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Commentary. Ready-to-use therapeutic food

RUTF stuff. Can the children be saved with fortified peanut paste?



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Introduction



'Therapeutic food' in general, is any appropriate food product or products, enhanced nutritionally, and thus made to be more energy-dense and more nutrient-dense. When needed, usually in emergency situations, it should be used in effect as medicine, in conjunction with necessary therapy, for as short a time as possible. 'Ready-to-use therapeutic food' (RUTF), the subject of this commentary, is a specific type of therapeutic food, now almost always in the form of commercial products, which in the last several years has leapt onto the nutrition scene. It has some special benefits. It is creating new opportunities, new challenges and, in our judgement, an increasing number of new problems.

In this commentary we have four main objectives. The first is to recognise the successful use of ready-to-use therapeutic food (RUTF) in the treatment of severe acute malnutrition, including in large scale programmes. The second is to criticise the wide use of commercially manufactured RUTF for the prevention of malnutrition. The third is to warn that the promotion of RUTF and its wider use, may well undermine breastfeeding, which for children between 6 to 24+ months of age, is the best safeguard against malnutrition. Our fourth objective is to call for clear universally accepted guidelines for the use of RUTF

Box 1

RUTF. What it is

'Ready-to-use therapeutic food' is a term that could be used generically to refer to any food known or reliably believed to have special benefits as therapy, in particular in cases of severe acute undernutrition. However, as now used, the term refers to a nutrient-dense and energy-dense peanut-based paste originally designed primarily for the treatment of severe acute malnutrition in young children. It can be consumed directly by the child, and does not need to be mixed with water. Any child consuming RUTF will, however, need water in addition. It can be stored for three to four months without refrigeration, even at tropical temperatures.



There are different types of RUTF. Almost all are commercial products. The type most widely used is Plumpy'nut®, shown above. This is a patented branded product, originally formulated in the late 1990s, it is manufactured by Nutriset, a French firm. It is provided in 92 gram foil sachets, each providing 500 kilocalories. In 2009 Nutriset manufactured 14,000 tonnes, mostly purchased and distributed by the UN Children's Fund (UNICEF), to be given to over half a million children, amounting to $US 66 million in sales. UNICEF has stated that this 'nutritional paste (peanuts, powdered milk, vegetable oil, sugar, vitamin and mineral mix) contains the right mix of nutrients to treat a child with severe acute malnutrition, and in a form that is easy to consume and safe'. It is used in health facilities and in the community. .

Nutriset has now extended its product line, to include 'ready-to use supplementary food' (RUSF). Its purpose is, as stated: 'To tackle malnutrition at earlier stages (moderate acute malnutrition, or in prevention of acute malnutrition or chronic malnutrition). These ready-to-use supplementary foods (RUSF) are used in addition to breastfeeding (for young children above 6 months of age) and traditional complementary food'. The RUSF product line includes Plumpy'doz, Supplementary Plumpy', QBMIX (for emergency situations), and Delphia Infant Milk.

The FAO/WHO Codex Alimentarius Commission has recently approved a process for the development of guidelines for supplementary foods for older infants and young children, which will include RUTF. No United Nations agency, or any other organisation, has as yet standardised or otherwise defined the composition or quality standards of what may be termed or used as a RUTF.

The issue

The scourge of childhood malnutrition, especially in Asia and Africa, often amounting to hunger and starvation, remains a public health scandal and outrage. Fulfilling children's rights to good nutrition, including adequate food, health and care, deserves much more attention and resources than it currently receives. We therefore support all rational policies and programmes that should sustain the reduction of childhood malnutrition. We also support rational innovation.

Since the linked finance, fuel and food crises that began to peak in 2008, the declared interest of powerful governments and their bilateral agencies, the World Bank and other multilateral agencies, professional and other civil society organisations, foundations, and industry, to reduce hunger and malnutrition, has increased tremendously. This should be good news. But there is now a strong general tendency to make policies and programmes directed at malnutrition more 'top-down' and 'market-friendly'.

Between us we have long experience of working at UN, national government, academic, professional and community levels, on issues of infant and child nutrition. Two of us have extensive experience in Africa. Our concern is that much of the new interest in malnutrition is taking forms that we believe are liable to be unhelpful or damaging.

Not a 'magic bullet'

As things now are, 'scaled up' delivery of commercial or foreign 'packages' of nutrition interventions is being aggressively promoted, inside the UN, and outside by major governments, their agencies, foundations, and other big non-government organisations. Branded, commercial ready-to-use therapeutic food (RUTF) is now part of these packages. In contrast, the promotion of community-based and local government-supported empowerment of people living in poverty to claim their human rights to good nutrition, which is the rational way forward, is neglected.

In this commentary, we state that RUTF has a place in the war on world hunger. But it is not, as now so often claimed, a 'miracle' or a 'magic bullet'. If, as we fear, it distracts attention from rational and sustainable policies and programmes, and perhaps most of all breastfeeding, it will be at best 'band-aid', and at worst damaging of national and local good work. The boxed text below summarises what we believe are the main problems with RUTF, in the ways it is now being promoted and used. We state again that RUTF is a solution to severe acute malnutrition, in specific circumstances. But it is not, as now seems to be suggested, the solution to malnutrition overall.

Box 2

The problem

Ready to Use Therapeutic Food (RUTF) is successfully used to treat severe acute malnutrition. But it is now increasingly also being used for the *prevention* of young child malnutrition.

The commercially produced RUTF, bought and distributed by UN agencies and non-governmental aid organisations, is a totally unaffordable option for most people who live in poverty.

The promotion of RUTF may undermine breastfeeding: both exclusive breastfeeding, up to 6 months of age, and sustained breastfeeding, for children of 6-24+ months of age,

The promotion of RUTF is now medicalising and commercialising the prevention of malnutrition, which is better achieved by local measures to improve food intakes, health services and child care.

It is unrealistic, and even irresponsible, to suggest that RUTFs could be provided worldwide to the very many millions of children identified as having mild malnutrition or chronic hunger.

There are as yet no universally agreed upon guidelines for the use of RUTF.

Use for severe acute malnutrition

Ready-to-use therapeutic food (RUTF) as defined here, provides a scientifically based combination of easily accessible macronutrients, plus essential minerals and vitamins. It is very energy-dense and does not need to be mixed with water. This certainly makes it an appropriate food for treatment of severe acute malnutrition.

Benefits

RUTF is highly effective in the treatment of various forms of severe acute malnutrition, including kwashiorkor, nutritional marasmus, and several forms of severe wasting. This has been shown by a number of studies (1-4). Much of this research is sponsored by *Médecins Sans Frontières* ('Doctors without borders'). MSF is a distinguished leading medical aid organisation, with missions in around 70 countries. It has an annual budget of around $US 400 million, and has received a Nobel Peace Prize for its work in emergencies. MSF became and remains a strong advocate for the therapeutic use of RUTF, in the form of the branded product Plumpy'Nut® (see Box

1), to treat severe acute malnutrition, and is now a major user of the product in its field operations (5).

Médecins Sans Frontières and other organisations are now making RUTF available for treatment of severe acute malnutrition in community-based therapeutic care, as well as in hospitals, in a number of countries. Studies, and practice, show that RUTF is excellent in the dietary treatment of children hospitalised for severe acute malnutrition (6). It may be also be useful in refugee camps and in emergency situations where children lose their normal access to food (7).

Having a good balance of macronutrients and essential micronutrients, and being ready to use, RUTF, although it is expensive, clearly has advantages over other refugee camp foods. It is also an advance over food that has been used for the treatment of hospitalised children with severe malnutrition. Another major benefit is that most RUTF, such as Plumpy'nut, is provided in forms that are indeed 'ready to use' and that are generally palatable. Trials have shown that most children like it and may eagerly consume it.

Box 3

India keeps RUTF out

In 2009 the government of India was in dispute with UNICEF over its use of RUTF in India (8). Apparently without authority from the national government in New Delhi, UNICEF imported a large quantity of RUTF for use in two Indian states that apparently requested it. The national government stated that these imports were unauthorised. As a result, UNICEF moved their supplies of RUTF to other countries.

In the press, there was criticism of India 'for letting children die who could have benefited from this imported RUTF'. (Personal communication, Arun Gupta, IBFAN, India). However, for decades good Indian hospitals have successfully treated severe acute malnutrition with local foods, comparable to the sugar, casein, oil and milk which have been commonly used in Africa. Also, India has the foods and scientific expertise to make its own good complementary foods, whether commercial or made in the community or at home.

Criticism of the Indian government, implying that RUTF is 'essential', is reminiscent of the years leading to the so called 'protein fiasco' (9). In the 1950s and 1960s the only solution to the nutrition crisis generally accepted within the UN system was stated to be commercial high protein manufactured foods. In 1973 an article co-authored by one of us, entitled 'The limitations and dangers of commerciogenic nutritious foods', included a detailed analysis of high protein commercial foods being promoted in India (10). The conclusion showed major limitations and considerable negative impacts. History repeats itself. With RUTF, much the same is now happening.

Reservations and problems

However, even in situations of severe acute malnutrition, RUTF is not a panacea, needs to be used carefully, and can be problematic.

The research referred to above (1-4), compares the RUTF intervention to either no interventions or to corn/soya and cow's milk-based treatment foods. It may overstate the efficacy of RUTF. The principal clinical sign of severe acute malnutrition, namely extreme wasting (being very thin), mainly reflects a serious deficiency of macronutrients (carbohydrate, protein and fat), together with micronutrient deficiencies; but infection and infestation is also likely.

In the 1960s and 1970s in many low-income countries, dietary treatment consisted of a mixture of dried skimmed milk, casein, vegetable oil, and sugar, mixed with water. Vitamins and medicinal iron were often also provided. These products were cheap and available. Well run hospitals had good cure rates with this regimen. This experience demonstrated that severe acute malnutrition can be treated with foods that are usually locally available, at much lower cost than with RUTF or other commercially manufactured foods.

The often-claimed advantage of RUTF compared with most other commercial complementary foods, that the product contains no water, does not spoil due to bacterial contamination, and therefore is safe in use, is not correct. *Salmonella* contamination has been reported in peanut pastes (11).

The fact that RUTF contains no water creates a problem. Infants below 6 months of age should be exclusively breastfed, and children older than 6 months need water. As RUTF does not contain any water, its use actually increases the need for additional water, which in the locations where RUTF is used may be contaminated. This means that any child fed with RUTF has an *increased* risk of being infected by water-borne diseases. Here is why. A 12-month-old child (as an example) fed exclusively on RUTF would need to consume around 1500 millilitres of water a day, which might be water from a contaminated well or pond. In contrast a 12-month-old child receiving 850 millilitres of breastmilk (mostly water) a day, and perhaps 400 millilitres of water in a thin cereal gruel sterilised by cooking, and another 250 millilitres of water from fruit such as oranges, papaya, banana or pineapple, and vegetables such as tomatoes, needs little or no additional water.

Another problem is that there may be difficulty in feeding RUTF to children with severe anorexia, a common and important complication in some cases of severe acute malnutrition, particularly kwashiorkor. Malnourished children often have a poor

appetite, and when presented with RUTF to consume on their own, may not eat a sufficient quantity to satisfy their nutritional requirements

Frequently RUTF is provided based only on assessment of mid-upper arm circumference, without asking about home feeding and without proper health assessment, such as looking for oedema or asking about appetite, health problems or breastfeeding. This ignores the possibility that the cause of the malnutrition might be a treatable health problem or lack of care, rather than inadequate food.

While RUTF is effective in treating severe acute malnutrition, it must be used with caution, together with other measures that might be needed.

RUTF used as 'prevention'



9-month old child in Sierra Leone. Photograph: UNICEF

Médecins Sans Frontières, then other non-governmental organisations, and also UNICEF, have rapidly moved from using RUTF just for hospital treatment of severe acute malnutrition, to advocating and administering RUTF first for treatment of mild and moderate malnutrition, and then also as a way to *prevent* malnutrition (12). (The word 'therapeutic' may then be dropped, and RUTF becomes RUSF (ready-to-use supplementary food) or else just RUF. For these purposes Nutriset (see Box 1) market a modified product termed Plumpy'doz, aimed at children not suffering from severe acute malnutrition (13). No clear guidelines for the use or quality standards have been set for such products).

In recent years MSF has highlighted 'the neglected crisis of childhood malnutrition' in its 'Starved for Attention' campaign. It deserves credit for that. The devastating problem of young child malnutrition in many low-income countries has been known for decades, but a very small portion of available development resources in both donor and partner countries has been allocated to the problem. Malnutrition has never been high up on the development agenda. It will be important if MSF can help to change

that and contribute to the recognition of the urgent need to focus on child malnutrition as a *development issue*.

Food is not the whole answer

However, MSF and all aid agencies need to understand and appreciate that malnutrition is usually not just a food problem, and consequently more food is usually not the whole solution. Food is a necessary but not a sufficient condition for preventing young child malnutrition. Good child nutrition always simultaneously requires *food, health* and *care*. In other words, adequate household food security, access to basic health services and adequate caring practices, are all necessary (and when all together are sufficient) conditions for good nutrition (14).

Some say that RUTF is 'more than food'. It is true that it may contribute to care by its high energy density, which reduces the required frequency of feeding, and is being easy to feed, which reduces the time required for each feeding occasion. However, that does not supersede the need for key caring practices, including feeding practices, particularly breastfeeding (15).

A leap in the dark

We are sure that MSF decided to use RUTF beyond just the treatment of severe acute malnutrition in the areas in which they were working, in good faith. However, it is a huge leap to move from the success of a 'therapeutic' food, to the promotion of RUTF, a manufactured packaged commercial food, as a new strategy, positioned even as a 'magic bullet', to *prevent* child malnutrition in communities in low-income countries. This is very different from its use for therapy in hospitals, clinics or community based treatment.

We are against the rapidly expanding use of RUTF in communities, without medical necessity or careful supervision, to treat mild malnutrition and for prevention, as distinct from therapy. The negative implications for breastfeeding, family foods, cultural practices, agriculture, and nutrition education (16, 17) need to be understood and avoided.

Need to protect breastfeeding

Young children normally learn to eat, and to appreciate, the diverse foods that their culture enjoys and often cherish. Foods that a mother consumes during her first 6 months of breastfeeding flavour her breastmilk to taste like the foods of her culture. Any movement away from optimal breastfeeding and use of family foods because of RUTF would be a catastrophe for many people who live in poverty.

But meanwhile, RUTFs in various forms are now moving onto the open market, and may be promoted for use by parents for feeding their children without any prior health assessment or counselling about breastfeeding and culturally appropriate complementary feeding.

Sustainability and cost

Another major concern is the economics and sustainability of any wide use of RUTF to prevent malnutrition or even to treat mild malnutrition. The products are expensive. At around US 6 cents a package, a full two-month treatment with Plumpy'nut costs around US$ 60 a child. Parents of children with severe acute malnutrition cannot afford this. The costs so far have been borne primarily by United Nations agencies and by international non-governmental organisations such as MSF. It is not clear if these quoted costs include the price for delivery and distribution.

In most cases as with Plumpy'Nut, groundnuts (peanuts) from the South are shipped to the North; the product is made commercially in Normandy, France; and is then shipped back South. Even with franchises for the local production of RUTF, many of the ingredients and packaging materials are imported. What are the social, economic and other implications of a move from family foods to wide use of RUTF for people who live in poverty? The situation would be very similar to the negative effects of the aggressive promotion and marketing of breastmilk substitutes.

Those who promote expanded use of RUTF need to answer the question of how sustainability could be ensured. What happens when communities begin to depend on RUTF, and outside donors stop covering the costs? Experience with infant formula promotion in many countries show that what happens then, is that manufacturers provide free samples until dependency sets in, after which the product is fully commercialised in the market.

What is the best value for money?

A major problem in most non-industrialised countries is lack of funding for nutrition and health. People are understandably moved, hearing the head of MSF say on the BBC that there are millions of malnourished children, and that we doctors have to feed them. Yes, it is a commendable goal to see that children who really are short of food are fed.

But funding for any type of aid is very limited. It is very unlikely that a million dollars spent on RUTF to reduce malnutrition and related child deaths, will yield greater benefits than if the same amount of money was instead spent on immunisation, control of malaria, and promotion of more and better breastfeeding. There are now vaccines to reduce the incidence and severity of some diarrhoeas and much

pneumonia, but they are little used in Africa and Asia. Breastfeeding clearly and definitely reduces mortality (18), not only from malnutrition but also from diarrhoea and pneumonia. Our concern here is that scarce funds will be spent on RUTF that otherwise could be spent on more economically effective interventions.

Who gains most?

Who benefits most from what is now the powerful movement greatly to expand the use of RUTF worldwide? Which corporations most stand to gain economically? What individuals have vested interests, or stand to gain in prestige and power, as a result of increased use of RUTF? How much control are governments of small developing countries able to exercise when strong donors press them to use RUTF? Or, as we fear, is RUTF promoted simply in order to avoid the necessary analysis and discussion of the basic political, social and economic causes of malnutrition in society, that need to be addressed in order to achieve a sustained improvement of young child nutrition in impoverished countries? In other words, are we experiencing another 'protein fiasco'? (9).

Is it imaginable that the many millions of children in the rural and poor urban populations worldwide who have mild malnutrition, or even those at risk of malnutrition, will in the next few years be regularly consuming Plumpy'nut or a similar commercially manufactured RUTF on a daily basis? In many parts of the world the families most in need are barely within any market economy. Who will pay for these expensive manufactured foods? How sustainable are programmes to provide 'free' RUTF? A recent article co-authored by economist Jeffrey Sachs (19) estimated that the direct cost of providing Plumpy'nut to the billion people reckoned to be hungry in the world would be US $ 360 billion per year – 'an absurdly high cost'.

What we can foresee, is the possibility of amplification of the RUTF market by transnational food corporations, with their own branded products. In this scenario, Nutriset would play only a small part in a much bigger play. This would make mothers and children throughout the South into targets for company brands, seamlessly from birth to weaning throughout young childhood, and then on to adolescence and throughout adult life. Ironically, the families most able to buy such branded products would be those in least need of them. Is this the plan?

We judge that it is totally unrealistic, and even irresponsible, to suggest that all children worldwide suffering from mild malnutrition, or chronic hunger, should receive commercially made RUTF, whoever is the manufacturer.

Breastfeeding is the best protection



Best protection. Mother and child after birth, age 2, and age nearly 3

Save the Children (UK) in 2009 issued a publication entitled *Hungry for Change*, an eight-step, costed plan of action to tackle global child hunger (20). The first step is 'Breastfeeding Support and Promotion'. The paper states 'Because of its enormous health benefits, and relatively low cost, support for breastfeeding is one of the most cost-effective public health interventions today'. We agree with this statement.

Governments should promote a people-centered community-based approach to nutrition, in which the capacities of those who live in poverty are strengthened in such a way that they can develop themselves. This includes actions to support and improve breastfeeding practices, which are extremely important for preventing young child malnutrition.

The best way to ensure good health, and to reduce malnutrition and mortality, in young children in non-industrialised countries, is breastfeeding, and thus its promotion, protection and support (18). There is a need to highlight the vital importance of putting the newborn baby to the breast immediately following birth and then exclusively breastfeeding for 6 months, when other foods should begin to be introduced. Much greater attention should be given to the WHO and UNICEF recommendation, in their *Global Strategy for Infant and Young Child Feeding,* that from 6 to 24 months and beyond breastfeeding should continue (21).

Strong efforts by national governments, by UNICEF and WHO, and all other relevant organisations throughout the world, should be made to lengthen the duration of breastfeeding, and also to influence mothers to increase the volume of breastmilk provided to children 6-24+ months of age. Achieving this would greatly reduce under-5 mortality in low-income countries, and would lessen the prevalence of stunting and

wasting, including severe acute malnutrition. It would also significantly reduce the need for commercially manufactured complementary foods, including RUTF.

It seems often to be supposed that underprivileged communities and families are not able to provide for the nutritional needs of their young children. However, when reports, such as the UNICEF annual *State of the World's* Children (22), say for example that 40 per cent of children under 5 in a sub-Saharan African country are stunted, this also means that 60 per cent are not stunted. Many poor families do manage to provide adequate food, health and care for their young children (23). A longer duration of breastfeeding, and a greater volume of breastmilk provided daily, would greatly contribute to this.

The battle for broad acceptance that 6 months of exclusive breastfeeding is ideal for all babies everywhere has largely been won. Gradually, medical and pediatric societies in many countries, plus UNICEF and later WHO, and almost all others, have come to recommend that where possible infants should be exclusively breastfed for 6 months, and that healthy babies do not need water during these first 6 months of life.

Despite this broad acceptance of 6 months of exclusive breastfeeding, in most countries, North and South, only a minority of infants are exclusively breastfed for more than a few weeks. Worse, despite the WHO's *International Code of Marketing Breast-milk Substitutes* (24), and subsequent WHO World Health Assembly resolutions, incessant energetic promotion of infant formula by the manufacturers continues to undermine breastfeeding.

Breastfeeding beyond 6 months

In general, breastfeeding beyond 6 months of age is a neglected policy and programme area. UNICEF and WHO, most pediatric associations, and many government agencies, recommend that at about 6 months of age, other foods should be gradually introduced, while breastfeeding should continue for up to 24 months or longer. But what such recommendations usually fail to state is that at each feeding of complementary or family food, the infant should be breastfed first, before offering any other food, as specified by the World Alliance for Breastfeeding Action (25).

The advantages for 6-24+ month old children of continued breastfeeding in fairly large quantities, include economic, agricultural, health, psychological and environmental, as well as nutritional, benefits (26,27). Yet in general, not much policy attention is given to this. Likewise, not much attention is being given to factors that undermine breastfeeding up to and beyond 24 months of age.

Policy and practice for infant and young child feeding includes consideration of complementary feeding. There is plenty of research on manufactured complementary

foods. There is less literature and much less focus on home-based complementary foods, and on how to modify family foods to make them appropriate for the eating abilities and nutritional needs of the young baby after 6 months of age. Most national policies, where they exist, tend to neglect home-based complementary feeding.

Yet, appropriate complementary feeding is crucial for hundreds of millions of families in Africa, Asia, Latin America and indeed globally. Complementary feeding is typically cereal-based with minor additions of pulses (legumes), vegetables, fruits and other foods, and usually only small amounts, if any, of animal based foods. In adequate quantities, breastmilk can ensure that, for example, a 12 month old child fed family foods is getting all the recommended energy and protein and most of the recommended minerals and vitamins.

Breastfeeding is being undermined



Child in Niger being fed Plumpy'nut

We believe that the wide availability and the strong promotion of RUTF to prevent malnutrition is liable to undermine breastfeeding, and uses scarce funds and resources that could otherwise be used in support of improved breastfeeding.

UNICEF favours RUTF

UNICEF is now the largest global purchaser of Plumpy'Nut. For many years UNICEF has been a champion of breastfeeding. However, this UN agency whose duty is to children and their mothers, is apparently now giving more resources to the purchase and distribution of RUTF than to the protection, support and promotion of breastfeeding. When it does support breastfeeding, UNICEF concentrates mainly on the importance of exclusive breastfeeding for infants 0-6 months of age.

For example UNICEF in 2008 published a document entitled *Management of Severe Acute Malnutrition in Children*, (28) which claims to be 'scaling up an integrated approach', and to 'emphasize the urgent need to incorporate the community-based approach for the reduction in malnutrition, and related child mortality'. It mentions the importance of breastfeeding for infants 0-6 months of age, but there is not one word on the importance of breastfeeding from 6-24+ months of age, or on the maternal support needed. The publication has lengthy discussions on the use of RUTF, but in its 23 pages there is no discussion on, or recommendations for, breastfeeding children beyond 6 months of age, or on the contribution that this could make to the prevention and of malnutrition, including severe acute malnutrition.

Box 4

Médicins sans Frontières and RUTF

RUTF is also being used by non-giovernment organisations in ways that in our experience and judgement undermine breastfeeding. For example*, Médecins Sans Frontières* (MSF) have illustrated their 'successful' use of RUTF in Niger, including at the meeting of the UN Standing Committee on Nutrition in Hanoi, Vietnam, in 2008. They showed RUTF being distributed, not in a health facility, but in an outdoor rural situation, to treat children with malnutrition. Pictures were shown of large numbers of mothers lining up with their babies in the open to be given Plumpy'nut. There was no proper health examination, and no time given to discuss feeding practices with the mother.

It is very possible, and we think likely, that a mother with a child of say 9 months, who was breastfeeding, would later at home encourage her child to consume the sweet Plumpy'Nut. The child would thus receive less breastmilk than previously.

Aid organisations also favour RUTF

Few non-government organisations that use RUTF provide breastfeeding support, such as training for their workers to address feeding problems or needs, such as advice

to mothers to always to breastfeed first, before offering RUTF (29). In such ways breastfeeding is undermined. The amount of breastmilk produced is largely controlled by the child's stimulation of the breast during feeding. RUTF being fed first will reduce that stimulation, and will lower breastmilk production and consumption.

Promoting RUTF, while neglected or remaining silent on the life-saving importance of breastfeeding after 6 months of age, is we think liable to have the effect of replacing the most important food for infants and young children with a commercial commodity.

The rational approach to malnutrition

We now summarise what is, in our experience and judgement, the rational approach to child malnutrition, at all levels of severity. We accept that RUTF is one choice that is here to stay, and that it is rational and appropriate in specific circumstances.

The points made below should all be incorporated into guidelines compiled for and issued by the relevant UN agencies. A summary is in the boxed text below.

Box 5

The solutions

Ready-to-use therapeutic food in the sense defined here should be promoted and used in the treatment of severe acute malnutrition, when necessary, appropriate, and affordable, while recognising that other forms of therapeutic food, especially when cheap or free or made from local and culturally familiar sources, may be preferable.

No commercial product should be promoted and distributed for the prevention of infant and child malnutrition when breastfeeding is available and locally made foods are adequate.

Exclusive breastfeeding up to 6 months of age and continued breastfeeding up to 24+ months of age should always be protected, promoted and supported. The use of any RUTF should never be allowed to threaten or reduce breastfeeding.

Universally agreed guidelines for the use of RUTF should be developed under the leadership of WHO and UNICEF as a continuation of their joint work on infant and young child feeding.

Treatment of severe acute malnutrition

Before providing RUTF to any child, in any circumstances, the best possible assessment should be made of that child's nutritional status and health. In a hospital the nutrition and health history and examination should be quite comprehensive. Even in a rural clinic this history and examination should cover certain essential features. When this is not possible, RUTF must not be given.

The history-taking and health examination should ascertain that the child's malnutrition is mainly due to a food problem, rather than due to a health problem, such as an infection, or a care problem, such as low feeding frequency. The child may have chronic diarrhoea; tuberculosis or some other respiratory condition; severe anemia and a heavy load of intestinal worms; frequent malaria; AIDS; or some other disease or combination of diseases, all of which need appropriate treatment. All of these conditions can influence nutritional status, appetite, and food intake. In these cases, disease treatment is needed to deal with the malnutrition, and home diets may be adequate. RUTF may not be appropriate, and may be the wrong approach.

The quality of child care should be assessed by the health personnel in a hospital or rural clinic. How frequently is food being provided to the child at home (young children require more frequent feeding than do adults, or older children)? How energy-dense is the diet? Is the child sleeping under a bed net? Is the home environment hygienic? The improvement of a child's nutritional status often requires the improvement of caring practices.

When RUTF is being considered to treat milder forms of malnutrition, assessments should be made to ascertain whether small improvements in breastfeeding and complementary feeding practices at home, would solve the problem. Attempts to provide children with traditional local foods should always take precedence over prescribing any commercial manufactured food, especially one that is imported and relatively expensive.

Prevention of malnutrition



Most children in sub-Saharan Africa are not malnourished

In normal circumstances, children who are not malnourished do not need to receive RUTF. We believe that there is no place for RUTF for the prevention of malnutrition in communities with people living in poverty, except in emergencies.

In sub-Saharan Africa in children 0-5 years of age, some 9 per cent have moderate or severe wasting; 28 per cent are underweight, and 38 per cent are stunted. This means that 91 per cent of these young children in Africa are not moderately or severely wasted, 72 per cent are not underweight, and 62 per cent are not stunted. Some of those who are currently underweight have low weight because of malnutrition and growth retardation in earlier years. Attempting to increase the weight of stunted children with no wasting can lead to obesity, rather than increasing their height.

The majority of young children, even in families who live in poverty in the poorest countries in Africa, are not malnourished, and are therefore not in need of RUTF. We suggest that this may well be because in these countries, over 50 percent of children are breastfed for at least 18 months.

Protection, promotion and support of breastfeeding

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The greatest care needs to be taken to ensure that RUTF is not seen or used as an alternative to breastmilk. RUTF must never be allowed to undermine breastfeeding. All persons dispensing RUTF need to understand the importance of supporting and managing breastfeeding.

In all circumstances except those specified in the *Global Strategy on Infant and Young Child Feeding* (21), RUTF should never be provided to infants below 6 months of age. Infants 0-6 months of age should be exclusively breastfed, and therefore not offered RUTF. Nutritional support for the breastfeeding mother may be required, and this could be an appropriate use for RUTF, for the mother herself – 'feed the mother so she can feed her child'.

Breastfeeding for children over 6 months of age needs to be protected and supported. This should also include steps to enhance the volume of breastmilk provided to the child. This can be accomplished through more frequent breastfeeding and by extending the duration of breastfeeding.

If mothers give RUTF to their babies, the breast should always be offered first, before the RUTF or any other food. If RUTF with its sweetish taste is offered first it would almost certainly reduce the amount of breastmilk consumed at that feeding. The baby suckling stimulates milk production. Increased and improved breastfeeding might preclude the need to prescribe RUTF for a particular child.

Breastfeeding is local, cheap, and environmental-friendly. Reduced breastfeeding is liable to increase the risk of infections and can shorten birth spacing. It is part of the mother's care for her child, and has other advantages not enjoyed by RUTF. The guiding principle is that RUTF should never be allowed to have a negative impact on breastfeeding

General guidelines

Guidelines need to be agreed for ready-to-use therapeutic food. As it now, there are no clear agreed guidelines. The protocols issued by UNICEF and some non-government organisations do not amount to such guidelines. In 2010 the Global Alliance for Improved Nutrition (GAIN) produced a working paper which provides some 'preliminary and incomplete guidance on the appropriate marketing of complementary foods and supplements' (30). Some of it is relevant to the topic of this commentary, but it is not an attempt to provide guidelines for the use of RUTF.

There does not even seem to be agreement as to what is or should be termed a RUTF. A widely supported definition is required. This may need to take account of patent laws, and therefore may impact on Nutriset as the owner as well as producer of Plumpy'nut®. Other companies now producing ready to use therapeutic foods are apparently modelling the composition of their newer products on the ingredients in Plumpy'nut.

There is therefore an urgent need for guidelines for the use of RUTF. These probably should be prepared and produced jointly by UNICEF and WHO, as the lead UN

agencies for infant and young child feeding. Some guidelines should be broad and general, and others should be for specific contexts, for example when RUTF are being prescribed for seriously malnourished children in hospitals and health facilities, or alternatively when being used in communities.

Guidelines on the nutrient composition of any RUTF are essential, as long as it is being promoted as the only food necessary for the treatment of severe acute malnutrition. This includes the content of energy and protein, and also all essential vitamins and minerals. Guidelines need also to be on safety, and on acceptable levels of toxins and other potentially harmful ingredients present in any RUTF. (It has been reported that aflatoxin was discovered in RUTF being fed to children in Haiti. This came from contaminated peanuts) (31).

Consideration needs to be given as to what role the UN Codex Alimentarius Commission and also national regulatory bodies should have in the setting of product quality standards for RUTF, in terms of their composition, quality and labelling, and also their methods of use. Guidelines are needed to ensure support for access to adequate national laboratories, capable of testing for ingredients and toxins, where RUTF is produced.

Standards and guidelines need to be developed to control the promotion and marketing of RUTF. These rules should embrace relevant aims, principles and provisions contained in the WHO International Code on the Marketing of Breastmilk Substitutes, and in subsequent World Health Assembly resolutions on this topic.

Conclusion

We do not question the use of RUTF to treat severe acute malnutrition, under qualified health professional supervision. Our concern is the extension of its use in communities, rather than in health facilities, and for prevention, rather than the treatment of malnutrition. Using an expensive, currently usually imported, commercial product, as the main food to prevent malnutrition, is undesirable and unsustainable. Using RUTF in this way is medicalising and commercialising young child feeding.

We advocate renewed, energetic promotion of breastfeeding, as the most important way to prevent malnutrition. Unlike RUTF, breastfeeding is natural, local, traditional, economic, ecological, and widely practiced. Breastfeeding provides more than just food. It reduces infections, it contributes to child spacing, it is an important part of good child care, and it has numerous other advantages. Scaling up breastfeeding support and lactation management training to improve exclusive and sustained

breastfeeding, will reduce under-5 mortality, severe acute malnutrition, and undernutrition.

It is essential that RUTF is not misused. To avoid this, and in particular to minimise the threat to breastfeeding from using RUTF, there is an urgent need to develop guidelines on the quality standards, composition and use of RUTF in all circumstances. We recommend that WHO and UNICEF together convene a transparent, independent and inclusive process, to include commercially interested parties as observers, to enable the formulation of such guidelines.

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The authors state: MCL is the main author of this commentary. It was initially drafted by him, and then passed through a series of further drafts in which all authors participated. All authors have for many years been members of the UN Standing Committee on Nutrition, and currently of its civil society constituency, of which UJ and ES are alternate convenors. UJ is a former chief of nutrition for UNICEF. Our biographies as Association members are posted on its website at www.wphna.org.