Introduction

In February 2006, Management Sciences for Health (MSH) received funding from the Office of Foreign Disaster Assistance (OFDA) for a project titled the Rapid Expansion of Treatment and Rehabilitation of Severely Malnourished Malawian Children (hereafter referred to as the RETR project). The purpose was to rapidly scale up treatment and rehabilitation of children with severe malnutrition. The program was designed as a response to the food crisis that affected Malawi from mid-2005 to mid-2006. This food insecurity situation had threatened the lives of thousands of children as confirmed by a nationwide nutrition survey conducted in December 2005. Results of the survey revealed very high global acute malnutrition (GAM) of more than 10% in one of the eight MSH-supported districts (Salima). Three other districts (Balaka, Mulanje, and Chikwawa) had GAM levels of 5-10%.[1] A GAM rate of 10% signifies a critical negative nutrition status and a rate of 5-10% GAM is a serious warning signal.

The fund was administered in two phases of six months each. During Phase 1 (February – July 2006) MSH and district health management teams (DHMT) introduced and strengthened a system that would reach and provide early treatment for children with severe malnutrition at a facility close to home. Scale up was built on an earlier pilot initiative implemented by MSH from March 2005 to January 2006, which introduced and assessed the impact of community-based therapeutic care (CTC) at five health facilities in Balaka, Salima and Mzimba. Program rollout extended CTC in these three districts and introduced CTC to two additional districts of Mulanje and Chikwawa. A no-cost extension (Phase 2) ran from August 2006 – January 2007 and focused on institutionalizing CTC systems and mainstreaming some aspects of the service into the programs of these five districts.

Program implementation was facilitated through the utilization of MSH infrastructure (technical, administrative and logistical) built up to support a bilateral program in Malawi (Malawi Program for Reducing Childhood Morbidity and Strengthening Health Systems). The bilateral program will support CTC implementation until the end of the project period in September 2007.

Program Overview and Results

The four objectives of the RETR project are:

1. To ensure that 60 newly established outpatient therapeutic program (OTP) points are able to implement CTC **(Phase I)**
2. To ensure that the intervention enrolls 65% (5000) of estimated moderate and severely malnourished children under 5 into the CTC program **(Phase I)**
3. To ensure the development of an effective referral system for malnourished children between various feeding program components **(Phase I)**
4. To ensure the sustainability of CTC as a routine district level intervention **(Phase II)**

Assessment and surveillance data used

- Prior to the OFDA-funded MSH intervention, 6 OTP service points existed (Two points each in Balaka, Mzimba, and Salima Districts)

[1] Malawi Nutrition Survey, December 2005

- Status of severe acute malnutrition (SAM) in Malawi as determined through the Malawi Nutrition survey December 2005 (see Table 1)

Table I: Status of severe malnutrition by district

	Balaka	Chikwawa	Mulanje	Mzimba	Salima
Estimated # of children based on 2% estimated prevalence (as used in proposal)[2]	1,036	1,408	1,671	2,403	1,257
Estimated # of children based on UNICEF survey Dec 2005 (% SAM in parentheses)	1,502 (2.9%)	1,830 (2.6%)	3,509 (4.2%)	2,884 (2.4%)	3,079 (4.9%)
Actual # admitted to OTP by end of January 2007[3]	997	1,007	1,605	1,067	881

Objective 1: To ensure that 60 newly established OTP points are able to implement CTC

Table II: OTP Coverage February 2006 – January 2007

District	No. Facilities	OTP Centers	% Coverage
Balaka	13	11	85%
Chikwawa	17	12	71%
Mulanje	22	10	45%
Mzimba	49	13	27%
Salima	17	13	76%
Total	**118**	**59**	**50%**

All five targeted districts actively responded to the CTC initiative with establishment of 59 OTP sites at the end of OFDA support in January 2007. Two smaller districts (Balaka and Salima) have installed CTC in all their main government and Mission facilities which means access to the service has been further widened in these districts (Table II includes private facilities). Mzimba DHMT used government resources to establish four additional CTC centres. See Annex A for full output project statistics.

Objective 2: To ensure that the intervention enrolls 65% (5,000) of estimated moderate and severely malnourished children under 5 into the CTC program

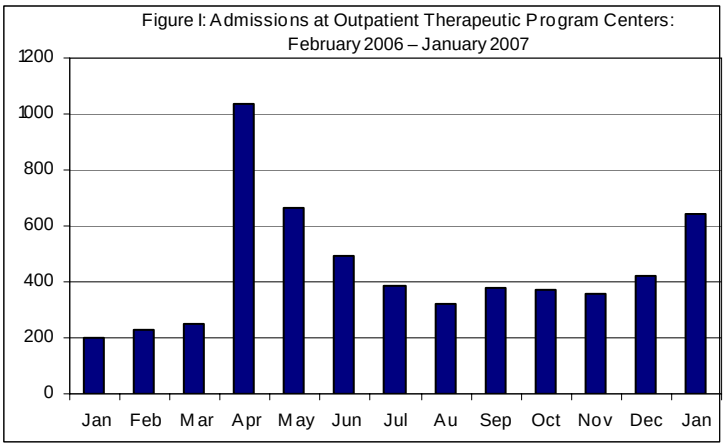
Overall Enrollment

The rollout process was finalized by May 2006, upon completion of all training, initial community mobilization and program installation. High admission numbers were recorded in these two months. Admission rates significantly dropped during June to August following the bumper harvest when children had an adequate food intake at home. The bumper harvest followed a successful targeted fertilizer subsidy program allowing many poor subsistence farmers had a good yield after almost a decade of negative food production (see Figure I).

- During this period, all facilities in Balaka, Chikwawa and Salima received corn-soy blend (CSB) from World Food Program (WFP) to treat moderate malnutrition. This intervention helped to prevent much of malnutrition from becoming severe.

[2] Based on district data calculations by Ministry of Health
[3] Monthly CTC reports from 59 facilities in 5 districts

- However, admissions started to rise again in September 2006 and peaked in January-March when malnutrition rates sharply increase each year. This results from a combination of food insecurity and demanding farming activities which in turn lead to reduced attention to child feeding obligations and general child care responsibilities.



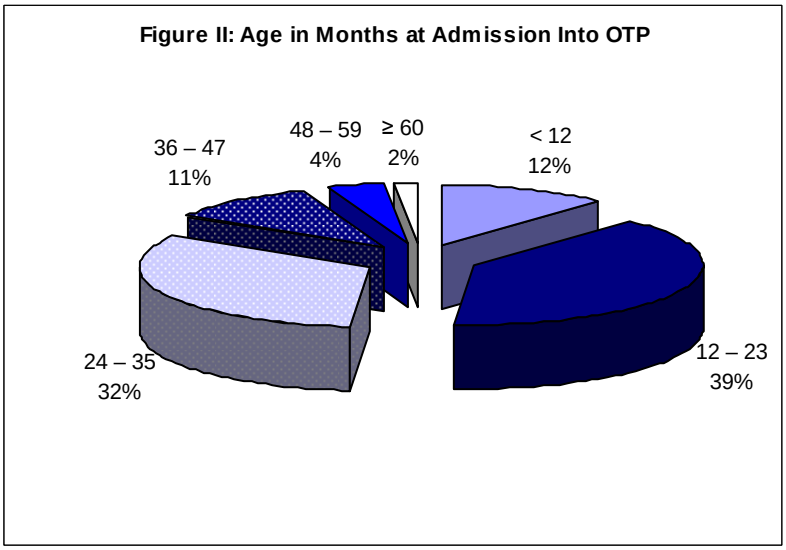
- By January 2007, admissions from all five districts had reached 5,557 and grown to 7,112 at end of March 2007.

Gender at admission

Gender differences on admissions followed the national demographic pattern with women accounting for 52% of the total population. The March 2007 impact assessment, undertaken by MSH, showed a ratio of 53% females to 47% males among 1,284 total admissions to OTPs. This may imply equal caring of male and female children, especially as gender mainstreaming is presently emphasized in development planning and implementation and the gender message is reaching parents.

Age at admission

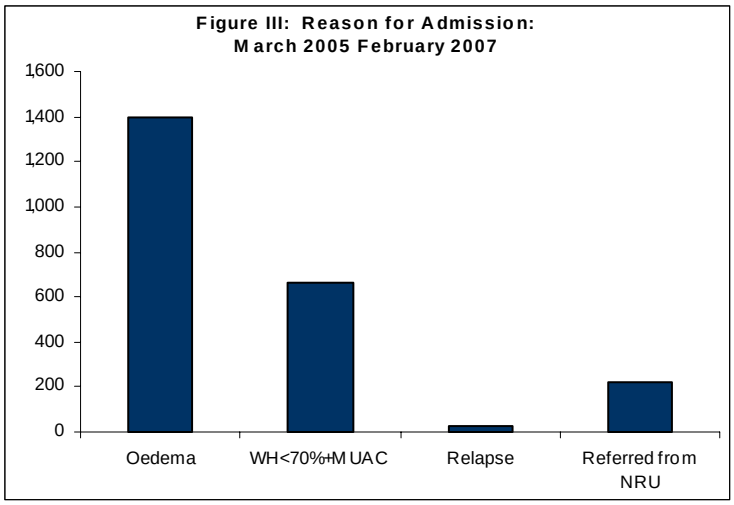
Nearly three-quarters (71%) of admissions fell in the weaning age bracket of 12 -35 months. Observations at OTP centres show that a significant number of care givers are pregnant at the time they bring a malnourished child for nutritional care. In such situation, local customs dictate immediate cessation of breastfeeding which in many cases leads to the child's rejection of any other food offered. All training activities included a strong family planning element. Only 15% of children admitted were between 36 and 60 months, implying the need to reach parents with preventive nutrition education for this age group. Throughout project implementation, on-the-job training emphasized nutrition education which was continuously delivered during nutrition and health talks as and at one-on one counselling of care givers.



Reason for admission

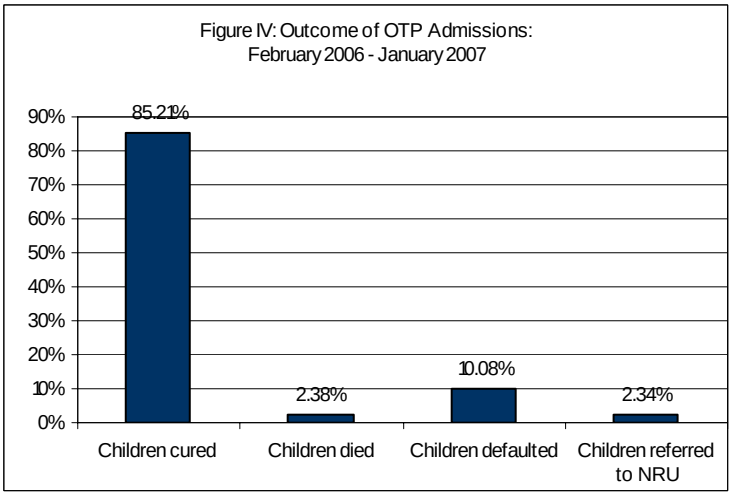
The post project impact assessment conducted in March 2007 showed that oedema was the most common reason for admission (60%) and over two thirds of these children were aged between 12 and 35 months. A further 29% of the children were admitted because of a weight for height

measurement of less than 70%. This group also had a general low measurement of the mid upper arm circumference (MUAC) of less than 11 centimetres. Children who had been referred from nutrition rehabilitation units (NRU) accounted for 10% of admissions, a high figure that further demonstrated growing NRU-OTP linkages.



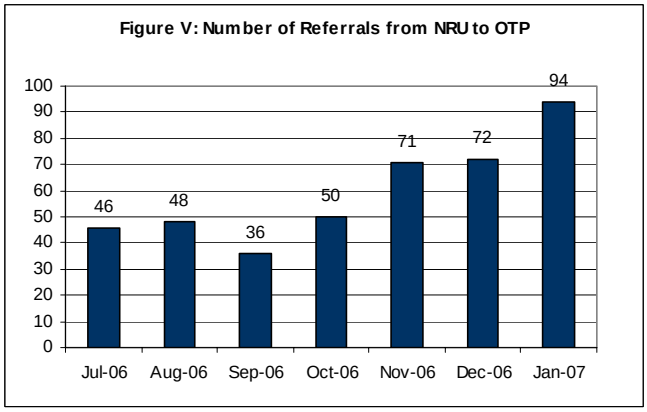
Outcome

Cure rates at OTP centres are high. A cure rate of over 80% was sustained by participating districts. A death rate of less than 3% was recorded in the 12 months of project implementation. While default rates were contained at 13%, this remained a challenge for children brought long distances from their communities. In Mzimba and Mulanje districts where facility coverage is still low, there is an urgent need to introduce more OTP centres to reduce walking distances to the service.



Objective 3: To ensure the development of an effective referral system for malnourished children between various program components

Functional referral system between NRUs and OTPs developed



CTC statistics indicate that 417 children were referred from NRUs to OTPs (reliable data collection having started in July 2006 following a concerted effort to strengthen data collection on referrals). This is an indication of the development of an effective referral mechanism between NRUs and OTPs. The increase in referrals from NRUs to OTPs is also linked to increased utilization of skills and experience in interpreting and using CTC protocols and indicators. Increasingly, children are being transferred to OTP as soon as their appetite returns and when any accompanying infections have been successfully treated. A review of discharge rates from NRUs indicates a doubling of

discharges during the first 10 days of admission - from 19.1 % to 42%. Average length of stay decreased from 18.7 days to 14 days – a decrease of 4.7 days. The national level forum on the targeted nutrition program (TNP) has also played a key role in ensuring consolidation of OTP and NRU guidelines, thereby removing any fears and uncertainties among old NRU service providers (doubt about the effectiveness of ready-to-use therapeutic food [RUTF] and home-based management of malnutrition).

In three districts, CTC is coordinated by clinical staff who have taken a special interest in following up on children who fail to respond to nutritional treatment. Continuous on-the-job training on correct assessment of children in the OTP is also given to other health providers. Results have been seen through improved documentation of non-responding children being referred to district hospitals for further medical care. Some children admitted to NRUs from OTPs were tested for HIV with some children testing positive. However, accurate recording and reporting systems need to be developed which will provide a better impression of HIV prevalence amongst children admitted to NRUs.

Objective 4: Ensure the sustainability of CTC as a routine district level intervention

Inclusion of CTC in district health plans

- The MSH/Malawi bilateral project, with a strong systems strengthening focus has placed MSH in a unique position to help both the central MoH and DHMTs to explore and find ways to make CTC sustainable. This systems strengthening focus has included an emphasis on strengthening the annual district planning process. District planning guidelines for CTC were developed for use at district level and were finalized at a November 2006 workshop. This included participation by district, NGO and MoH representatives. The Nutrition Unit of the MoH developed a final set of nutrition priorities for districts which was incorporated in the 2007/2008 DIP guidelines which contains a significant section on CTC.
- MSH has played a crucial advocacy and advisory role in policy/program enhancement at the MoH, through the national CTC Advisory Services (CAS) under Concern World Wide (CWW). CWW has taken the MSH planning initiative further by assisting the MoH to replicate the CTC planning guidelines to all other CTC implementing districts and their partner NGOs.
- Most important is the increasing responsibilities that DHMTs are taking in the management of CTC. All CTC coordinators at district and facility level are government or Christian Health Association of Malawi (CHAM) employees. Districts have also taken full charge of RUTF deliveries to implementing facilities.
- Through this emergency activity, substantial capacity has been built in the 5 MSH-supported districts; DHMT members, community leaders, and especially parents of beneficiary children better understand the concepts and implementation approaches to CTC.

Continued support to strengthening supervision and monitoring activities by DHMTs

- Supervision is one of the most critical elements of CTC. MSH's bilateral program has supported development of alternative approaches to supervision, aimed at ensuring at least one regular supervisory visit to a health facility and its catchment area. Along these lines, MSH developed a supervisory tool that can be used by any trained health or extension worker. To increase supervision skills, MSH advocated inclusion of other non-health extension staff in CTC training at district and facility levels.
- MSH also initiated the design of assessment and monitoring tools to be used by community volunteers in acquiring basic nutrition and food security information for children referred and or enrolled at OTP. The volunteers are also able to use a "follow up" tool to monitor progress of a child on RUTF.
- District program review meetings were instituted. These meetings, which included participation by facility staff and DHMT supervisors aimed to enhance an effective review of indicators which contribute to improved facility management of CTC.

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Strengthening community networks for active case-finding and effective referral and follow up

- The MSH CTC emphasized community involvement and worked towards enabling communities to identify children in need, refer the children for therapeutic care and manage treatment within the community.
- This approach requires continued renewal of skills and information on nutrition and how to combat malnutrition. MSH and partner DHMTs define the community as all immediate surrounding bodies that influence the wellbeing and growth of a child. These begin with the nucleus family, household, extended family, village and area. MSH has therefore supported mobilization of these community structures providing targeted information on child nutrition and CTC, specifically.

Traditional Authorities in a CTC planning session in Balaka District

- While special CTC skills were imparted to volunteers, other community/civic leaders received formal briefings on CTC and other nutrition issues. These forums included strategy planning sessions with highest traditional chiefs – Traditional Authorities (TA) who outlined community strategies for sustaining CTC. Among several recommendations, TAs emphasized the need to have CTC built in all community development programs in rural Malawi.
- In December, 1,456 volunteers attended a focused refresher course to learn additional mobilization and nutritional assessment skills. The volunteers also received sets of working tools developed with MSH technical support, which are used as reference materials.

- A 7-minute film strip targeting decision makers and potential donors was produced during the pilot phase of CTC implementation done with funding through the bilateral program.
- MSH and its partner DHMTs entered into partnerships with other programs to link CTC with public health prevention initiatives at the community level.

A Partnership Example

In Mzimba, a tobacco growing estate examined possibilities of improving child feeding practices by giving mothers, who are employed by the estate, time to prepare meals for their young children. This was in response to data from a nearby health centre that showed that 31% of admissions into OTP came from the estate. Mzimba DHMT and MSH jointly funded a big community mobilization event which aimed at transmitting CTC messages to tobacco estate workers and to nearby villages. Local drama and other educational entertainment (edutainment) groups participated in the lively open day which attracted an audience of over 6,000 men, women and children. The event led to more families coming forward with their severely malnourished children for treatment which encouraged the estate to open a satellite CTC centre with support from the Mzimba DHMT.

A Drama Scene on CTC at a Mzimba Open Day

Other Outcomes

Provision of Skills

Skills were provided to a total of 3,787 persons. Beneficiaries range from national trainers to community volunteers and community leaders (see Table III). A major task was to structure capacity building to respond to key sustainability challenges including management of data to improve various areas of service delivery.

Table III: Number of CTC Implementers Trained: February 2006 – January 2007

	Male	Female	Total
National Trainers	10	9	19
District Trainers	40	36	76
Facility Service Providers	583	297	880
Volunteers	689	857	1,546
Local Leaders	795	472	1,267
Total	**2,117**	**1,671**	**3,787**

Information Systems Upgraded

Reporting on indicators was strengthened into two ways.

First, continuous on-the-job training was given to increase understanding of the purpose and use of indicators to improve CTC management. Secondly, monitoring tools were simplified to reduce the burden of recording and data management for the Health Surveillance Assistants (HSA) who coordinate CTC at health facilities. A register which contains all key indicators was designed. There is good evidence of health centre staff increasingly utilizing information generated from the registers to strengthen service delivery. For example, in Mzimba the identification of clusters

of default cases from certain areas have led the DHMT to extend CTC to those areas. Improved quality of data has provided much needed information for national CTC policy formulation. In the districts, information from CTC registers provided the basis for CTC inclusion into future District Health Implementation Plans (DIP).

Defining innovative linkages between CTC and other health programmes

An example from Salima demonstrates how CTC may be linked with home-based care programs. During January 2007, 286 Home Based Care (HBC) volunteers surrounding 7 health centres were trained in case-finding and referral of children with severe malnutrition. The HBC system was introduced to the program as one way of linking the broader health issues, such as HIV/AIDS, TB and others, with severe malnutrition in young children. At the end of March 2007, two months after HBC training, 212 children referred to health centres for assessment of their nutritional status by HBC volunteers. Health centres appear to have registered an increased number of children into their CTC program – a careful assessment of the control group of health centres is required before any firm conclusions can be drawn. This will be possible towards the end of July 2007.

Provision of Equipment and Supplies

Unprecedented teamwork between MSH management, administration and technical staff enabled effective procurement and distribution of essential equipment and supplies – in a manner expected of an emergency intervention. Equipment included weighing scales, height boards, cabinets to store *Chiponde* and MUAC tapes (UNICEF donation). A distribution channel for RUTF was established. Each district was provided with a motorcycle to enhance supervision and program monitoring. Other tools sourced and delivered were guidelines/protocols, stationery and tools for volunteers.

Recruitment of Nutrition Coordinators for District MSH Offices

Five District Nutrition Coordinators were recruited to provide immediate technical support to the generally thin district health office staff. This team brought varied expertise in child and public health. They supervised the CTC program in close collaboration with DHMT program coordinators.

Manuals, Job Aids and other materials

The following materials were produced and distributed through the use of OFDA resources:

<u>Planning guidelines and information systems</u>

- Nutrition Activities for District Implementation Plan – MoH
- OTP Register
- CTC monthly reporting form

<u>Supervision support materials</u>

- Nutrition check list for district supervisors: Outpatient Therapeutic Programme & Nutrition Rehabilitation
- Check list for Health Surveillance Assistant
- CTC Mapping: *a Chichewa tool for volunteers*

<u>Volunteer training and support materials</u>

- Community Therapeutic Care Guidelines for Training Volunteers in Community Mobilization – Versions in English; Chichewa and Tumbuka.
- How to Manage *Chiponde* (RUTF) at Home *for extension workers*

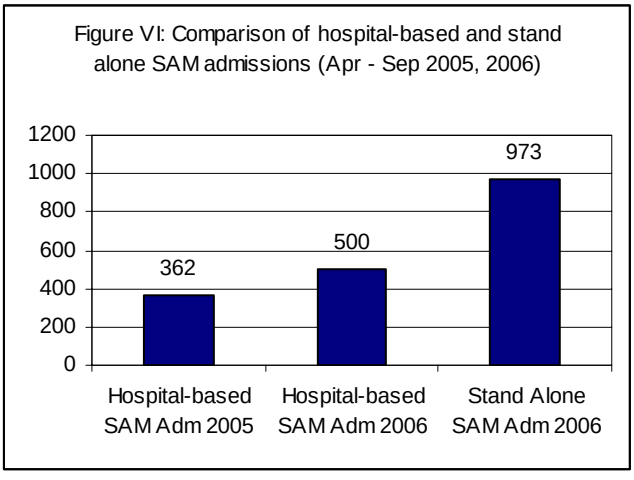
- How to Manage *Chiponde* (RUTF) at Home: *a tool for volunteers*- Versions in Chichewa and Tumbuka
- Skills Required for a Volunteer to Co-manage a CTC Programme in the Community: *a tool for volunteers.* Versions in Chichewa and Tumbuka.
- Notes on Training Volunteers in CTC: *a Chichewa tool for volunteers*
- Follow up: *a Chichewa tool for volunteers*
- Reporting CTC Activities: *a Chichewa tool for volunteers*
- Record Keeping: *a Chichewa tool for volunteers*
- Case finding check list for volunteers
- Referral form for volunteers

Other

- Messages on CTC on volunteers' T-shirts
- Messages on CTC on volunteers' book bags
- Success stories produced for the USAID Mission in Malawi: *Program Saves Malnourished Children* and *Malawi Program Alleviates Food Insecurity*
- Training materials for Protecting Vulnerable People in Relief Situations

Lessons Learned

- *CTC can be rapidly and effectively scaled up through MoH structures.* Facility level staff have been able to implement the CTC approach with good results as is demonstrated by programme indicators which meet SPHERE standards. Volunteers appear to have grasped the concept and have been able to implement community level activities. It is clear that staff and volunteers have the capacity to implement CTC.
- *The implementation of CTC and OTP increases access to care.* This is best demonstrated as follows: Prior to the implementation of CTC, SAM children were managed at NRUs (numbering 10 in January 2006). During the following months four more NRUs became functional whilst 59 OTP sites were set up. 14 OTPs were set up at parallel with NRUs whilst 45 were set up as stand alone OTPs (no parallel NRU). Depending on the district involved, these stand alone OTPs contributed between 72% and 80% of all CTC admissions for the duration of the program.
- *There is in all likelihood, a huge unmet need with regards to children not being able to access care for SAM.* Mulanje data shows the following: during the early famine period in 2005 there were a total of 362 admissions to the two hospital-based NRUs (only sites providing services for SAM children). This number increased to 500 at the same two sites with OTPs added in the post-famine period despite better nutritional conditions in Mulanje. In the same period 973 children were admitted at stand alone sites. This indicates the contribution that peripherally-based stand alone OTPs make to meeting the large need which exists.



- *Referrals between various components of nutritional support are problematic.*
    - NRU staff have utilized the deployment of OTPs to discharge children earlier from NRUs. It is necessary to explore what proportion of referrals from NRUs eventually becomes enrolled into CTC programs.
    - Referrals between children enrolled in the CTC program to the supplementary feeding program appear to be problematic with little certainty whether referred children become enrolled into the program they are sent to. Approximately 41% of OTP discharges between July 2006 and January 2007 proceeded to supplementary feeding programs. Even more problematic is the management of children once they exit the CTC of SFP programs – especially in a context where general food support schemes are managed through district assemblies.
- *Targeted Nutrition Program (TNP) forums at district level may strengthen nutrition program management.* At the onset of the program, DHMTs and MSH recognized partnership opportunities which had not been sufficiently utilized to promote preventive and curative nutrition initiatives. This lead to the re-vamping of inactive TNPs to share nutrition and food security information and strategies. The forum is strategically chaired by the District Commissioner, who is the custodian of development programs. Although districts TNPs are not able to meet on a regular basis, informal contacts in the districts have been well established and impact of this partnership is seen through a broader understanding of nutrition issues among different players who include NGOs and the faith community. In future it may be a strategic option to strengthen district-level TNPs.
- *Implementation of this program has had shortfalls in coverage*. A limited number of health centres were included into the program (59 out of a total of 118). There is a need to expand CTC to a majority of health centres in each district. Only two of the five districts were able to provide OTP services to a majority of government and mission facilities. Many care givers continue to walk long distances to the nearest OTP centre. It may be feasible to provide services at health post level through the use of HSAs – this would enable easier access for communities located far from health centers. Unavailability of CTC in health facilities within a district created monitoring and supervisory problems when children from non-serviced catchment areas sought OTP care without the necessary follow up support. Such children were often statistically "lost" and caused gaps in the reporting system. The solution would be to standardize nutritional services in all facilities in a district.
- *Ongoing need to refresh staff in CTC.* There is a high level of staff turnover in MoH and CHAM facilities. The result is a continuous need to provide orientation to new staff as they join government and mission facilities. Only one district has shown interest in using government resources to provide CTC skills to new staff members.
- *Further steps are required to ensure program sustainability.* Whilst a foundation has been laid for CTC sustainability, there are gaps to be filled, mostly in terms of securing funding for RUTF. The Clinton/Hunter Foundation contribution is a short term solution. DHMTs have been assisted to budget for the procurement of RUTF. However, more follow up discussions and planning are required to ensure the districts will be ready for this major responsibility. DHMTs still need to show that they are committed to supervision of CTC and other nutrition activities from the district to household level. It is anticipated that MoH will be recruiting district nutritionists and NGOs will need to assist will CTC capacity building of the new staff, especially considering that the staff with minimal nutrition background might be recruited.

Annex: Cumulative CTC Data

CTC Summary Data Sheet February 2006 – January 2007						
	Balaka	**Chikwawa**	**Mulanje**	**Mzimba**	**Salima**	**Total**
Objective 1: To ensure that 60 newly established OPT points are able to implement CTC						
Number of facilities implementing CTC	11	12	10	13	13	**59**
Total # Persons trained	639	853	579	745	1,023	**3,839**
# Central level (national TOTs) – additionally 4 central level staff trained.	3	3	3	3	3	**19**
# District trainers trained	16	15	15	15	15	**76**
# HC staff trained	165	225	150	159	181	**880**
# volunteers trained	220	300	200	300	526	**1,546**
# Local Leaders trained	220	300	200	260	287	**1,267**
# DHMT members oriented	15	10	11	8	11	**55**
Amount of RUFT provided by district (kg)	8,193	9,035	10,348	7,154	8,584	**43,314**
# Motorcycles provided	1	1	1	1	1	**5**
# Storage cabinets provided	13	9	9	0	13	**44**
# Heights boards provided	13	19	16	15	17	**80**
# MUAC tapes provided	220	300	200	300	526	**1,546**
# scale provided	14	17	16	18	17	**81**
# Facilities reporting stock outs of *Chiponde* during last quarter	0	0	0	0	0	0
Objectives 2: To ensure that the intervention enrolls 65% percent of estimated severely malnourished children into the CTC program						
Estimated # malnourished children (2% of children under 5)	1,036	1,408	1,671	2,403	1,257	**7,775**
Estimated # SAM through UNICEF survey	1,502	1,830	3,509	2,884	3,079	**12,804**
# Children entering CTC program (February 2006 – January 2007)	997	1,007	1,605	1,067	881	**5,557**
# Children cured (aggregated all ages)	593	688	1,113	841	486	**3,721**
# Children who die (aggregated all ages)	19	16	33	18	18	**104**
# Children who default (aggregated all ages)	105	72	102	66	95	**440**
# Children followed up in the community (MoH staff or volunteers)	388	65	756	133	266	**1,608**

CTC Summary Data Sheet February 2006 – January 2007						
	Balaka	**Chikwawa**	**Mulanje**	**Mzimba**	**Salima**	**Total**
Objectives 3: To facilitate the development of an effective referral system for malnourished children various feeding program						
# Monthly District Targeted Nutrition Meetings	3	2	4	2	3	**14**
# Malnourished children from OTP referred for supplementary feeding/ general food distribution scheme	170	99	436	70	122	**897**
# Moderately and severely * malnourished children who enter the general food distribution scheme.						
# of children referred from OTP to NRU hospitals for admission	15	7	39	4	20	**102**
Number of children referred from NRU/Hospitals to OTP	43	131	59	89	76	**398**

* Data on general food distribution not available. Relief activities were ad hoc, temporary, available at a very small scale and coordinated through a separate department.

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