

# Outpatient Therapeutic Programme for Malnourished Children

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## **Author's contribution**

*The sole author designed, analysed, interpreted and prepared the manuscript.*

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## **ABSTRACT**

Outpatient therapeutic programme (OTP) is one of the approaches of community-based management of acute malnutrition (CMAM), which includes community engagement and mobilization for outpatient management of uncomplicated severe acute malnutrition (SAM) children 6–59 months with good appetite, by providing them by home-based treatment as Ready-to-use Therapeutic Food (RUTF) and routine medical treatment. Around 85-90% of children with SAM are successfully treated at home in OTP, by attending regular intervals until they recover. OTP is currently used to achieve rapid recovery from SAM, it provides services of SAM management closer to the community at primary health care centers, where uncomplicated SAM children receive different amount of RUTF as Plumpy'Nut sachets according to their body weight.

**Keywords:** *Outpatient therapeutic programme; severe acute malnutrition; ready-to-use therapeutic food.*

## **1. INTRODUCTION**

“Outpatient therapeutic programme (OTP) is one of the approaches of community-based management of acute malnutrition (CMAM), that includes community engagement for outpatient management of uncomplicated severe acute

malnutrition (SAM) children 6–59 months with good appetite, by providing them by home-based treatment as Ready-to-use Therapeutic Food (RUTF) and routine treatment” [1,2]. Around 85-90% of children with SAM are successfully treated at home in OTP, by attending regular intervals (usually once a week) until they recover

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(usually a two month period). The programme implemented as standalone by mobile teams or in health centers by weekly or biweekly distributions of RUTFs and routine medicines, and medical and nutritional monitoring. After recovery and discharge, treated children can be admitted in SFP to prevent relapse through supplementary food [3]. "OTP brings the management of SAM closer to the community by making services available at decentralized treatment points within the primary health care centers" [4,5]. RUTFs are highly fortified energy dense pastes that are designed to fulfill 100% of the nutritional needs of children to recovery from SAM.

"The outpatient treatment of SAM programme aims for a more widespread access to treatment primarily by establishing the appropriate points and activities within more communities" [6]. The rapid expansion of community based treatment programme worldwide, lead to every year millions of children are treated for SAM [7]. "Typically, children treated in the community with SAM have a crude fatality rate (CFR) of less than five percent" [8]. Uncomplicated severely malnourished children should be managed as outpatients, by providing them with weekly of RUTF, which can often be follow at home if the child have a clinically well, alert and a retain appetite [9,10,11,8].

"SAM treatment programme depends on the four principles; maximum coverage and access, timeliness, appropriate care and care for as long as it is needed" [10]. "Therefore the programme aims to reach all severely malnourished children before the occurrence of medical complications and to provide appropriate care until recovery. The programme uses community health workers or volunteers to actively find cases of acute malnutrition within the community. The severely malnourished children treated should be provide with the routine medications during the treatment period such as vitamin A, folic acid, antibiotics, deworming and measles vaccine" [12].

"Children with SAM should be treated proactively with intensive treatment regimens of short duration, aiming to rehabilitate the child in a short period. OTP is currently used to achieve rapid recovery from SAM, it provides services of SAM management closer to the community at primary health care centers, where uncomplicated severely malnourished children receive different amount of RUTF as Plumpy'Nut sachets according to their body weight" [12,2]. "The

caregivers of SAM children should be visits the health facility or OTP point every week or two weeks with their child for a medical checkup and to receive a weekly supply of RUTF. OTP should be operated in as many health centers as possible and should be incorporated into existing health services as a component of routine services for children under five years (CU5), this ensures good geographic coverage so that as many malnourished children as possible can access treatment" [2].

## **2. TYPE OF THERAPEUTIC FOODS USED IN OTP**

"Therapeutic foods such as RUTFs, was designed for nutritional and metabolic stabilization and rehabilitation, and aims to address anticipated calorific needs and treatment stage-appropriate protein, electrolyte and micronutrient requirements" [13].

## **3. READY-TO-USE THERAPEUTIC FOOD (RUTF)**

"RUTF is safe, cost effective, and has saved hundreds of thousands of children's lives in many countries" [14]. It is a homogenous mix of lipid rich soft foods; include peanuts, oil, sugar, milk powder, vitamin and mineral supplements. It is a high-energy, micronutrient enhanced paste used as therapeutic feeding to treat uncomplicated SAM children from 6 to 59 months. It does not need to be cooked or prepared before consumption. It has a long shelf life, and it can be stored for three to four months without refrigeration [15,16]. It can be used even if hygienic conditions are not optimal because no need water, utensils etc., before taking it. It can be used in combination with breastfeeding or other foods [14]. It has revolutionized the treatment of SAM, ensuring rapid weight gain, and saving the lives of many children [16].

## **4. HISTORY OF RUTF**

"In the mid-1990s, a nutrition expert with long experience in many of developing countries, had a eureka experience while watching the children eat hazelnut paste mixed with sugar. He realized that such a product has such a low water activity that bacteria cannot thrive in it, even without refrigeration, in some cases for about a year before the fats will begin to go rancid. He connected the dots: such a product could serve as a vehicle for milk powder and fortify cants in

the treatment of acute malnutrition. The expert realized that at least the milk powder constraint could now be overcome. In 1996 a company in France named Nutriset, which had already for a decade been producing therapeutic milks F75 and F100 for hospital-based treatment of SAM, began producing RUTF, the most well-known of which is called Plumpy 'Nut. While it is relatively simple, being composed largely of peanut paste (25-30%), skimmed milk powder (20%), sugar (28%), vegetable oil (15-20%), and additional nutrients (2%), maintaining the quantities of each nutrient within a relatively narrow range requires the purchase of a ready-made nutrient blend" [17].

### 5. ADMISSION CRITERIA IN OTP

"According to the national guidelines for management of SAM based on WHO, UNICEF and WFP recommendations, admission criteria in OTP are determined by a child's weight and height, by calculating weight-for-height as "Z-score" using the WHO Child Growth Standard, MUAC and presence of oedema. Cutoffs are summarized as the following" [6,18,2,19,20]:

- ✓ Bilateral pitting oedema 1<sup>st</sup> (+) or 2<sup>nd</sup> (++) degree, or
- ✓ MUAC < 115 mm, and/or
- ✓ Weight-for Height < -3 z-score, and
- ✓ Good appetite and
- ✓ no medical complications

### 6. ROUTINE MEDICATIONS AND PREVENTION PACKAGE USED IN OTP

All SAM programme should include systematic treatments according to national or international guidance [21]. "Children admitted directly in OTP should receive a short course of basic oral medication such as antibiotic (Amoxicillin), anti-

worms (as Albendazol or Mebendazole), anti-malaria, vit A, folic acid and measles vaccination, and some prevention package as soap and bed net. These medications reduces the risk of severe bacterial infection and improved the recovery rate" [22,23,2, 19]. "The use of antibiotics has been conditionally recommended for treatment of uncomplicated SAM" [24]. A systematic review conducted by Williams and Berkley [8], concluded "the current evidence supports the continued used of broad spectrum oral amoxicillin for treating children with uncomplicated SAM".

### 7. HEALTH AND NUTRITION EDUCATION IN OTP

"The OTP provides an opportunity to talk over important health messages with the mothers. When a child is first admitted to the programme, it is essential to ensure that knowledge about how to give RUTF, how to use the antibiotic at home, and basic hygiene are understood. Explain to the mother reasons for admitted to OTP, and principles for treatment, including the daily amount need to consume, any medical action taken. Explain in practice how to open the RUTF sachet, how to feed the child, how to roll up the sachet after feeding to prevent the contamination of the remaining RUTF, and how to store RUTF at home. It is very important to encourage mothers to return to the health facility at any time if the child's condition deteriorates" [2].

### 8. DISCHARGE CRITERIA OF OTP

"The anthropometric indicator that is used to confirm SAM should be also used to assess whether a child has reached nutritional recovery. The discharge criteria of OTP are listed in Table 1" [18,2,19].

**Table 1. Exit criteria of OTP**

Exit forms	Exit criteria	Definition
<b>Cured</b>	• MUAC ≥ 115mm for at least 2 consecutive visits* Or •WFH/L ≥ -3 z-score for at least 2 consecutive visits* And • No bilateral pitting oedema for 2 consecutive visits. And • Child is clinically well and alert	Number of individuals recovered/total number of discharged x 100
<b>Defaulter</b>	Child was absent for 2 consecutive visits	Number of defaulters/total number of discharged x 100
<b>Non</b>	Child did not meet discharge criteria	Number of individuals not

Exit forms	Exit criteria	Definition
respondent	after 3-4 months in OTP	recovered/total number of discharged x 100
Transfer out	Child referred to SC or another OTP	Number of individuals referred to in-patient care or to another OTP/total number of discharged x 100
Medical transfer	Child referred to a hospital or health facility and not in any nutrition programme	Number of individuals referred to any health facility and not in any nutrition programme /total number of discharged x 100
Died	Child died while registered in OTP	Number of deaths/total number of discharged x 100

*\*In the context where there is no TSFP, SAM children of 6-59 month should only be discharged from OTP when: MUAC is  $\geq 12.5$  cm for 2 consecutive visits or WFH/L is  $\geq -2$  z-score for 2 consecutive visits and no bilateral pitting oedema for 2 consecutive visits and clinically well and alert [18,2,19]*

## 9. FREQUENT CAUSES OF FAILURE TO RESPOND IN OTP

### Problems related to quality of the treatment:

“There are many causes associated with quality of the treatment lead to response failure such as inappropriate evaluation of child’s health condition or missed medical complication, inappropriate evaluation of appetite test, poor adherence to routine medication protocol, poor adherence to RUTF protocol, inadequate guidance for home care, excessive time between OTP follow up visits and stock out of RUTF leading to irregular re-fills” [2].

**Problems related to home environment:** “The main causes of home environment that contributed with treatment failure are inadequate intake or sharing of RUTF or medicines with other family members, irregular attendance or missed appointments of follow up visits and unwilling mother overwhelmed with other work and responsibility” [2].

## 10. MONITORING AND EVALUATION OF OTP

“Children who are discharged from OTP should be periodically monitored to avoid a relapse. Follow up of children being managed as outpatients, including monitoring of their response to treatment and provision of the next supply of RUTF, should be done, ideally weekly, by a skilled health care worker in a nearby centers or in the community” [23,18,2,19]. “Monitoring and evaluation are important to monitor OTP services to ensure quality in service delivery. It is conducted in two levels” [2,19]:

### - Individual level:

- Progress of SAM children is monitored through weekly follow up visits to the OTP site.
- SAM children cases are tracked as they are transferred between different components (SC/ITP, OTP and TSFP) using referral slips and registration numbers.

### - Programme level:

- Monitoring data is used to compile monthly reports at different levels of health care;
- Programme indicators are compared to minimum standard performance indicators for Sphere standards as Table 2 [21].
- Timely and correct interpretation of the different indicators by supervisors in charge of the OTP is essential to highlight problems and allow appropriate and prompt action.
- Monthly and quarterly supervision is done by supervisors at different levels of the healthcare system.

## 11. MINIMUM STANDARDS USED IN PERFORMANCE OF OTP

The performance indicators of OTP are based on the minimum SPHERE standards set by valid international. Any OTP sites which is not meeting the set standard, it is considered below the acceptable standard and actions is needed to improve on the quality of service delivery [21].

**Table 2. Summary of the Sphere project reference values of OTP [21]**

<b>Outcome indicators</b>	<b>Acceptable</b>	<b>Alarming</b>
Cure rate	>75%	<50
Default rate	<15%	>25
Died rate	< 10%	>15
Non responders rate	No standard	No standard
Length of stay	< 6 weeks	>6 weeks
Rate of weight gain	≥8g/kg/day	<8g/kg/day
Urban coverage	>70%	<40
Rural coverage	>50%	<40
Comp coverage	>90	<40

## 12. CONCLUSION

It is concluded that OTP is currently used to achieve rapid recovery from SAM, it provides services of SAM management closer to the community at primary health care centers, where uncomplicated SAM children receive different amount of RUTF as Plumpy'Nut sachets according to their body weight.

## COMPETING INTERESTS

Author has declared that no competing interests exist.

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