from the SC to the OTP. Therefore, this is leading to a longer period of stay. Bilateral oedema was not considered.

**Medical management**
The medical management at Vavuniya hospital is very much dependent on the paediatricians. The therapeutic feeding programme is not functioning as it could, as severely malnourished children did not get medical treatment according to standard WHO protocols for phase one inpatient care. They were not admitted directly in the NRP, so the life-threatening problems e.g. specific deficiencies and metabolic abnormalities such as hypoglycaemia, hypothermia, electrolytes and micronutrients were not identified and corrected. The seven steps for the management of a child with severe malnutrition during the stabilisation phase were not followed. During the programme review, it was found there were quite a lot of cases of typhoid fever in the paediatric ward and paediatricians believed therapeutic food was toxic for those children with severe malnutrition. In case of any liver problem, F-75 was not given. Intravenous (IV) fluids were administered to severely malnourished children, a practice that is not generally recommended. In Chettikulam Base hospital the initial phase care, medical treatment and therapeutic milk feeds start as soon as children are admitted under the prescription of the paediatricians. They go on rounds to the NRP on a daily basis.

**Nutritional management**
Initial nutritional treatment for the majority of children is provided with F-75 therapeutic milk (100kcal/Kg/day) at two-hourly regular intervals for around 3 days. The difference at Vavuniya hospital, is that F-75 was started 5-6 days after admission, when the child did not have any medical complications. Following nutritional management with F-75, instead of changing straight on to RUTF if the child is able to eat at least 75% of the daily ration (200kcal/g/day), they continued with F-100 at four-hourly intervals for 2-3 more days. RUTF was introduced gradually at alternate feeds. The conduct of the appetite test is generally poor and by dedicating more time to explaining and showing the mothers how to start giving RUTF, children could start eating earlier and be discharged sooner from the hospital.
Moderately malnourished children referred to the SC from the camps with medical complications were treated immediately with RUTF to prevent nutritional deterioration unless they did not have an appetite. Both Pumplynut and BP-100 were being used, but MoH staff seemed to prefer the latter. Regarding RUTF needs, calculations were correctly done according to weight, but some children were getting extra rations due to the fact that mothers were told there was no problem in eating additional packets if the child finished it. If children had diarrhoea or vomiting, RUTF was not given.

The role of volunteers in nutritional management is crucial and they were really motivated. They were even able to feed the children through a nasogastric tube.

When a child was ready to be discharged, key education messages and a ration of RUTF for two weeks were given. Carers were referred to OTP for follow up in the camps.

- **Monitoring**

The NRP has a person appointed for data collection in both hospitals. Information on severely malnourished children screened and admitted is recorded in a registration book with admission and discharge details: weight and height, length of stay, daily weight gain and outcomes (referred, defaulters, deaths). At hospital level the national child’s NRP card is only being used for anthropometry data on admission and discharge and follow up of weight gain. The section of medical history on admission, physical examination and medications is recorded in the clinical records and for nutritional treatment the “24-hour food intake chart for inpatient management” (annex 11 of the national manual). In Vavuniya hospital there are also some tally sheets and Excel spreadsheets developed by MSF to analyse the data and write weekly reports. However, apart from the fact that there is no computer available for the NRP in the hospital, some problems have been identified with the programme.

Regular review meetings are held on a monthly basis with the participation of paediatricians, doctors working in the NRP, UNICEF and MSF. So far the hospitals have had one support visit from the MoH.

Regarding impact, Tables 1 and 2 show some of the outcomes. By the time of the visit the average number of children admitted in each of the hospitals’ NRPs was approximately 16 severely malnourished children. It has to be noted that only 63% and 80% of children below -3 SD were followed at the stabilisation centre of Vavuniya tertiary hospital and Chettikulam Base district hospital respectively. It may be due to the fact that some of the children were admitted in the paediatric ward just for clinical management without taking into account the need for therapeutic feeding. In Vavuniya five to six children per day were being transferred from the wards to TFC.

During the programme review visit, the general condition of the children in the NRP was quite good. Death rates were also very low, but it would have been interesting to compare it with the data available at the paediatric ward and analyse differences before and after the emergency. If children were not identified as severely malnourished and medical problems are treated by paediatricians, mortality rates should have increased in the wards.
Table 2. Anthropometric data and outcomes at Vavuniya tertiary hospital

<table>
<thead>
<tr>
<th>Vavuniya</th>
<th>Total screened</th>
<th>Below -3SD</th>
<th>Below -2SD</th>
<th>Below -1SD</th>
<th>Admitted NRP</th>
<th>Deaths</th>
</tr>
</thead>
<tbody>
<tr>
<td>July 2009</td>
<td>388</td>
<td>116 (30%)</td>
<td>103 (26.5%)</td>
<td>114 (29%)</td>
<td>73 (63%)</td>
<td>7 (1.8%)</td>
</tr>
<tr>
<td>May-Aug 2009</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>382</td>
<td></td>
</tr>
</tbody>
</table>

Table 3. Anthropometric data and outcomes at Chettikulam Base district hospital

<table>
<thead>
<tr>
<th>Chettikulam</th>
<th>Total screened</th>
<th>Below -3SD</th>
<th>Admitted NRP</th>
<th>Defaulters</th>
<th>Deaths</th>
<th>Referred OTP</th>
<th>Transferred inpatient</th>
</tr>
</thead>
<tbody>
<tr>
<td>July-Aug 2009</td>
<td>685</td>
<td>195</td>
<td>156 (80%)</td>
<td>2 (1.3%)</td>
<td>0</td>
<td>150</td>
<td>4 (2.5%)</td>
</tr>
</tbody>
</table>

By reviewing the child’s chart, it could be seen that the length of stay (LOS) was quite long. Some were already eating RUTF for three or four days and could have been referred for CTC in the respective zones.

- **Referral system**
  Although almost all severely malnourished children identified in the hospitals came from the camps, there was no referral of cases of SAM from the camps, only referrals due to medical problems. As there is a limit on the number of patients to be transferred per day (maximum of around 150 cases) the indication of referrals may be more associated to the severity of a medical complication than to the nutritional status of the child.
  The necessary administrative procedures also have to be taken into account as they can delay a referral for two or three days whilst the medical officer from the zone and the IDP coordinator give their approval.

**Relevance/Appropriateness**

The programme is in line with local needs and priorities but the intervention at hospital level should be more appropriate in terms of quality of care. Lack of standardised protocols and adequate training to treat severe acute malnutrition should have been set up before the peak of the emergency.

4. **MANUAL FOR THE MANAGEMENT OF SEVERE UNDERNUTRITION: TECHNICAL ISSUES**

4.1 **CTC classification of Acute Malnutrition**

The new CTC model of intervention called for a change in the way to classify acute malnutrition. The WHO classification consists of moderate and severe categories, defined according to anthropometry and the presence of bilateral pitting oedema. This classification was appropriate and operationally relevant when the modes of treatment involved inpatient therapeutic feeding centres for severe acute malnutrition, and outpatient supplementary feeding for moderate acute malnutrition. This new era of community-based care, however, has three treatment modes (Collins 2003). To be operationally relevant, a new system of classification must, therefore, include complicated
malnutrition as well as severe and moderate malnutrition (see Valid CTC field manual, 2006 in annex 4). Complicated malnutrition can arise in either severely or moderately malnourished people. In practice, the assessment of whether malnutrition is complicated dictates whether patients are admitted for inpatient stabilisation or treated only as outpatients. Not admitting cases of complicated moderate malnutrition for inpatient care increases morbidity and mortality and decreases the effectiveness of nutritional projects. The Sri Lankan protocols should therefore review the national classification by considering “acute under nutrition” as an entry point, either children below - 3SD and < - 2SD, who can have medical complications or generalised bilateral pitting oedema.

4.2 Admission and discharge criteria

MUAC screening
Mid-upper-arm circumference is an indicator of acute malnutrition that reflects mortality risk (Vella,1994) and has recently been endorsed as an independent criterion for admission into therapeutic feeding programmes by an informal consultation of WHO (Myatt, 2006). Some studies have shown that there is little difference in the sensitivity and specificity of visible severe wasting and the single cut off points of MUAC less than or equal to 11.5 cm and WHZ less than or equal to −3 SD (Berkley, 2005).

As the national programme in Sri Lanka has decided to use WHZ for admission to NRP and MUAC for screening, it has to be considered that using a cut-off of 135 mm for referrals, particularly in supplementary feeding programmes, can have implications for the size of the programme and for reporting. As the use of this measure requires no complicated equipment and can easily be taught to community-based workers, in order to avoid people turned away from the OTP it will be more advisable to reconsider the situation and change it to 125mm.

Admission criteria (see Annex 2)
Consideration should be given to including bilateral pitting oedema as an admission criteria rather than a medical complication, as some cases of kwashiorkor have been identified in previous months.

W/H as a lone indicator (i.e. without examination for bipedal oedema) is poor at detecting cases of kwashiorkor because the weight of retained fluid tends to mask what would otherwise be low W/H values. Sandiford and Paulin (1995) reported that MUAC used alone was more sensitive and more specific than either, W/H and W/A used alone as a test for bipedal oedema in Malawi.

With at least one of the following complications
It is recommended to include the following signs and symptoms:

➢ Not alert (very weak, lethargic, unconscious, convulsions)
➢ Intractable vomiting

It is needed to define what is considered as an “extensive infection”.
Put “anorexia, no appetite” instead of “loss of appetite”, which are common in malnourished children.

Regarding lower respiratory tract infection, the limit of 50 breaths per minute should be for children 6-11 months (not 12 months).

Without complications:

➢ As children with any medical problem are going to be seen by a medical officer, may be it will be better to add to “clinically well” “or clinical conditions that can be treated in out patients NRP by a medical officer”.
Admission criteria for supplementary feeding programme should be children 6-59 months and below - 2 SD.

Discharge criteria (see annex 2)

Outpatient Nutrition Rehabilitation Programme

- Cured: it should be child’s weight-for-height > -3SD (between -3SD and -2SD)
- Consider bilateral pitting oedema as a discharge criteria if the child had oedema on admission: absence for more than two consecutive weeks.

Inpatient Nutrition Rehabilitation Programme

- Infants < 6 months of age: discharged cured if clinically well and alert and exclusively breastfeeding with good weight gain (if no access to breastfeeding, take special considerations).

4.3 Outpatient Therapeutic programme

Protocol and procedures for children without complications for outpatient nutrition rehabilitation programme should be very clear for public health midwives and medical officers.

Medical management

- Reconsider the administration of routine antibiotics, at least at hospital level in order to treat/prevent infection (step 5 WHO guidelines, 2003). In case of critical conditions of severe malnutrition, the immune response is highly deteriorated and the damaged tissues offer a favourable environment to colonisation of microorganisms. Therefore, severe malnutrition increases the risk of infections and the duration and effects of infection in the child. Furthermore, in severe malnutrition the usual signs of infection such as fever are often absent and infections are often hidden.

- Iron tablets in severe malnutrition are contraindicated. High dose Iron tablets may increase the risk of severe infections in the severely malnourished. Poor liver function and the reduced levels of transferrin allow iron to remain free to be used by infective organisms. If there is moderate anaemia treatment should be provided after day 14 on the programme.

- Vitamins: a large dose of vitamin A should be administrated on day 1 to all children unless there is evidence that a dose has been given in the last month (Donnen et al. 2007). Vitamin A plays an important role to protect against infection, on one hand due to its importance to maintain the state of the mucous membranes and therefore resistance to infections, and on the other hand because Vitamin A is involved in cellular immunity and lysozyme activity. A deficiency of Vitamin A, even subclinical, increases susceptibility to developing diarrhoea and respiratory infections, whereas Vitamin A supplementation can reduce mortality by about one third (Tomkins, 1989). Vitamin A is particularly important to limit medical problems and mortality in the case of measles (Shils, 1994), but it is contraindicated in cases of oedema (kwashiorkor).

- Vaccination. Specify the importance of measles vaccination in the manual. Evidence shows that an early two-dose strategy from the age of six months is very effective. In outpatient care, children in a displaced camp are at high risk of exposure to active measles cases but are less severely affected by under nutrition. It is therefore recommended that they receive one measles vaccination only after they have sufficiently recovered from their under nutrition to ensure a sufficient
antibody response to the vaccine to produce immunity, i.e., on week four (except those with evidence of previous vaccination). If the child has got one dose before 6 months of age it should be repeated after 9 months. This should be coordinated with the EPI programme where applicable.

Referral of other siblings for measles vaccination increases herd immunity in overcrowded conditions in the home setting and can reduce the mortality of even those who are unvaccinated.

- **ORS**: Public health midwives and medical officers should be aware that the standard oral dehydration salts solution (90 mmol sodium/l) contains too much sodium and too little potassium for severely malnourished children. The pathophysiology of severe acute malnutrition causes an inability to regulate and excrete sodium normally that can lead to fluid retention, bilateral pitting oedema, heart failure and death. This deterioration can happen very quickly. **ORS** is therefore contraindicated for all children with SAM.

- **Paracetamol** should be used with caution in severely malnourished children because it is metabolised by the liver and there is a high possibility of reduced liver function in severe acute malnutrition. Irreversible liver damage and death can occur with relatively small overdoses in susceptible people, and paracetamol should therefore not be given unless there is a documented fever of 39 C or over. It should never be dispensed to take home. A low-grade fever less than 39 C is usually beneficial in helping the body to fight infection and is a normal immune response; Paracetamol should therefore not be given in these cases.

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**Nutritional management**

- Key messages should be concise and simple, with very clear information about RUTF.

<table>
<thead>
<tr>
<th>Nutritional Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Child should be fed on RUTF in small amounts frequently (up to 6-8 times per day).</td>
</tr>
<tr>
<td>- Health worker should emphasise the need for the child to consume the entire ration daily. It is both a medicine and a food that is vital for the recovery of the child.</td>
</tr>
<tr>
<td>- RUTF is the only food sick/thin children need to recover during their time in OTP. If the child has more appetite, do not feed the child with additional RUTF than the one needed according to the weight (e.g. extra half packet of PlumpyNut). The child could eat some family diet after eating the RUTF.</td>
</tr>
<tr>
<td>- If the mother is still breast feeding, she should be advised to continue breast feeding as often as possible.</td>
</tr>
<tr>
<td>- Mothers or caregivers should be advised that children who are eating PlumpyNut and BP100 as RUTF must be given sufficient safe drinking water (boiled or filtered or treated with chlorine) to keep them adequately hydrated, at least 200ml of safe drinking water with one bar.</td>
</tr>
<tr>
<td>- When biscuits based RUTF is given for children under 2 years, caregivers should be advised to give to the child in porridge form. Children above 2 years can eat RUTF as porridge or biscuits form.</td>
</tr>
<tr>
<td>- The caregiver should be informed that the RUTF should not be shared with other children in the household.</td>
</tr>
<tr>
<td>- When a child has diarrhoea, never stop feeding. Give extra food and extra clean water.</td>
</tr>
<tr>
<td>- Keep food clean and covered</td>
</tr>
</tbody>
</table>
Amount of cooked meals needed per day - for a severely malnourished child it is very risky to advice mothers that “when availability of food at household level improves, balanced family meals should be given to the child in alternate to RUTF (as indicated in annex-23 of the manual for health workers in Sri Lanka: “Guide to family-food for the child of 1-5 years”). Calculations include from 1650 to 1800 Kcal extra to RUTF, which is in fact enough to cover all their needs during outpatient therapeutic care (200kcal/Kg/day).

Appetite test: a poor appetite, demonstrated by refusal of RUTF, may be the result of poor liver and/or gut function due to severe acute malnutrition. Alternatively, it may be due to infection or could be a behavioural issue. These causes can be difficult to distinguish and the carer should spend time trying to coax the child to eat the RUTF. Health workers should demonstrate how to give PlumpyNut with the finger to the child’s mouth after washing hands.

Guide to identify the amount of ration (annex 7 of the national manual): in the case of BP-100 each tablet contains 150kcal (instead of 200kcal/tablet).

4.4 Inpatient Therapeutic programme

The stabilisation centres should ensure that the ten essential steps for routine care at hospital level are followed:
1. Treat/prevent hypoglycaemia
2. Treat/prevent hypothermia
3. Treat/prevent dehydration
4. Correct electrolyte imbalance
5. Treat/prevent infection
6. Correct micronutrient deficiencies
7. Start cautious feeding
8. Achieve catch-up growth
9. Provide sensory stimulation and emotional support
10. Prepare for follow-up after recovery

In the inpatient care programme the most important is the initial stabilisation phase where the acute medical conditions are managed. In a maximum of seven to ten days, once the child can eat more than 75% of their RUTF ration, medical complications are controlled and oedema is resolving, the child can be discharged and followed up in the OTP.

Medical management

**Dehydration:** It is difficult to estimate dehydration status in severely malnourished child using clinical signs alone. Low blood volume can coexist with oedema. Paediatricians should not use IV (intravenous) infusions except in cases of shock, and then only very slowly in order to avoid flooding the circulation and overloading the heart. Special rehydration solutions for severe acute malnourishment are described. The recommended ORS solution for severely malnourished children is ReSoMal, either orally or by nasogastric tube. It should be given carefully monitoring pulse rate, respiratory rate, jugular veins and urine frequency.
Between 70 and 100 ml of ReSoMal per kg of body weight is usually enough to restore normal hydration. Give this amount over 12 hours, starting with 5 ml/kg every 30 minutes for the first 2 hours and then 5–10 ml/kg per hour. This rate is slower than for children who are not severely malnourished. Reassess the child at least every hour. The exact amount to give should be determined by how much the child will drink, the amount of ongoing losses in the stool, and whether the child is vomiting and has any signs of over hydration, especially signs of heart failure.

- **Measles vaccination.** All children entering inpatient care (except those in shock) should be given the vaccination on entry to the programme and this should be repeated at 9 months of age if the child was less than 9 months old. The first vaccination in the inpatient setting is to ameliorate the severity of incubating measles and reduce the severity of the episode if the child is exposed to measles in inpatient care. It does not however give adequate immunity in many children requiring inpatient care due to insufficient antibody response and therefore the second injection is needed to give future protection.

**Nutritional management**

- Feeding should be started as soon as possible, especially in the stabilisation phase at hospital level with small frequent feeds of low osmolarity and low lactose. Initial nutritional treatment for the majority of children is provided with F-75 therapeutic milk feeds (100 kcal/kg/day) at regular intervals according to the WHO protocol. Infants less than six months of age are also treated with F-75 (or expressed breast milk, if available).

- Following initial stabilisation care and nutrition treatment with F-75, on day two to three of treatment the desire to eat RUTF can be tested. There is no need to continue with F-100 if the child is able to eat, as it is the equivalent to RUTF.

- Ration doses of RUTF should be taken according to the child’s weight. Especially on the first days it is very important that the child does not eat more PlumpyNut or BP-100 than necessary.

**4.5 Monitoring**

- Tally sheets should be available
- There is the need to improve feedback from district-zone level (no database available)
- Data for performance indicators should be available at site level

In order to avoid duplications it is important to review all the monitoring tools.

**Child’s NRP card**

It would be beneficial to reconsider what type of registration card to be used by the hospitals for stabilisation care.

**History**

- To be filled by public health midwives at NRP (first entry point)

**Physical examination**

- To be filled by public health midwives at NRP (first entry point)
- To include bilateral pitting oedema, signs for anaemia: palmar pallor or conjunctiva, signs for dehydration, chest indrawing and alertness (to help identify
complications for referral to inpatient care). It has to tally with the assessment recommended in the Sri Lankan manual for the “Management of Severe Under nutrition” (page 9).

- In addition, at hospital level further investigations may be needed for hypoglycaemia and some other lab tests
- To remove the requirement to assess the lymph nodes and ears (it may complicate the examination).

**Medications**

It is necessary and important to specify the routine medicines that public health midwives have to give in outpatient therapeutic care they, the dosage and when:

- Vitamin A on day 1 if the child does not have oedema and it has not been given within the last six months.
- Pyreental Pamoate for children less than 23 months and Mebendazole if 24 months or more (and if it hasn’t been given within the last six months).
- Measles vaccination on week 4 if the child is > 6 months and not immunised.

**Follow up during admission**

- Therapeutic milk feeds F-75, F-100 need to be specified by regular meal times (two or three hourly etc.)
- For inpatient care include ReSoMal
- RUTF: as there are two types, PlumpyNut and BP-100, it is better to specify it in order to be able to write the amount
- It will be interesting to include the outcome: transfer to NRP for outpatient therapeutic care, died, refused inpatient care, etc. It should be considered as well for outpatient care.

**Follow up at outpatient therapeutic care**

- In order to be able to assure adherence to RUTF and to check the medical condition of the child it is much better to follow up the children every week. We have to take into consideration that they are severely malnourished and the risk of mortality is high.
- To record height on monthly basis
- Regarding exit categories, if follow up continues to be carried out every two weeks, it is better to indicate that a child missing one visit will be considered a defaulter (according to the national protocol).
5. CONCLUSIONS AND RECOMMENDATIONS

Conclusions and Recommendations

- **Analysis of the causes of malnutrition at national level**
  Before scaling up CMAM and implementing the supplementary feeding programme all over the country, it will be important to get to know the main causes for the high prevalence of wasting and stunting in the country.

- **Review of the supplementary feeding programme in the emergency setting and at national level**
  Especially in the IDP camps, it has been found that there are many different nutrients distributed in the NRP as supplementary feeding. All stakeholders in nutrition supplementation should discuss and agree on the distribution program. It is important to note that a child who already receives food from the targeted programs in the NRP need not get extra food from the other programs because it already gets a well calculated ration.

- **Review of the protocols and distribution of the final version of the manual for the management of severe undernutrition in Sri Lanka.**

- **Study of the acceptance of different types of RUTF**
  As there are so many controversies between the use of PlumpyNut or BP-100, it will be interesting to conduct a study of their acceptance among care givers and health professionals.
  NRPs should have one type of RUTF to avoid misuse.

- **Continuous support and supervision**
  A sustainable mentoring and supervision system must be institutionalised, with adequate strategies and tools.
  Preferably a nutritionist should be indicated to follow up the NRP and the different components of CMAM at the various levels of care.
  Supervisors at zone level should conduct weekly mentoring and supervision visits to make sure protocols are being implemented until the health staff is able to use all the tools provided e.g. action protocol

- **Reinforcement of monitoring and reporting**
  The development of individual forms for individual children could make it easier to follow the general health status of each child over time instead of the weekly monitoring form currently designed.
  There is need for stock management training in all the NRPs so that there is accountability of the supplies and safe storage.

- **Further planning for follow up of SAM cases during the resettlement of IDPs to their place of origin**

- **There is the need to define different strategies for the emergency situation in the IDP camps and the rest of the country**
  At this particular moment efforts should be focused to prioritise implementation of CMAM in the IDP camps rather than to scale up the number of OTP sites at national level.

- **Improve inpatient management of children with severe acute malnutrition**
  A priority should be established to train paediatricians and medical officers from the referral hospitals in Vavuniya.
  All medical officers to be allocated in the PHCs should also have CMAM orientation.
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Sandiford P, Paulin FH, Use of mid-upper-arm circumference for nutritional screening of refugees, Lancet, 1995;29;345(8957):1120


