



**FOOD IS NOT ENOUGH
WITHOUT ESSENTIAL NUTRIENTS
MILLIONS OF CHILDREN WILL DIE**



Why is food not enough?

Persistent high rates of child mortality in sub-Saharan Africa and Asia will not be reduced if malnutrition is not addressed more aggressively. This is a medical emergency.

MSF teams see the devastating impact of childhood malnutrition every day, having treated more than 150,000 children in 99 programmes in 2006. Malnutrition weakens resistance and increases the risk of dying from pneumonia, diarrhoea, malaria, measles and AIDS, five diseases that are responsible for half of all deaths in children under five.¹

Despite its overwhelming contribution to child mortality and its impact on long-term health, treatment of malnutrition has not been a high enough priority in international and national public health planning and programming.

Current policies to address malnutrition have serious flaws. Many programmes designed to reduce mortality of young children from malnutrition focus on changing behaviours of mothers, education about proper food choices and addressing poverty or food security.

Such strategies are insufficient because mothers in the Sahel, the Horn of Africa or Asia don't just need advice about how to feed their children. They need access to foods that contain the 40 essential nutrients a young child, particularly under the age of three, needs to grow and be healthy. Exclusive breastfeeding, which is widely promoted, is only enough to meet the nutritional needs until six months of age.

Addressing the long-term challenges of poverty and food security is equally important but is not enough to address the needs of malnourished children that are at greatest risk of dying today.

“ Eating millet porridge every day is the equivalent of living off bread and water. With luck, toddlers here might have milk once or twice a week. Young children are so susceptible to malnutrition because what they eat lacks essential vitamins and minerals to help them grow, remain strong and fight off infections. ”

Dr. Susan Shepherd, MSF Medical Coordinator for the nutritional programme in Maradi, Niger, 2007.

¹ UNICEF Statistics: <http://childinfo.org/areas/childmortality/>

² A Retrospective Study of Emergency Supplementary Feeding Programmes. Dr. Carlos Navarro-Colarado. June 2007. Emergency Nutrition Network and Save the Children UK. Available at <http://www.enonline.net/research/>

A new strategy of delivering essential nutrients through simple, highly nutritious ready-to-use food (RUF), specifically designed for young children, has greatly expanded the potential for effective nutritional interventions.

The vast majority of seriously malnourished children can now receive treatment at home, under the supervision of their mother or other caregiver, instead of in hospital.

Despite accumulated evidence of therapeutic RUF's effectiveness – high cure rates, low mortality and low default rates – donors and UN agencies continue to ship hundreds of thousands of tons of fortified blended flours to be distributed as supplementary foods, even when the effectiveness of this strategy has proven to be limited for children under the age of three.²

Why do children become malnourished?

Children become malnourished when they do not receive the adequate nutrients their bodies require to resist infection and maintain growth. When nutritional deficiencies become too significant, a child will begin to 'waste' – to consume his/her own tissues to obtain needed nutrients. Wasting is a sign of acute malnutrition.

In some regions of the world, such as in Africa's Sahel, wasting is particularly frequent among children during the 'hunger gap' period, between harvests. The World Health Organization (WHO) estimates that there are 20 million young children with severe acute malnutrition at any given point in time.³

However, only about 3% of children with severe acute malnutrition have access to therapeutic RUF.⁴

Food is Not Enough, MSF's malnutrition campaign, is advocating for global scale-up of therapeutic ready-to-use food (RUF) for the most at-risk children. The campaign is pushing to ensure that more children under three in malnutrition hotspots receive essential nutrients to avoid becoming seriously malnourished. MSF is also highlighting the need for increased research and development into a range of nutritional products adapted to these children's needs.

³ Community-Based Management of Severe Acute Malnutrition. A Joint Statement by the World Health Organization, the World Food Programme, the United Nations Standing Committee on Nutrition and the United Nations Children's Fund. May 2007. http://www.who.int/child-adolescent-health/New_Publications/CHILD_HEALTH/Severe_Acute_Malnutrition_en.pdf

⁴ MSF estimate based on RUF needed to treat all cases of Severe Acute Malnutrition (258,000 tons for 20 million children at an average of 12.9 kilos per child) and total estimated consumption in 2007 of 8,500 tons.

What are the nutritional needs of a growing child?

A World Health Organization (WHO) multi-country study leading to the development of the WHO Child Growth Standards (2006) has shown that all children across all regions can attain a similar standard of height and weight and development with optimal nutrition, good healthcare and a healthy environment.⁵ Therefore the nutritional needs of rapidly-growing children everywhere in the world are essentially the same.

Breast milk is the only food that a child younger than six months of age needs. After six months, children require more energy and essential nutrients than breast milk alone can provide. This includes proteins and essential fats, as well as vitamins and minerals such as calcium, potassium, zinc and iron.

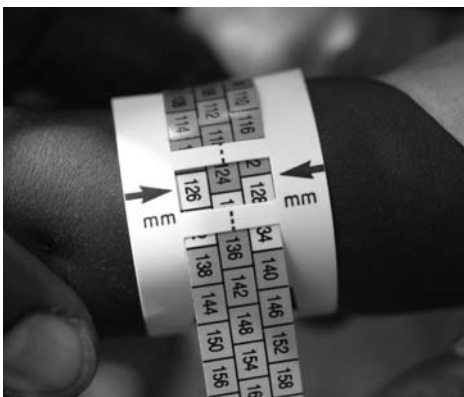
How are these needs met in developed countries?

In developed countries, young children eat a variety of nutrient-dense foods such as meat, poultry, fish and eggs, as well as fruits and vegetables to meet their nutritional requirements, as they continue to breastfeed. Even if infants don't eat meat, infant foods and cereals are fortified with vitamins and minerals, especially iron and zinc, in order to meet their nutritional needs.⁶

Milk is a good source of most of these nutrients (except iron) and is an important part of most children's diets after one year of age.

In resource-limited settings, diets consist primarily of plant-source foods, with little added fat. These lack iron, zinc and calcium in particular and nutrients are not as easily absorbed from plant foods as they are from meats, fish, poultry, eggs or dairy. However, these animal-source foods are usually prohibitively expensive or simply not available.

Photo © Ton Koene



The nutritional status of a child is checked by using the MUAC (Middle-Upper-Arm Circumference) bracelet at an MSF therapeutic feeding centre in Biu Hospital, Borno State, Northern Nigeria.

⁵ <http://www.who.int/childgrowth/standards/en/>

⁶ Guiding Principles for Complementary Feeding of the Breastfed Child. PAHO/WHO 2003
http://www.paho.org/English/AD/FCH/NU/Guiding_Principles_CF.htm

What are the limitations of fortified blended foods?

Corn soya blend (CSB) and other fortified blended foods have long been used in food assistance programmes to prevent nutrient deficiencies. The composition has remained largely unchanged despite better knowledge about how to best meet the nutritional needs of young children.⁷

Animal (dairy) protein is best suited to maximizing growth of young children. The composition of CSB, being an exclusively plant-based food without any dairy component, is not ideal to facilitate growth of children in the first two years of life.

CSB also contains a number of elements that limit the body's ability to absorb the nutrients that are present. Additionally, preparing CSB requires clean water, which is often not available in resource-limited settings, time for cooking, and also bears the risk of being over-diluted.



Photo © Anne Yzebe

A mother feeds her child at an outpatient facility in Hamedia camp in Zalingei, Sudan

Why does ready-to-use food work?

Experience by different organisations including MSF has shown that a very successful way to deliver essential nutrients to malnourished children is with ready-to-use food (RUF). This is an effective treatment because each packet delivers 500 calories in the form of a dense nutrient spread that contains milk powder and the 40 essential nutrients that a malnourished child needs to replete nutrient deficiencies and gain weight.

Further, RUF is simple to use in resource-limited settings as an efficient and safe way to provide milk to children under the age of three: it contains no water, making it resistant to bacterial contamination; it comes in individually wrapped airtight foil packets; no preparation is required; the product has a long shelf life; and it is easy to transport and use in hot climates.

Most critically, the vast majority of malnourished children can take this treatment at home, under the supervision of their mother or caregiver, instead of in hospital. This allows programmes to reach many more children, while at the same time minimising the risk for children of contracting an infection in hospital.⁸

Malnutrition must be addressed before it reaches a life-threatening stage. The

⁷ Corn Soya Blend – Ten Minutes to Learn About... Series, Vol 1 No 5, World Food Programme, October 2007, available from nutrition@wfp.org.

⁸ Community-Based Management of Severe Acute Malnutrition. A Joint Statement.Op.Cit.

quality of complementary foods provided to children after six months of age in resource-limited settings requires re-examining. If any of the 40 essential

nutrients are deficient in a young child's diet, the body's defences are weakened and the likelihood of falling seriously ill from a minor infection increases.





What was MSF's experience in Maradi, Niger?

Scaling up treatment of severe acute malnutrition (2005)

In 2005, a year of exceptional food insecurity in Niger, MSF treated over 60,000 severely malnourished children using therapeutic ready-to-use food. 38,000 severely malnourished children were treated in Maradi alone, with a cure rate above 90%.⁹

Expanding outpatient care to moderately malnourished children (2006)

MSF extended the use of therapeutic RUF through the outpatient strategy to moderately malnourished children in two different districts of Maradi region.

Nearly 65,000 children were treated, 92.5% of whom suffered from moderate malnutrition and 7.5% from severe malnutrition. Recovery rates reached 95.5% amongst the moderately malnourished and



Photo © Michael Goldfarb

Mothers and their children line up early in the morning at a MSF distribution point in the Guidan Roumdji district in August 2007. Mothers receive four containers per month of a ready-to-use food called Plumpy'Doz, and add three tablespoons every day to their child's regular diet, enriching it with a complete daily dose of essential nutrients and 250 calories.

81.3% amongst the severely malnourished.¹⁰ The seasonal peak of admissions of severe cases observed every year since 2001 when the programme opened in Maradi, did not occur. This experience suggests that

“ I prefer to come here once a week rather than stay in a treatment centre, because I have to take care of the fields and my other children – I have three other children at home. ”
Mother, Maradi, Niger

Photo © Michael Goldfarb



An MSF aid worker measures the circumference of a child's mid-upper arm to determine whether he is malnourished. During the hunger gap, the danger of malnutrition is higher; ready-to-use supplements provide enough nutrients to remove that risk.

⁹ Field Exchange. Emergency Nutrition Network. Scaling up the treatment of acute childhood malnutrition in Niger. Issue 28, July 2006. www.enonline.net

¹⁰ Field Exchange. Emergency Nutrition Network. Management of moderate acute malnutrition with RUTF in Niger. Issue 31, September 2007. www.enonline.net

treatment with therapeutic RUF can prevent the development of severe malnutrition in a large cohort of moderately malnourished children.

Recorded weight gain (5.28 g/kg/day amongst the moderately malnourished) is markedly higher than that generally obtained in “classic” food supplementation programmes using blended flour (generally below 3 g/kg/day).¹¹ Similarly, defaulter rates were very low compared to classic programmes, with a 3.4% defaulter rate among the moderately malnourished and 10.3% amongst the severely malnourished.

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I have no-one to look after my other kids, my oldest girl is only 10 years old, I have no-one to help me. Without this place I wouldn't have sought help, even if my child was very sick, because I can't leave my other children alone for weeks.

Mother, Maradi, Niger

Reaching more children with a two-tiered approach (2007)

MSF began using the WHO 2006 growth standards¹² to define admission criteria in 2007. This standard identifies more, and younger, acutely malnourished children. WHO standards allow us to better reach those malnourished children most at risk of death. Children suffering from severe acute malnutrition are treated with therapeutic RUF in outpatient feeding centres. Only children with complicating conditions still need to be hospitalised.

The second component of MSF's new approach involves distribution of supplemental RUF, which complements regular meals and compensates for deficiencies in their regular diet. In 2007, MSF distributed supplemental RUF to all 62,000 children from six months to three years of age in one district in Maradi on a monthly basis during the seasonal hunger gap.

Photo © Michael Goldfarb



This mother displays her ration coupon for the supplementary product while balancing a one-month supply on her head. She will add three table-spoons of the paste to the nutrient-poor millet the child normally consumes in order to stave off malnutrition.

¹¹ A Retrospective Study of Emergency Supplementary Feeding Programmes. Dr. Carlos Navarro-Colarado. June 2007. Op.Cit.

¹² For details on the new standards see <http://www.who.int/childgrowth/en/>



Mothers and their children line up early in the morning at a MSF distribution point in the Guidan Roudji district. MSF distributed monthly supplies of a nutrient-rich ready-to-use food to mothers throughout the Guidan Roudji.

What was MSF's experience in Dinsor, Somalia?

MSF has been operating a treatment programme for acute malnutrition in Dinsor, Somalia since 2002. The programme began with a classical approach, hospitalising children during treatment, regardless of their medical status. However, due to instability in the region, only those living in the town itself sought treatment. Many people in surrounding areas would not risk the journey to the hospital, resulting in a number of children dying at home, from a lack of care better adapted to the situation.

In 2006, drought resulted in a nutritional crisis. The hospital experienced a surge of patients and patients with tuberculosis were placed next to patients suffering from malnutrition. An ambulatory strategy was thus adopted, with the creation of four ambulatory centres in areas where malnutrition was detected. Children in Dinsor who did not have medical complications were treated at home with therapeutic RUF under supervision of their mother/caregiver.

¹³ MSF estimate based on RUF needed to treat all cases of Severe Acute Malnutrition (258,000 tons for 20 million children at an average of 12.9 kilos per child).

What can be done to ensure effective treatment is accessible?

Scaling Up

If the May 2007 UN recommendation of treating severe acute malnutrition with therapeutic RUF is to be realised, there is a need for 258,000 tons of product per year.³³ Production capacity in 2007 was less than 19,000 tons with orders placed at less than 8,000 tons.

The use of these products must be increased, but as this happens, there will be an urgent need to increase production capacity. The enabling factor will be international funding.

Increasing Producers

Currently one brand of therapeutic RUF, known as Plumpy'nut® is manufactured in France by Nutriset and by its four franchises in Malawi, Ethiopia, Niger and the Dominican Republic.

Other international companies have stated their interest to begin production, however their initial investment will depend on receiving large secured orders.

The not-for-profit company Valid Nutrition is active in developing local production capacities in a number of countries in Africa and Asia, each one based upon recipes that use locally available ingredients. To date, local production facilities exist in Bangladesh, Ethiopia, Malawi and Zambia.

Reducing the Price

At a current cost just below 3 euros per kilo, the total cost of producing enough RUF to treat the 20 million children that WHO estimates have severe acute malnutrition would amount to 750 million euros.

Currently the cost to treat one child is 38.7 euros. The cost of existing products have increased because of the increased price of milk. The price of milk powder increased dramatically in 2007, rising from 2,000 euros to more than 4,000 euros per metric ton.

Despite the rising cost of raw materials, there are possibilities to bring down the price. These include the scaling up of production, the development of alternative packaging, the creation of a product based on alternative raw ingredients and the possibility of tax exemptions.

Lowering the cost will have an impact on demand for therapeutic RUF.

The development of high value nutritional products to complement the diets of vulnerable children between the ages of six months and two years must also become a priority. What is key is for the product to contain the essential nutrients that are required by rapidly growing children. There is also a whole range of possibilities for the development of products to accompany the medical treatment of pathologies such as HIV and tuberculosis.

What is MSF calling for?

- Treatment of severe acute malnutrition with therapeutic RUF must be scaled up. Countries must develop protocols that support community-based management of severe acute malnutrition. Countries must adopt and implement the new WHO Growth Standards.
- Funding schemes must be developed to support Ministries of Health to integrate treatment of severe acute malnutrition into their protocols and to purchase therapeutic RUF at a price that will not break budgets.
- Competition needs to be fostered for existing producers of therapeutic RUF and companies should be encouraged to develop new therapeutic products.
- Donors need to review the quality of food aid addressed towards rapidly growing young children to ensure that distributions include foods that meet their specific nutritional needs.
- Academic and operational research must increase in order to drive the development of new complementary and supplementary foods and programme strategies aimed at meeting nutritional needs of young children, women of reproductive age and people with tuberculosis and HIV/AIDS.



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