

# The sustainability of community-based therapeutic care (CTC) in nonemergency contexts

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## Abstract

**Background.** Concern Worldwide is an international humanitarian nongovernmental organization that piloted and is now implementing and researching community-based therapeutic care (CTC) approaches to managing acute malnutrition. Experience in several countries suggests that there are key issues to be addressed at the international, national, regional, and community levels for community-based treatment of acute malnutrition to be sustainable.

**National level.** At the national level there must be demonstrated commitment to a clear health policy and strategy to address outpatient treatment of acute malnutrition. In addition, locally available, affordable ready-to-use therapeutic food (RUTF) must be accessible.

**Regional level.** At the regional level a functional health system and appropriate capacity for service provision are required. Integration of outpatient services should be viewed as a process with different levels of inputs at different phases depending on the capacity of the Ministry of Health (MOH). There is a need for indicators to facilitate scale-up and scale-back for future emergency response.

**Community level.** Strong community participation and active screening linked to health service provision at the local level is paramount for sustainable assessment and referral of severe acute malnutrition.

**Future challenges to sustain community-based therapeutic care.** Key challenges to the sustainable treatment of severe acute malnutrition include the development of locally produced RUTF, development of international standards on local RUTF production, the integration of outpatient treatment protocols into international health and nutrition guidelines, and further operational research into integration of community-based treatment of severe

acute malnutrition into health systems in nonemergency contexts.

**Key words:** Community-based therapeutic care, primary health care, severe malnutrition, sustainable nutrition programming

## Introduction

Community-based therapeutic care (CTC) is a new approach for the management and treatment of severe acute malnutrition, which is defined as the presence of severe wasting (weight-for-height  $< 70\%$  or  $< -3$  SD of the median National Center for Health Statistics/World Health Organization [NCHS/WHO] reference) or edema or a mid-upper-arm circumference (MUAC)  $< 110$  mm. Until 2001, emergency response to high levels of acute malnutrition was predominantly through therapeutic feeding centers (TFCs). TFCs are large inpatient centers where patients are admitted for 21 days or longer. The centers are resource-intensive and are often very far from those affected with acute malnutrition. Carers of malnourished children must often travel long distances to access the services, and coverage is low [1]. Additionally, congregation of sick and malnourished children in centers can enhance the spread of infection and increase morbidity and mortality.

To address some of the challenges of traditional TFCs, Valid International developed the concept of CTC. CTC is an innovative concept that mobilizes communities and supports local health services to rapidly and effectively treat those with acute malnutrition in their homes. A typical emergency-response CTC program is composed of four elements: community mobilization, an outpatient therapeutic program (OTP) for cases of severe acute malnutrition without medical complications, inpatient care for those with medical complications, and supplementary feeding for those with moderate malnutrition to prevent them from becoming severely malnourished.

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Since 2001, evidence for the effectiveness of CTC as an approach to the treatment of severe acute malnutrition in emergencies has been building through nongovernmental organization and government responses in Ethiopia, Malawi, South Sudan, North Sudan, and Niger [2, 3].

Concern Worldwide is an international, humanitarian, nongovernmental organization with experience developing and implementing CTC programs. Concern is also currently engaged in working directly with national governments to build their capacity in the community treatment of acute malnutrition and to support the adaptation of health and nutrition policy to incorporate CTC in several countries. On the basis of Concern's experience, there are several issues to be addressed for the outpatient treatment of severe acute malnutrition to be sustainable.

The purpose of this paper is to detail the evolution of the CTC approach from emergency situations to different contexts from the perspective of a nongovernmental organization, and to discuss key components required for CTC to be sustainable, on the basis of the experience to date of Concern Worldwide in Malawi, Ethiopia, South Sudan, North Sudan, Bangladesh, and Niger. The paper also highlights key challenges in moving forward sustainable and effective CTC.

## The emergency CTC approach and modifications to different contexts

Over the past 3 years, the CTC approach to nutritional emergencies has evolved to address the treatment of severe acute malnutrition in transition contexts [3]. CTC programs in Ethiopia and Malawi were initially an emergency response to increased levels of acute malnutrition. However, as the overall food security and nutritional situation improved, the caseload decreased and the supplementary feeding component of the programs was dropped for longer-term health interventions, while Concern focused on the integration of the treatment of severe acute malnutrition at the basic health facilities. Therefore, in transition contexts, Concern's focus has included outpatient treatment of severe acute malnutrition in combination with referral services for complicated cases (stabilization services) built on strong community mobilization, health education, and wider support to strengthen the health system.

Additionally, high levels of severe acute malnutrition have been documented in subpopulations in nonemergency contexts, and the need for an effective outpatient approach to the treatment of severe acute malnutrition in such contexts is now being acknowledged. For example, in high-risk areas of Bangladesh and Rwanda, the levels of severe acute malnutrition are a cause for concern. In congested areas of Saidpur and Parbatipur, Bangladesh, Concern health teams

have documented a 5.6% prevalence of severe acute malnutrition (weight-for-height < 70% of the NCHS/WHO reference) among children 0 to 23 months of age ( $n = 160$ ) and a 1.8% prevalence among children 24 to 59 months of age ( $n = 274$ ), for an average of 3.2% among all children under 59 months of age ( $n = 444$ ) [4]. Additionally, in Rwanda, the 2005 Demographic and Health Survey found a 0.9% prevalence of severe acute malnutrition (weight-for-height <  $-3$  z-scores of the NCHS/WHO reference) nationally among children 0 to 59 months of age, although a 1.4% prevalence of severe acute malnutrition was documented in the South region and 2.5% in the Kigali Ville region [5].

The potential long-term application of a modified CTC approach to treat severe acute malnutrition in transitional and nonemergency situations has brought to the forefront the sustainability of the CTC services (OTP, stabilization care [SC], and community mobilization and screening). Sustainability in the context of this paper is defined as strengthening the capacity of the health systems to function effectively with minimal external input [6]. This definition accepts that many least-developed countries will require substantial contributions from external sources for a significant period of time; but this should not negate the goal of reducing dependence on external resources and enabling local capacity to control and be accountable for its own health services and system.

Several challenges exist in sustaining effective CTC services and in Concern's experience, and there are several requirements to sustain such activities.

## Key requirements for sustainable provision of CTC service

Integration of CTC is defined in this paper as incorporating CTC components of OTP care, inpatient care, and community mobilization and outreach activities into national primary health care (PHC) systems. Integration of activities while maintaining the quality and effectiveness of services with minimal external support is vital to sustainability. Effective integration of CTC activities into the PHC system requires functioning systems and associated support at different levels:

- » *National policy level*: demonstrated commitment to a clear health policy and strategy to address outpatient treatment of severe malnutrition;
- » *Regional or district level*: functional regional or district health system and appropriate capacity for service provision;
- » *Community level*: strong community participation and active screening.

In many countries, external financial and programming support may still be required at one or all of these three levels, *especially during an emergency*. However, except for the cost of ready-to-use therapeutic foods

(RUTFs) and drugs, the CTC approach itself does not require significant inputs beyond those targeted for the development and support of health systems. When the cost of a CTC program is analyzed, it must be recognized that for an intervention to address severe malnutrition, the cost per recovered child may be high, but there are several indirect benefits to the PHC system, including capacity-building of staff and rehabilitation of health structures, that are not accounted for in a specific CTC cost analysis.

## National level

### *National commitment and policy change*

Fundamental to sustainable CTC programming is the commitment by national Ministries of Health as well as UN agencies to the methods, components, and principles of CTC for severe acute malnutrition, as demonstrated by outlined steps to adopt relevant principles and protocols within national policy. In countries where Concern is implementing or supporting CTC programs, successful integration of CTC activities into Ministry of Health PHC systems has been variable. Although there has been national-level support for implementation of CTC in a number of countries, the process of national policy change takes time; however, CTC implementation is informing and shaping the national policy debate in a number of countries.

In Ethiopia, following effective (as determined by standard program indicators of emergency nutrition programs in Sphere [7]) implementation of CTC by Concern and other nongovernmental organizations over a number of years, 34 *woreda* (district)-level health departments have adopted CTC as the best practice for the treatment of severe acute malnutrition, through the support of nine nongovernmental organizations in 2005.

Meanwhile, evidence from CTC programs has fed into the development of the National Nutrition Strategy slated for approval in 2006.

Transitional governments without such defined health policy or strategy, such as that of South Sudan, offer a different set of challenges, although they may allow quicker adoption of CTC protocols at a national level. In South Sudan, as in Ethiopia, policy and strategy development is being informed by evidence from the implementation of CTC over the last few years. Several nongovernmental organizations are working at the national level in South Sudan to establish assessment and treatment protocols for severe acute malnutrition following CTC principles and protocols, as well as advocating for their inclusion in PHC manuals.

A crucial issue in the rollout and sustainability of CTC is the inclusion of management of severe malnutrition as a core component within the minimum health services package, thus ensuring that staff train-

ing and supply of commodities will be addressed and planned for.

Another key requirement is the need to address health-financing policy issues to facilitate access to free treatment for severe acute malnutrition. Where health care is not free, governments must put in place strong policies and functional mechanisms that will reliably provide free treatment (medical consultation, inpatient care, and drugs) for patients presenting with severe acute malnutrition.

### *PHC system*

The PHC system encompasses services provided by the Ministry of Health, nongovernmental organizations, and community structures. For the CTC approach to be sustainable, a PHC system needs to be in place, with adequate, accessible structures and staffing capacity able to provide basic health services. It is through these facilities that CTC activities should be provided.

In the majority of emergency contexts, ensuring functioning PHC facilities in which to integrate CTC services is challenging and often relies heavily on external resources. Implementing CTC in nutrition emergencies can support and strengthen the PHC structure, as opposed to previous emergency responses, which have traditionally focused on establishing parallel structures of service delivery [1].

In the experience of Concern, the process of integration is facilitated if links to existing PHC nutrition activities, such as growth-monitoring and promotion (GMP) programs, are established in the initial setup phase. Concern is in the process of linking these services in Malawi and Bangladesh; however, there are challenges, including the introduction of weight-for-height or MUAC to assess severe acute malnutrition in addition to weight-for-age.

Additionally, in order to increase coverage of treatment of severe acute malnutrition, it is necessary for other existing child health-focused interventions, such as outpatient consultation services and integrated management of childhood illness (IMCI) activities, to incorporate the assessment and treatment of acute malnutrition. In theory, such activities would become routine if incorporated into the basic package of health services (BPHS) at a policy level.

### *Nutrition reporting and monitoring system*

Consistent and accurate reporting of severe acute malnutrition would allow for the early detection of a deteriorating nutrition situation and could foster timely scale-up of activities. However, in order for the PHC services to be responsive to changing levels of malnutrition over time, cases of acute malnutrition should be incorporated into existing health-management information systems. In contexts where health-management information systems are weak, the need to

monitor levels of severe acute malnutrition could be used as a catalyst for improving reporting systems. In other contexts, reporting formats exist yet are complicated and challenging for local health workers, and thus a simplified national format could allow for more accurate and effective reporting. To support this, global reporting formats and protocols, like those of IMCI, need to include standardized assessment criteria and treatment of acute malnutrition.

### *Training and capacity-building*

Some nongovernmental organizations involved in CTC programming are taking a long-term look at the capacity development of staff in the PHC facilities to support CTC services. Although this is a step forward, because of the high turnover of facility staff the likelihood is that there will be a continual need for training at the facility level unless training is more formally institutionalized.

Training of health staff to implement CTC services requires national planning and support. To increase the institutional knowledge at all levels of health service (facility-based staff and extension or outreach workers), training in the principles of CTC, outpatient care, and management of complicated acute malnutrition needs to be incorporated into the existing medical and nursing curricula of health-training institutions.

In Ethiopia, Concern and UNICEF are advocating for and supporting the development of training in the principles and protocols of CTC as well as the management of complicated acute malnutrition in both the nursing and the medical curriculum at the national and regional levels. Additionally, Concern is working in South Sudan with UNICEF and another nongovernmental organization involved in PHC to include training on CTC protocols in the one-year nursing course. Other countries with experience in CTC and outpatient care for the management of severe acute malnutrition are not as advanced as Ethiopia and South Sudan in this regard. To build the capacity of health services to implement CTC, it is fundamental that these principles, protocols, and management issues be incorporated into health curricula at all levels for integration and sustainability.

### **RUTF**

The development of RUTFs has allowed for the development of OTP care. In emergency programs, imported, commercially produced RUTFs are currently used; however, as the CTC approach is modified to address severe acute malnutrition in longer-term emergencies, postemergency contexts, or even developmental contexts, RUTF needs to be more easily accessible and affordable for the approach to be sustainable.

*Local RUTF production.* The CTC model promotes the local production of RUTF to increase economic

activity in the area or country of production and to increase access to and availability of RUTF by reducing cost. Local production of spread RUTFs is currently being developed by Valid Nutrition in partnership with Concern Worldwide in Ethiopia, Malawi, and Bangladesh and by the Peanut Butter Project in Malawi. Experience in the local development of RUTF has identified several challenges to the production and distribution of RUTF locally, including sourcing quality ingredients, licensing, and quality control.

The original RUTF spread recipe has five ingredients: peanut butter, vegetable oil, powdered sugar, dry skim milk, and a mineral and vitamin mix [8]. RUTF production in Ethiopia has been hampered by the difficulty of importing ingredients not available locally, particularly dry skimmed milk and the mineral-vitamin mix, highlighting the need to produce a RUTF from locally available ingredients [2]. Alternative RUTF recipes, nutritionally equivalent to that of the original peanut-based formula and using only locally or regionally available ingredients, are undergoing trials in Malawi and Ethiopia. Demand for RUTF in both countries is high, so if the trials are successful, the scale-up of production could reduce costs, although analysis of the most cost-effective location of production units within each country has not yet been undertaken. However, even if local RUTF becomes more accessible, there is still need for international donors to consider long-term support of the final RUTF product for programming.

In most countries the Ministry of Health transports drugs that are listed as essential on the national drugs list. However, like F-100 and F-75, milk-based diets [9] used in inpatient treatment of severe acute malnutrition, RUTF is a therapeutic product, and these are not on the essential drugs lists. Therefore, the Ministry of Health is not responsible for transportation of RUTF.

*Licensing and quality assurance.* The issue of national licensing and approval of local production needs to be researched in each context of proposed production so that delays and constraints are avoided. The classification of RUTF as a drug, nutritional supplement, or food has implications for its production and transport, and therefore it is crucial to establish its classification as early as possible. In Ethiopia RUTF is classified as a food and is being manufactured by a food producer. Currently this system is working adequately, but in order for RUTF to be included in the essential drug list in the future, it will have to be registered as a drug. In Ethiopia registration of a drug is a detailed and often time-consuming process, which has yet to begin for RUTF.

To facilitate the local production of RUTF, as either a drug or a food, there needs to be a network of laboratories accredited to test and analyze RUTF as part of a wider quality assurance program.

### Regional level: Functional regional health system and appropriate capacity for service provision

The overall capacity required for a sustainable CTC program depends on the scale and the magnitude of the prevalence of severe malnutrition as well as the existing local capacity in the country or program area. To date, CTC has been implemented in emergency situations, and currently these programs are in the process of integrating CTC activities into the Ministry of Health. However, the level of input and the types of relationship among the nongovernmental organizations and the Ministry of Health partners for implementation are variable, depending on the context, the capacity of the Ministry of Health, and the pattern of malnutrition.

#### *Integration as a process*

The speed of integration and the ability to integrate a CTC program primarily led by an international nongovernmental organization depend on the structure and capacity of the Ministry of Health from the outset.

Experience in Malawi, Ethiopia, Niger, Sudan, and Bangladesh demonstrates the breadth of challenges of attempting to integrate CTC activities within different contexts. Key challenges to integration in different contexts where Concern has been working include the following:

- » In South Sudan, there was a lack of basic health services into which OTP and SC services could be integrated;
- » Because of outbreaks of disease such as malaria and poor coverage of basic health services, the CTC programs in Niger were characterized by caseloads in OTP and SC that were much higher than those seen in other countries with nutrition emergencies;
- » In developmental contexts such as Bangladesh with GMP programs, the standard index for assessing severe acute malnutrition is weight-for-age, not MUAC or weight-for-height. Data on height and MUAC are now also being collected in a pilot study in a small program area to assess severe acute malnutrition.

A challenge to integration in some of Concern's CTC programs has been the short-term funding mechanisms available from the donor community, which constrain the ability of a nongovernmental organization or government to build the capacity of the PHC services to implement CTC services.

Additionally, Concern's experience in several countries has demonstrated that the inclusion and full participation of the Ministry of Health right from the outset is crucial to longer-term integration, ownership of the service, and national sustainability. In Wollo, Ethiopia, Ministry of Health *worreda* administrative staff were seconded to Concern for on-the-job training in OTP supervision for 4 weeks. In addition, clinic staff

were seconded to Concern's mobile teams to build their capacity and understanding of assessment and outpatient treatment activities. In Malawi, clinical nursing staff along with CTC nutrition staff at the facility and regional levels were trained in wider CTC concepts. Wider understanding, conceptually and practically, of CTC programming at all levels of national health services from the onset of programming allows for easier integration. However, gaining full participation of the range of actors is often challenging in overstretched health systems.

#### *Spectrum of inputs and capacity for CTC integration into the Ministry of Health*

The composition of external inputs, in both scale and type, from a nongovernmental organization partner aiding the implementation of a CTC program, depends not only on the levels of severe and moderate malnutrition, but also on local capacities to manage and respond to the situation. Hence, two scenarios with comparable prevalences of acute malnutrition could have two different levels and types of external input.

In addition to the analysis of the context and prevalence of malnutrition, the required level of external input to implement CTC should be assessed through a comprehensive and participatory capacity assessment of the health facilities and system. Health capacity assessment is an essential component within the program analysis stage to analyze the type and scale of external support required.

**Figure 1** demonstrates the spectrum of external inputs required to implement CTC based on the capacity and structure of the local or regional Ministry of Health PHC system to respond and the magnitude of the situation.

In emergency situations, levels of external inputs are most likely to be high. However, as emergency levels of malnutrition decline and the numbers of patients receiving outpatient care decrease, external support shifts from logistically heavy hands-on implementation toward a supervisory role. Supervision is regarded as stepping back from direct implementation to supporting implementation by the Ministry of Health by providing supervision, monitoring, and periodic training.

For example, in Wollo, Ethiopia, Concern has been implementing a CTC program with the Ministry of Health since 2003. When the levels of severe malnutrition declined, Concern began the transition period of withdrawing from the implementation of OTP services, handing over full implementation to the Ministry of Health. Additionally, the Ministry of Health seconded facility staff to Concern for mentoring on supervision of OTP activities and for training of community volunteers on community health promotion.

Theoretically, with Ministry of Health facilities independently implementing CTC services (OTP, SC,

and community mobilization), supervision evolves toward mentoring, whereby training or specific support is identified and requested by the Ministry of Health from the nongovernmental organization. In

this mentoring role, the nongovernmental organization partner can facilitate rollout of OTP, SC, and community mobilization activities throughout the region or country. Additionally, initial integrated sites can be

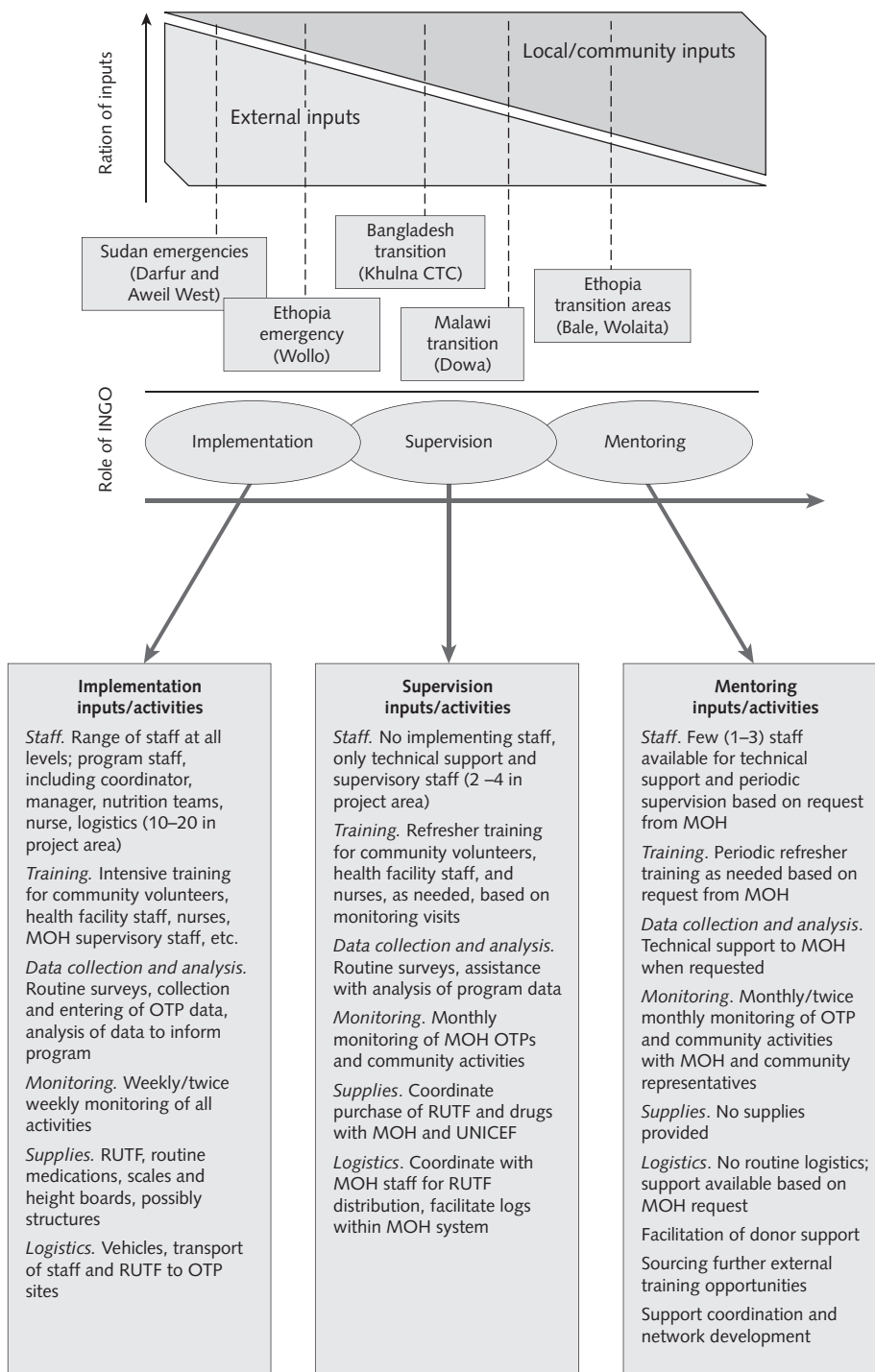


FIG. 1. Spectrum of inputs for community-based therapeutic care (CTC) activities in different contexts. INGO, international nongovernmental organization; MOH, Ministry of Health; OTP, outpatient treatment program; RUTF, ready-to-use therapeutic food

used to demonstrate that existing PHC systems can successfully provide OTP in conjunction with other services. Ultimately, the nongovernmental organization partners will alternate between different roles, depending on the change in both the prevalence of malnutrition and the local capacity.

#### **Threshold levels for scale-up**

An improved monitoring system such as that described above could be enhanced through the addition of regionally agreed-upon benchmarks to trigger expansion, scale-up, and scale-down of CTC activities and inputs.

In nonemergency situations, a small caseload of children in OTP can be handled by the Ministry of Health with mentoring support from a nongovernmental organization, as witnessed by Concern's program in Bale, Ethiopia. However, if caseloads increase beyond manageable levels in future nutritional emergencies, external support (human resources, training, and food resources) will increase proportionally.

To ensure a timely response to reported levels of acute malnutrition, there needs to be a national or regional plan for a response, detailing the practical commitment of stakeholders (Ministry of Health, nongovernmental organizations, and external donors) to specific program activities within outlined scenarios. Support of this system by the Ministry of Health, nongovernmental organizations, the World Food Programme (WFP), and UNICEF would further demonstrate their commitment to sustainability.

#### **Community level: Community participation and active screening**

Community participation is recognized as a key component of CTC [1]. As operational experience with CTC has grown, so has the understanding of the importance of broader community participation from the early stages of program design. Concern defines community participation in CTC as encompassing involvement in mobilization and awareness-raising activities, planning, decision-making, and management of interventions, and as active involvement in community outreach work, which includes active screening, follow-up of defaulters, and health-promotion activities.

Application of this broader definition of community participation fosters sustainability of CTC by empowering communities, promoting community ownership, and facilitating dialogue and interaction between the community and health-facility staff. Additionally, to enhance community participation and ownership, capacity-building at the community level with a medium- to long-term perspective should be built into CTC program design as a core component. This involves training and mentoring of community health committees and/or other community health institutions or networks by appropriately experienced

and skilled individuals. It also requires training and supervision of community outreach volunteers and health extension workers.

Program uptake is greatly affected by attitudes toward and relationships among the community and health facility providers. A positive outlook by the community on government health services is crucial. If government facilities have ceased to exist, or faith in the government health services is lacking, CTC program staff need to address this issue by supporting improvement in quality of care and then working toward reestablishing community confidence in these services.

Many communities support traditional healers or alternatives to government health services. Concern has found it essential that CTC program officials (from the Ministry of Health, nongovernmental organizations, or both) work with these practitioners to provide education on the signs of malnutrition and to support and encourage these alternative healers to refer malnourished children to the CTC program.

#### **Active screening**

Active screening, defined as the identification of acutely malnourished children and referral of them to the nearest health center implementing CTC, is an essential activity in achieving high CTC program coverage. In the initial phase of setting up emergency CTC, active screening and mobilization are conducted primarily by qualified staff of nongovernmental organizations and the Ministry of Health. However, as the program develops and the capacity of community volunteers and health extension workers is developed, the role of nongovernmental organization and Ministry of Health staff can shift to a supervisory one.

In order to support continued active screening, it is crucial for the wider community to be educated on the signs of malnutrition and for the community as a whole to take on greater responsibility to bring potentially malnourished children to the community volunteers or outreach workers for screening and referral to services. It has been well documented by international community health practitioners that sustaining active, voluntary community screening and outreach work is a key challenge in community health. CTC program planners and community committees need to work proactively to maintain volunteer motivation [10].

In order to facilitate sustained active screening by volunteers, it is crucial that the ratio of community volunteers to the target population be appropriate, realistic, and not overburdening. The numbers of volunteers should be determined by the operational context, in which the number of households covered is manageable and not more demanding than volunteers are willing to cover without payment.

In South Wollo, Ethiopia, Concern trained two community-elected volunteers (one male and one female) per *gott* (village) for outreach activities. The total

amount of time required for this work was no more than one day a month. However, the large number of volunteers in the program area (a total of 3,000) created a large demand for supervisory support and refresher training. Supervision of these volunteers is currently provided by 28 Outreach Supervisors employed by Concern, and to date the Ministry of Health has been unable to take over responsibility for this work.

In light of the lessons learned in South Wollo, Concern adopted a different approach when responding to the nutritional emergency in Bale. From the outset, the community-based therapeutic program was established within Ministry of Health structures and was managed by the district health authority. The health authority had full responsibility for the regular supervision of 750 volunteers, while Concern employed only four outreach supervisors to support this work for the initial 6-month phase.

As the critical emergency phase gives way to a more stable nutrition situation, the community screening and follow-up workload is reduced, and the role of the community volunteer may be adapted to the changed situation. In areas of both Ethiopia and Sudan, Concern has trained and supported community volunteers to address care and feeding practices and other health-promotion activities after the initial emergency response. Although facilitating volunteers to expand their knowledge and take on different activities can act as an important motivating factor, care must be taken not to overload the volunteer.

## Challenges to moving forward

Based on Concern's experience in implementing CTC

and working with federal governments to integrate and adopt CTC into existing health services, several challenges have been identified for moving forward the sustainable treatment of acute malnutrition:

- » Increase local production of RUTF where CTC is being implemented, to increase the availability of the product;
- » Develop an international system of standards and mechanisms for quality control of RUTF production;
- » Integrate assessment and treatment of acute malnutrition in relevant international health and nutrition guidelines (e.g., WHO guidelines on treatment of severe malnutrition and IMCI guidelines);
- » Investigate and learn from previous experiences in the rollout and scale-up of other community health activities (e.g., IMCI);
- » At the project level, plan the development of future CTC interventions in response to nutrition emergencies with an integrated outlook through the Ministries of Health and with a longer-term vision to develop the capacity of PHC systems;
- » Further research and develop community-based treatment of severe acute malnutrition integrated into PHC systems in nonemergency contexts;
- » Develop a mechanism to ensure quality of non-governmental organization-supported CTC programs.

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## References

1. Grobler-Tanner C, Collins S. Community therapeutic care (CTC): a new approach to managing acute malnutrition in emergencies and beyond. Food and Nutrition Technical Assistance (FANTA) Technical Note No. 8, June 2004. Available at: [http://www.fantaproject.org/downloads/pdfs/TN8\\_CTC.pdf](http://www.fantaproject.org/downloads/pdfs/TN8_CTC.pdf). Accessed 28 May 2006.
2. Khara T, Collins S, eds. Community-based therapeutic care (CTC). Emergency Nutrition Network Supplement 2. Oxford, UK: Emergency Nutrition Network, 2004. Available at: <http://www.fantaproject.org/ctc/ENNSupplement.shtml>. Accessed 8 June 2006.
3. Collins S. Community-based therapeutic care—a new paradigm for selective feeding in nutritional crises. HPN Network Papers. London: Overseas Development Institute, 2004:48. Available at: <http://odihpn.org/documents/networkpaper048.pdf>. Accessed 8 June 2006.
4. Khan MSH, Rahman S, Nasrin T. Survey report on household energy practices, indoor air pollution and health. Dhaka, Bangladesh: Associates for Community and Population Research, January 2006.
5. Population Reference Bureau. Demography and Health Surveys. 2005. Enquête démographique et de santé, Rwanda. Rapport préliminaire. Available at: [http://www.prb.org/content/navigationmenu/prb/datafinder/new\\_country\\_data/Rwanda\\_demographic\\_and\\_health\\_survey\\_2005.htm](http://www.prb.org/content/navigationmenu/prb/datafinder/new_country_data/Rwanda_demographic_and_health_survey_2005.htm). Accessed 8 June 2006.
6. LaFond A. Sustaining primary health care. London: Earthscan, 1995.
7. The Sphere Project. Humanitarian charter and minimum standards in disaster response. 2004. Oxford, UK: Oxfam Publishing. Available at: <http://www.sphereproject.org/handbook/>. Accessed 8 June 2006.
8. Manary MJ. Local production and provision of ready-to-use therapeutic food (RUTF) for the treatment of severe childhood malnutrition. Food Nutr Bull 2006;27(Suppl): S83–89.

9. World Health Organization. Management of severe malnutrition: a manual for physicians and other senior health workers. Geneva: WHO, 1999. Available at: [http://www.who.int/nutrition/publications/en/manage\\_severe\\_malnutrition\\_eng.pdf](http://www.who.int/nutrition/publications/en/manage_severe_malnutrition_eng.pdf). Accessed 28 May 2006.
10. Frankel SE. The community health worker: effective programs for developing countries. Oxford, UK: Oxford University Press, 1992.