

The First Food Crisis?
How to reduce the unacceptable levels of malnutrition through improved breastfeeding

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Introduction

My talk today is going to highlight the huge crisis where so many children in the world are malnourished. This includes an unacceptable percentage of children who are underweight and stunted, and many who may also suffer from what we now term severe acute malnutrition (SAM). It is generally agreed that the major causes of these forms of malnutrition occur during the first 3 years of life in most children. The causes are complex. The results of this malnutrition are sad, and sometimes devastating. Malnutrition contributes very importantly to childhood mortality. Sub-optimum breastfeeding is responsible for as many as 50% of young child deaths.

I will also highlight the huge importance of breastfeeding as a means to ensure good nutrition for young children, not only exclusive breastfeeding for infants up to 6 months of age, but also continued breastfeeding to 24 months and beyond. This is recommended in the WHO/UNICEF Global Strategy for Infant and Young Child Feeding. Despite the clear importance of breastfeeding beyond 6 months there are no indicators; few programs; little guidance and no clear guidelines; and regrettably no social nor political declarations on this topic.

Finally, I will discuss a new threat to our efforts to increase breastfeeding for children 6-24+ months of age. This is the rapidly spreading promotion of Ready to Use Therapeutic Foods (RUTF's), not only as excellent therapy for severe acute malnutrition, but most recently as a major effort to prevent malnutrition in young children in communities. There are no accepted guidelines for their use. This further commercializing of young child feeding is another feature of the undesirable aspect of economic globalization worldwide.

Feeding the 6-24 Month Old Child – Opportunity, and Challenge for the Breastfeeding Community

The battle for broad acceptance that 6 months of exclusive breastfeeding is ideal for all babies everywhere has largely been won. This took 45 years of work including my involvement, combined with that of many of you and some of the organizations and movements represented here, perhaps the first being La Leche League. Gradually over these many years medical and pediatric societies in many countries, plus UNICEF and then WHO, and almost all others came to advise that where possible infants should be exclusively breastfed for 6 months, and healthy babies do not even need water during these first 6 months of life. Despite this broad support for 6 months of exclusive breastfeeding, regrettably in most countries north and south, only a minority of infants are exclusively breastfed for more than a few months. WABA and other strong

supporters of breastfeeding still have a lot of work to do to expand the percentage of newborns put to the breast immediately after birth, and then exclusively breastfed for 6 months. Undoubtedly there remain many challenges to the goal of seeing most infants being breastfed exclusively for 6 months. Not the least of these is that despite the WHO Code, the strong promotion of infant formula by the manufacturers continues and it undermines optimal breastfeeding. Most recommendations from pediatric associations and UN agencies like UNICEF and WHO recommend that at 6 months of age, other foods be gradually introduced, while breastfeeding should continue for up to 24 months or longer. But few of these recommendations state that at each feeding of complementary, or family food, the infant should preferably first be breastfed, before offering any other food. There is also not a great deal written about appropriate policy actions, to protect, support and promote breastfeeding for 6-24+ month old children, nor on the huge advantages, if breastfeeding and breastmilk, in fairly large volumes every day, is provided to the child up to and beyond 24 months of age. There are important benefits for the child, the mother, the community and the nation. The advantages include nutritional, economic, agricultural, health, psychological, environmental and other benefits. There is also very little discussion of factors that undermine breastfeeding up to, and beyond, 24 months age.

Any discussion of the advantages, and importance, of breastfeeding for 6-24 month old children needs to consider complementary feeding (be this commercially marketed baby foods or local family foods modified for the child). There is a huge, and rapidly burgeoning literature and research on complementary feeding, and especially on manufactured complementary foods. There is a smaller literature on home based complementary foods, and on how to modify family foods to make them appropriate for the eating abilities, and the nutritional needs of the young baby after 6 months of age. The literature on breastfeeding the 6-24+ month old baby is not large. There is no agreement on what is optimal breastfeeding from 6-24+ months. There is little understanding of the nutritional contribution of breastmilk be it for example 500 ml per day, or 1000 ml per day to the child 6-24+ months of age who is moving to a family diet in a poor household where often the main available family food is maize, rice or wheat based. Yet this is the situation for hundreds of millions of families in Africa, Asia, Latin America and elsewhere. That is a cereal-based diet with minor additions of legumes, vegetables, fruits and other foods, usually only small amounts, if any, of animal based foods.

However if fed in adequate quantities the breastmilk can in fact ensure that the 12 month old child fed family foods is getting all the needed recommendations for energy, protein, and almost all minerals and vitamins. But a “breastmilk supplement” to the family food, is inadequately studied, and its important contribution to the child’s nutrition is not widely appreciated. The health benefits and the important caring aspects of breastfeeding up to 24 months and beyond are little recognized. I strongly believe that for a variety of reasons breastfeeding children 6-24+ months of age has not been adequately protected, supported and promoted even by the breastfeeding community. We agree that it is desirable and beneficial but have not acted strongly to protect, support and promote it, nor to clearly describe its benefits. Yet in many countries, a few in the north and many in the south, breastfeeding well beyond 6 months is the norm.

In most of these non-industrialized countries there are very high rates of malnutrition. This is an appalling problem, which contributes importantly to high child mortality rates. Many agree that most malnutrition reported as underweight or stunting in children began between the ages of 4-24 months. But if for example an African country reports that 30% of 12-month-old children are underweight, this does mean that 70% are not classified as underweight. Could these 70% be

those receiving more adequate amounts of breastmilk, than the 30% classified as underweight? In most cases we do not know.

I very strongly believe that breastfeeding for children 6-24+ months of age is of great importance. Clearly we need more information and research on its benefits. But there is no doubt that breastfeeding beyond 6 months of age is beneficial nutritionally and also in terms of health and care. We do not have to wait for more research before we increase actions to protect, support and promote more breastfeeding for 6-24+ month old children. Some of these actions need to include hard work against factors, which may reduce breastfeeding during the 6-24 month period in children's lives. One such factor we are considering here is the marketing and promotion of manufactured complementary foods in manners that might undermine breastfeeding at any age.

Neoliberalism and economic globalization, domination of the world economy by a few giant Transnational Corporations, and almost worldwide worship at the altar of the market place and the profit motif, all offer threats to more and better breastfeeding.

The Contribution of Breastmilk to the Nutrient Requirements of the Child Aged 6-24 Months of Age

There is a broad acceptance by WHO, UNICEF and most pediatric societies that exclusive breastfeeding is ideal for the first 6 months of an infant's life. So an assumption made here, is that this would provide 100 percent of the infants' nutrient requirements for most infants. Authors and scientists who have studied breastfeeding, state that the exclusively breastfed well nourished normal weight 6 month old infant would be receiving about 850 ml of breastmilk per day. The range might be 700-1000 ml, depending on the size and activity of the infant.

In predicting the nutritional benefits of continued breastfeeding beyond 6 months up to 24 months we can assume that mothers are capable of continuing to provide 700-1000 ml of breastmilk to the older, now larger and more active child. From 6 months of age, the child should receive other foods containing additional energy and micronutrients, beyond those provided in the breastmilk. These will fill a gap that is at first small, but gradually increases.

In the calculations made here, we generally show in tables and graphs the amount of energy, protein, vitamin A, vitamin C and calcium in 1000, 850, 750 and 500 ml of breastmilk, and compare these to the published requirements, or reference intakes, at each age for each nutrient.

The data are based on FAO/WHO/UNU 2001 stated energy requirements in terms of both kilocalories per day and kilocalories per kilogram body weight per day, from 0-12 months of age for both males and females. This suggests that a female infant 0-1 month of age requires 464 kilocalories per day and 712 at 11-12 months of age (518 to 775 kcals for boys). The requirements of kilocalories per kilogram of body weight have a smaller range and go down with age from 113 kilocalories per kg per day for boys 0-1 month of age to 81 kilocalories per kg per day at age 11-12 months of age (107 - 79 kcals in girls of these ages).

Figure 1 shows the average energy requirements of children (genders combined) from 0-24 months of age using similar data, and then compares these requirements with intakes of 1000, 850 and 750 ml of breastmilk.

This shows that at 12-13 months of age the child receiving 850 ml of breastmilk only requires about 150 kcals per day from other food, whereas the child receiving 750 ml requires about 230 kcals per day from food other than breastmilk. Looking at the contribution of breastmilk to the energy requirements of the 24-month-old child, it can be seen that 850 ml of breastmilk provides 600 of the 900 kcals of needed energy or about 65% of energy requirements and 500 ml of breastmilk would provide 350 kcals per day or about 40% of energy requirements.

Figure 2 shows the protein intake per day for a child consuming 500, 750, 850 and 1000 ml of breastmilk. The protein requirements by age start at 9 grams per day at 0-6 months of age, rising to about 13 grams per day at 13-24 months of age. This shows that a child up to 24 months of age consuming more than about 700 ml per day of breastmilk would receive over 100% of his or her protein requirements. It should be noted that the protein in breastmilk is very high quality protein, and is rich in all the essential amino acids. The importance of this is that the child being breastfed into the second year does not require that the additional complementary food provided be high in protein, nor to contain high quality protein. The child 12-24 months of age receiving 750 ml of breastmilk daily would be consuming adequate amounts of protein even if the complementary food was a common cereal staple such as rice, corn or wheat, none of which have an ideal balance of amino acids. Even 500 ml of breastmilk daily largely protects the 12-24 month old child from any ill effects of protein deficiency.

Figure 3 illustrates that a child being breastfed up to 24 months of age will receive the total requirements for vitamin A with about 750 ml of breastmilk per day, but would be largely protected from vitamin A deficiency if receiving 500 ml of breastmilk per day. Figures 4 and 5 in a similar way deal with Vitamin C and Calcium in different amount of breastmilk. This is summarized in Table 1.

Similar calculations can be made for other micronutrients. In most instances breastmilk is making an important contribution. It is more difficult to make these calculations and statements for iron, because with iron in food, what is important besides the iron content, is the form of iron (for example heme vs. non-heme iron) and the presence in the food of substances that detract (or enhance) iron absorption. But it is generally agreed that the iron in breastmilk is particularly well utilized. The Institute of Medicine (of the U.S. National Academy of Sciences) has stated:

“Human milk is a sufficient source of iron for the first 6 months of life, but foods with bioavailable iron, iron fortified foods or a low dose iron supplement should be provided at 6 months or earlier, if supplementary foods are introduced before that time.”

The important conclusion from all this is that if a child gets substantial amounts of breastmilk daily in the period from 6-24 months of age, then the extra food needed to fill the energy gap does not need to be rich in protein, nor in some other essential vitamins and minerals. The extra food to provide the needed additional energy can be based on family food consisting for example mainly of corn, rice or wheat, with local fruits and vegetables and supplemented with small amounts of legumes, meat, fish, eggs etc. If meat or fish, which contain heme iron, are not included, then extra iron may be needed and could be provided in products such as Sprinkles which would also provide other micronutrients such as Vitamin A.

These data illustrate that the complementary, or family, food provided to a child 6-24 months of age who is receiving 500-850 ml of breastmilk can be largely based on a local cereal staple without a risk of deficiencies from the nutrients discussed here. It is not essential that the complementary food be as highly nutritious as usually thought necessary, and certainly does not need to be a commercial high protein relatively expensive manufactured weaning food.

The situation is very different if the child receives no, or very small amounts of breastmilk during any of the period from 6 to 24 months of age. And in this summary we have not considered many other important nutrients such as zinc and vitamin D, let alone many trace elements such as selenium or molybdenum. Dietary vitamin D requirements would vary according to the child's exposure to sunlight.

The conclusion to be drawn is that from a broad nutritional perspective reasonable quantities of breastmilk (300-850 ml) fed to a child 6-24 months of age, as a “supplement” to normal cereal

based family foods (made accessible or more edible for the young child) provide for a reasonably balanced intake of nutrients. The breastfeeding itself is a valuable form of child caring, which commercial complementary foods do not ensure; the breastmilk and breastfeeding contributes to health and to wider birth spacing; it also has health benefits for the mother; continued breastfeeding has important economic benefits for the family; and of course is very environmental. It needs to be recognized that in most cases traditional family foods can easily be adapted or modified for complementary feeding while breastfeeding continues.

Ready to Use Therapeutic Foods (RUTF's)

Ready to Use Therapeutic Foods (RUTF's) have very clearly been shown to be highly effective in the treatment of severe acute malnutrition now sometimes called SAM. This includes kwashiorkor, nutritional marasmus and several forms of severe wasting. These conditions assumed to be caused mainly by a deficiency of macronutrients (carbohydrate, protein and fat) are frequently, or almost always, inevitably accompanied by micronutrient deficiencies. Ready to Use Therapeutic Foods (RUTF's) providing a scientifically based combination of balanced macronutrients, plus essential minerals and vitamins make for an ideal food for treatment of severe acute malnutrition. Another major benefit is that they are provided in a form which is "ready to use", and is generally palatable, and trials have shown that most children like them and eagerly consume them. An exception may be difficulty in feeding RUTF's to children with severe anorexia, a common, important complication in some cases of severe acute malnutrition, particularly kwashiorkor. So RUTF's are a major advance over the foods I supervised being used in three different hospitals I was running in Tanzania between 1955-1961 where we mixed sugar, casein, vegetable oil and dried skimmed milk (SCOM, for sugar, casein, oil and milk) to feed to the many cases of kwashiorkor and nutritional marasmus we were treating. We did also provide iron and multivitamins. Many children, because of severe anorexia, had to be fed with SCOM through an intragastric tube inserted through the nostril into the stomach. The cost of the ingredients was cheap and we had high cure rates.

But five decades later in some hospitals in Africa there is no hospital food for any patients, and when a child is admitted with kwashiorkor or marasmus there is no SCOM or other food provided by the hospital, and the parents, or relatives, are told that they must bring food from home for the malnourished child. This is an appalling unacceptable situation. Other hospitals struggle because of financial constraints to provide a modern equivalent of SCOM, and others now can obtain RUTF's.

Now to find Medecins sans Frontieres (MSF) and other organizations developing, and in many projects in several countries making available RUTF's for treatment of severe acute malnutrition in hospitals (and sometimes in the community) is a huge advance. The research, and the rapid application are to be applauded. It is also clear that RUTF's are very useful and could be very effective in refugee camps, and in other similar emergency situations where children lose their normal access to food. Having a good balance of macronutrients and essential micronutrients, and being ready to use, RUTF's clearly have advantages over corn soy blends (CSB) and other traditional refugee camp foods, except perhaps in terms of cost.

As a nutritionist and medical doctor concerned, and working on the problems of malnutrition in underprivileged populations for more than 50 years, I am very pleased that MSF is highlighting "the neglected crisis of childhood malnutrition" in their "Starved for Attention" campaign. They deserve huge credit for that. There has been a malnutrition crisis for a long time, and up to now it has been relatively neglected. It will be wonderful if MSF can change

that, get the world to focus on child malnutrition, and in the next decade or two see a major reduction in this huge problem. But MSF will need also to realize that malnutrition is not entirely a food problem, and that a whole solution is not possible with a single food.

Medecins sans Frontieres (Doctors without Borders) is an organization that I have greatly admired and praised for many years. As an MD who has worked in difficult conditions in small African hospitals and clinics, I have been extremely impressed how MSF doctors have done wonderful medical work in really difficult circumstances worldwide and often in situations where they are risking their own lives. I believe it is with good will that many in MSF have decided to advance the use of RUTF's a little beyond just the treatment of severe acute malnutrition, to the treatment of moderately severe malnutrition in the areas in which they are working.

But now MSF, other NGO's and commercial interests are proposing the wide use of RUTF's to prevent not cure malnutrition. It is a huge leap to move from the success of a "therapeutic" food to the promotion of RUTF's, a manufactured packaged food, as a new strategy, perhaps a magic bullet, to prevent malnutrition in communities in developing countries, not in hospitals or clinics. All aspects of this need proper evaluation. Those strongly advocating this have not shown that as a strategy this is "doable", and importantly that it "will do no harm". The research has not been done in large community trials. The only certainty about turning RUTF's, away from therapeutics to RUF's (Ready to Use Foods) for the prevention of malnutrition is that it could be enormously profitable to corporations poised to manufacture RUF's, in the hope that UN agencies, the World Bank, and a host of international NGO's will purchase large amounts.

Plumpy'nut, a proprietary product, and other RUTF's are made from peanuts, oil, powdered milk, sugar and other ingredients with added micronutrients made into a pasty mixture with a texture like peanut butter (but sweet in taste). The product is packed into foil pouches. For treatment, and now for prevention of malnutrition, the child aged 6-24 months of age is supplied with an appropriate number of packages to supply all the nutrient requirements of the child. He, or she, does not need to eat any other food. If utilized in this way there would be no need for any breastfeeding nor family foods.

A much touted advantage of RUTF's, compared with most other commercial complementary foods, is that the product contains no water, and therefore it does not spoil due to bacterial contamination. But this also means that for example a 12 month old child fed exclusively on RUTF will need to consume some 1500 ml. of water per day perhaps water from a contaminated well or pond. In contrast a 12 month old child receiving 850 ml. of breastmilk (mostly water) per day, and perhaps 400 ml. of water in a thin cereal gruel sterilized by cooking, and another 250 ml. water in fruit such as oranges, papaya, banana or pineapple, and vegetables such as tomatoes, needs little additional potentially contaminated pond or well water.

The feeding of nothing but RUTF's as a regimen is appropriate in really severe acute malnutrition for a baby who is not breastfeeding or is separated from the mother. In this case it is a therapy for the treatment of severe disease. It is a huge leap forward to change RUTF's into RUF's, to drop the "therapy," and use this "medicine" to prevent malnutrition, replacing family food and perhaps breastfeeding. Is this medicalizing and commercializing young child feeding? It is important to study the implications of any program designed to supply to mothers in the community amounts of RUTF's sufficient to provide all the energy and other nutrient requirements (no other food necessary). This regimen may be appropriate for children with severe acute malnutrition, or in refugee or famine situations. For others the implications for breastfeeding, family foods, agriculture, culture and more need to be considered. This is perhaps

an extreme example. But advocates of RUTF's have shown pictures of long lines of mothers lining up for hours with their babies to receive a one month supply. In this case I would strongly recommend that the RUTF be shared by the breastfeeding baby and the mother as suggested in Table 2. This would improve the nutritional status of the mother and her baby, and at the same time not markedly reduce breastfeeding. Providing smaller amounts of RUTF's as a complementary food is a different matter, requiring different recommendations.

The economics of the widespread use of RUF's for the prevention of malnutrition, or even for the treatment of mild-moderate malnutrition has not been published. The broad extension of the use of RUTF's for the prevention of malnutrition should not be recommended without a set of internationally acceptable guidelines – ones that get wide approval and then are adhered to everywhere. My concern for most underprivileged families in Africa is that RUF's very often will not be feasible, affordable, or sustainable. Pushing RUF's without careful study could undermine breastfeeding beyond six months; result in narrower spacing of births; have a negative impact on local agriculture and village economies; and result in other undesirable unstudied consequences. Young children in every country, clan or tribe that I know are learning to eat, and to like and appreciate, the diverse foods that their culture enjoys and often cherish. In fact the foods that a mother consumes during her first six months of breastfeeding is flavoring her breastmilk to prepare the child to like the foods of her culture. So Italian babies at seven months enjoy garlic flavored foods whereas Norwegian babies may prefer fishy flavors. They are being led to enjoy the foods of their culture, not to be fed a RUF pasty food from a packet, be it Plumpy Nut or some other version. Could it not be rather insulting to a mother to be told not to feed her young child with family food that she has carefully prepared, but instead to feed her or him with Plumpy'Nut from a package. What about food sovereignty?

The debate that will result between those favoring the broad use of RUF's for prevention of malnutrition and those doubting this approach, has nutritional parallels.

Before the publication by Donald McLaren of his paper on the "Protein Fiasco" nutritionists had for two decades debated how best to get protein rich foods to young children. A myriad of manufactured foods were being promulgated and promoted, in many countries, and although all failed to solve the problem, some did make profits for corporations. In 1973 we published a paper entitled "The limitations and dangers of commerciogenic nutritious foods". The limitations and dangers inherent in relying on commercially produced low cost nutritious foods to reduce or eliminate malnutrition and increase protein intakes were reviewed, and are not very different from those relating to the current enthusiasm and exaggeration of the potential benefits if we were only to embrace RUTF's to prevent the appalling rates of malnutrition in the world. Northern nutritionists; international development enthusiasts; and of course food corporations love to welcome new "fixes" for malnutrition, ignoring the fact that in developing countries the solutions lie in improvements related to food, health and care – and all three are essential; and that the greatest hindrance for better food availability; improved health; and better care for underprivileged children is in fact inequity. For example India has huge economic growth, the middle and upper classes get richer, but malnutrition rates in children in the lowest quartiles of society remain unacceptably high, higher than in many of the poorest African countries.

Nutrition programs and policy have often placed much emphasis on low cost nutritious foods. These foods are usually dependent on commercial marketing. Various incentives have been introduced or proposed to encourage private investment and to enable the private sector to profitably develop such products. These have included: the provision of subsidies or loans to assist development and marketing efforts, special tax and other monetary incentives, duty-free

import of machinery and materials, and lastly, guaranteed distribution of the final product through government supported programs and institutions.

Is it even imaginable that the millions of children (some 50% of all young children) in the rural and poor urban populations of Africa, Asia and the Americas who have mild malnutrition, or even are at risk, will in the next few years have a diet based on Plumpy'Nut or a similar RUTF? In the 1960's in Tanzania we recommended consumption of a handful of ground nuts (peanuts) a day to improve nutrition. (locally grown, and much cheaper than a foil pouch of imported Plumpy'Nut).

In many parts of the world, the families most in need are barely within the market economy. Often, 50 to 80% of the populations are subsistence farmers relying on their own agriculture for most food needs. The rest are slum dwellers and squatters who purchase unprocessed or semi processed food in local markets. Needs besides foods are often filled via barter trade, and there is little reliance on the formalized market system. Related to the marketing problem is the relatively high cost of these products in relation to the incomes of the poor. Most commercially produced foods of this kind have costs connected with milling, processing, packaging, transportation, and advertising, which make them more expensive than traditional foods. So among the several limitations we reported in our study of "commerciogenic nutritious foods" in the 1970's included their very high cost in relation to incomes, and local foods; their potentially negative impact on both agriculture and employment; wide use of untruthful advertising and promotion; their negative impact on foreign exchange; and in the end their total failure to meet expectations. They simply failed.

This whole brewing concern regarding the risks that promotion of RUTF's will undermine, or even replace, breastfeeding has many similarities to our concerns regarding the promotion of infant formula which led to the WHO Code, and continuing violations of its terms. Already enthusiasm for RUTF's, and flooding some markets, may be leading to a spillover where babies below 6 months of age are getting RUTFs, not breastmilk.

Those promoting RUF's today to prevent malnutrition in poor non-industrialized countries are persuasive in claiming that this time it will be different. RUF's provide complete nutrition. A child's nutritional status is either protected, or is improved, with no other foods or nutrients ever provided over a period of time. They have a response to criticism that the product is very expensive when compared with the cost of obtaining equivalent amounts of energy and protein from locally produced corn or rice, plus small amounts of legumes, vegetables and other foods. They state, as in their small pilot projects, RUF's will be provided free to needy families. Yes, but "nothing is free". The cost of Plumpy'Nut for one day for a 24 month old child is probably higher than the cost of Vitamin A or deworming medicine for three children which would last for six months or the cost of measles vaccine that lasts for several years; the cost of Plumpy Nut for one child for one week is probably similar to the cost of an impregnated bed net to prevent malaria for years, or the cost of sprinkles to protect the child against several micronutrient deficiencies for a whole year; and the cost of Plumpy Nut for ten children for a year could be similar to the cost of a small rural clinic or of keeping ten girls in school for a year.

The point being made is that RUF's provided "free" in the village are not "free", and it is very obvious that worldwide funding for actions that could reduce malnutrition are grossly insufficient. Another important consideration is that malnutrition in children is not only a food problem, and will not be solved by food actions alone. Besides food interventions it is important that actions are in place related also to health and to care.

Finally guidelines for the use of RUF's should be developed. These should help insure that a project promoting the use of RUF's will "do no harm". Under some circumstances the promotion of RUF's could undermine breastfeeding, which is so important for health, nutrition, birth spacing, etc; could have a negative impact on local agriculture; might be unacceptable to mothers using culturally appropriate foods; and could be unsustainable with erratic availability of supplies.

In conclusion these queries do not apply to the use of RUTF's for therapeutic purposes, because their great effectiveness in treating severe acute malnutrition has been proved.

Conclusions

The world is witnessing a huge continuing crisis of malnutrition in young children. This contributes to millions of deaths and much disability. It is widely agreed that lack of proper breastfeeding contributes very substantially to this malnutrition and to these child deaths.

Much greater emphasis needs to be placed on improved breastfeeding. This needs to include ensuring that almost all newborns get access to the breast immediately after birth, and that then they are exclusively breastfed for 6 months, and that breastfeeding continues from 6 to 24 months and beyond. However actions to protect, support and promote a longer duration of breastfeeding, and greater volumes of breastmilk for children 6-24+ months of age, are relatively neglected. There is a lack of research, of indicators, of guidelines and of declarations on this.

Ready to Use Therapeutic Foods (RUTF's) which are excellent for the treatment (therapy) of Severe Acute Malnutrition, are now being promoted to prevent malnutrition in young children. Guidelines are needed to ensure that RUTF's do not undermine breastfeeding; nor do other harm. Factors related to economic globalization, and neoliberal worship of commercial marketing and privatization contribute to malnutrition and lower levels of breastfeeding. Increasing inequity in the world, and in most countries remains a leading cause of malnutrition. The obligations of the global community in relation to the human right to adequate food and health care remain largely ignored.

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Fig. 1. Energy Requirements for Child from 1-24 Months of Age and Energy Content of Different Amounts of Breastmilk

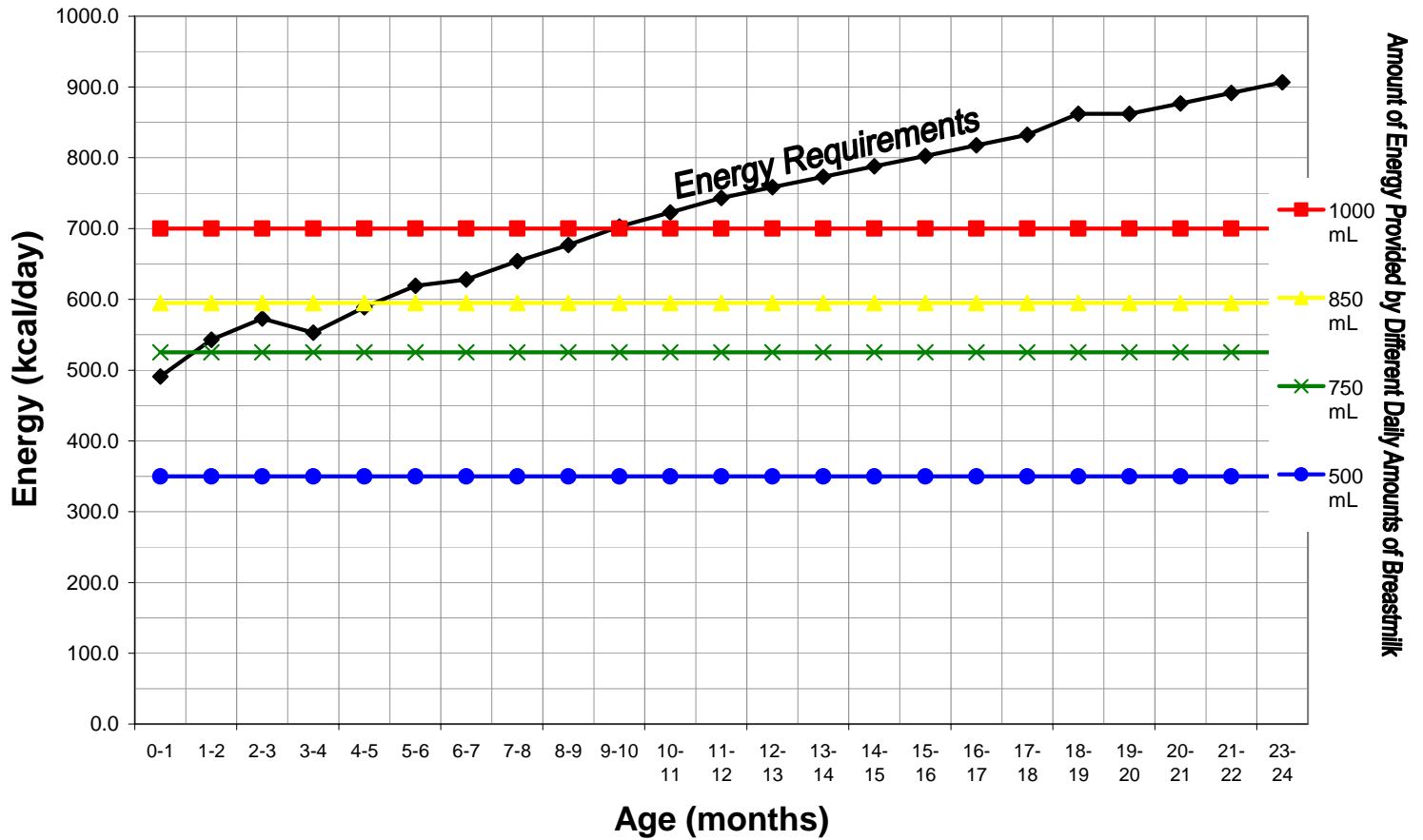


Fig. 2. Protein Requirements for Child 0-24 Months of Age and Protein Content of Different Daily Amounts of Breastmilk



Fig. 3. Vitamin A Requirements for Child 0-24 Months of Age and Vitamin A Content in Breastmilk

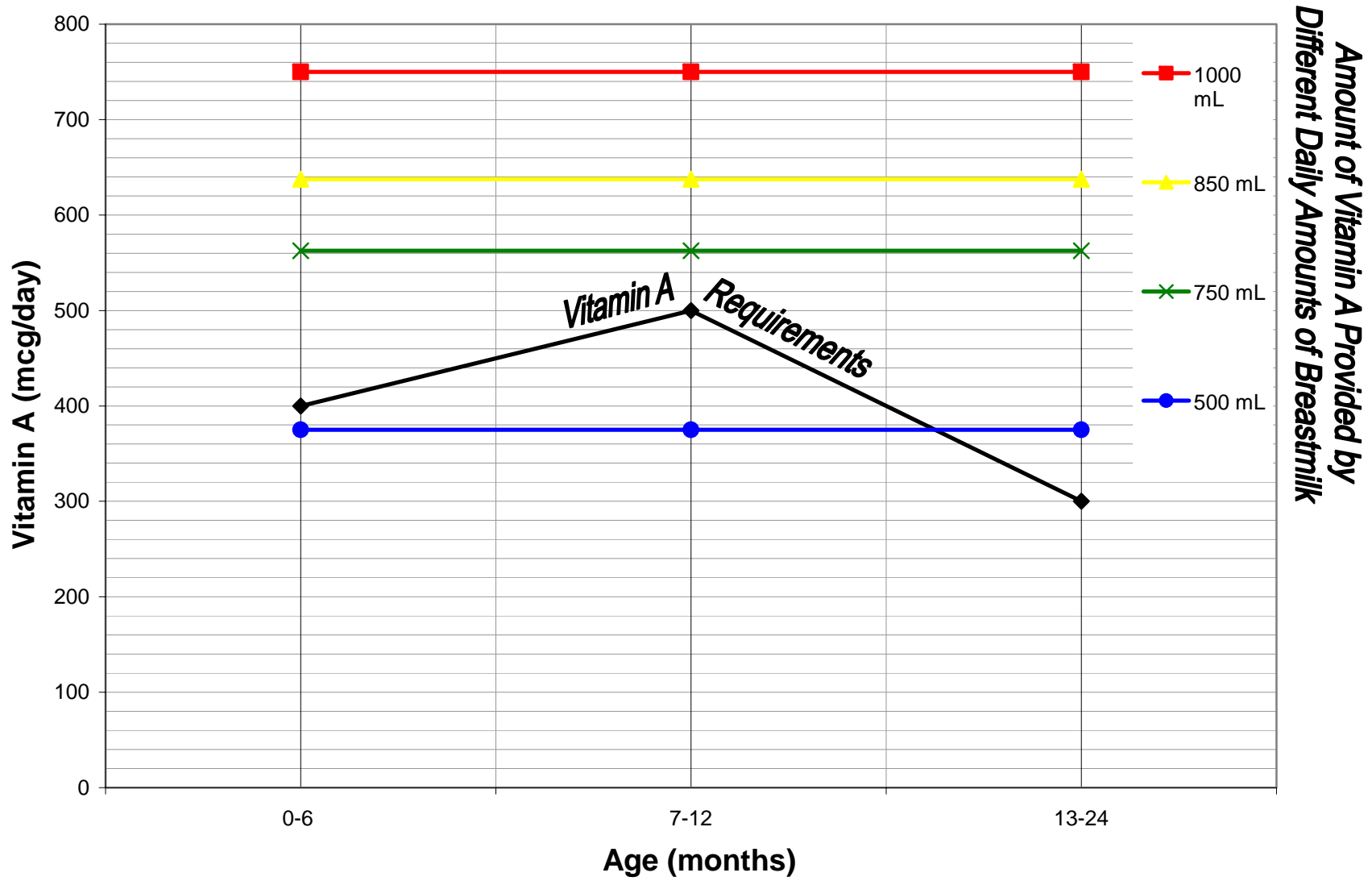


Fig. 4. Vitamin C Requirements for Child 0-24 Months of Age and Vitamin C Content in Breastmilk

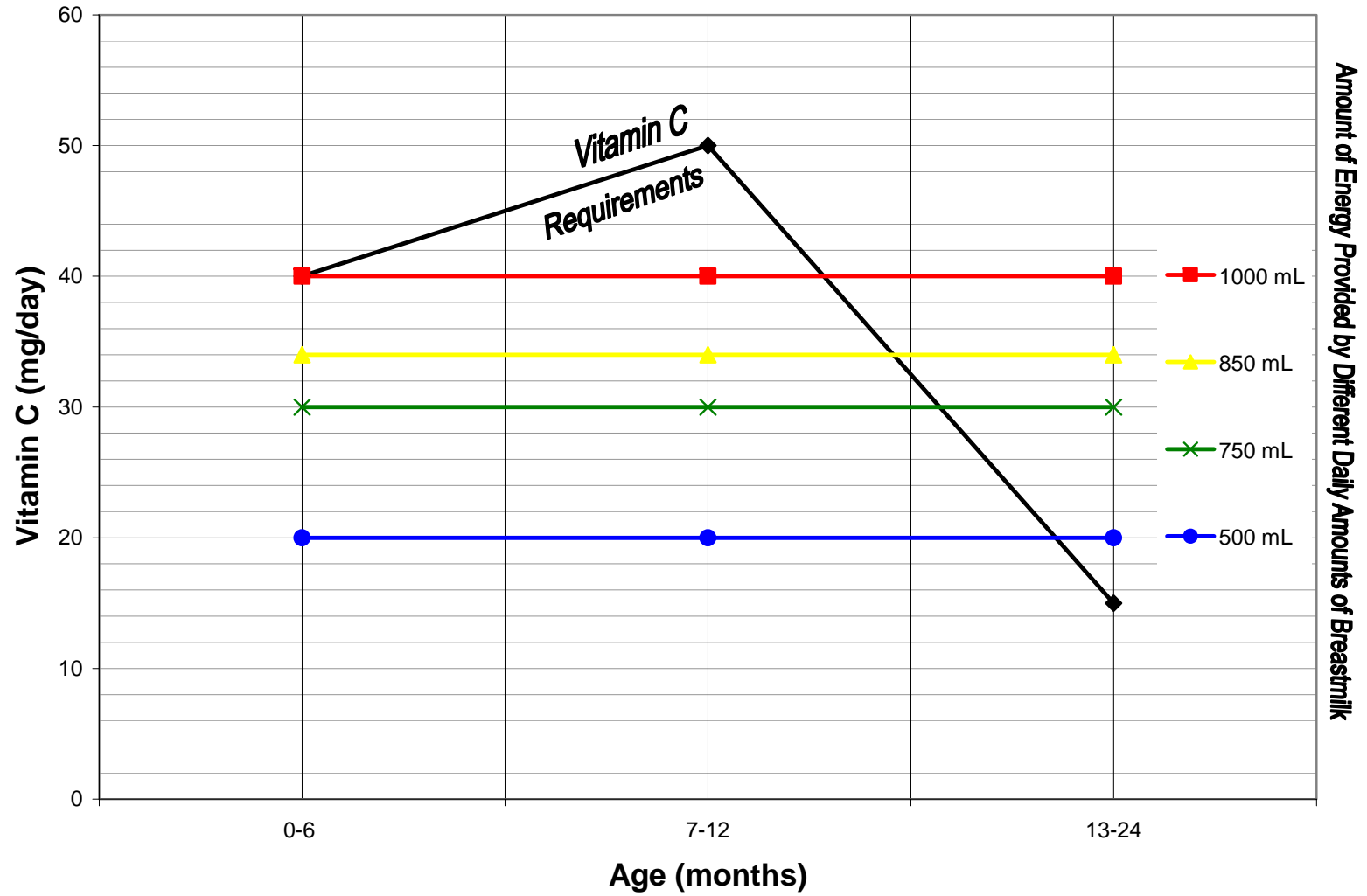


Fig. 5. Calcium Requirements for Child 0-24 Months of Age and Calcium Content in Breastmilk

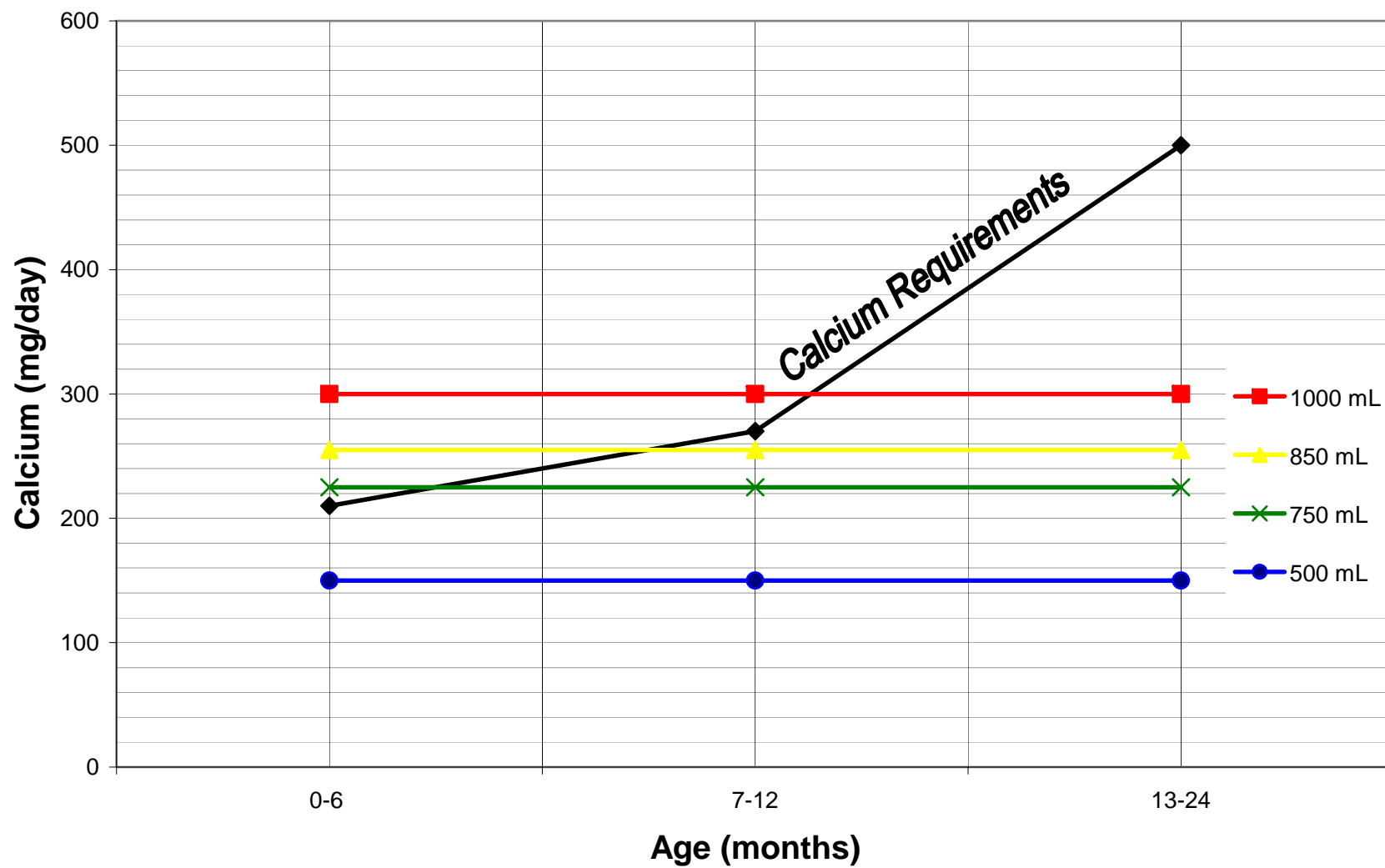


Table 1: Percent of Nutrient Components of 750 ml. of Breastmilk

	Age (months)		
	<i>0-6</i>	<i>7-12</i>	<i>13-24</i>
Energy	84.8%	70.6%	57.9%
Protein	148%	123%	104%
Vitamin A	141%	113%	188%
Vitamin C	75.0%	60.0%	200%
Calcium	107%	83.3%	45.0%

Table 2: Recommendation of Percentage of RUTF Fed to Mother and Child

Age (months)	Percentage of RUTF Fed	
	<i>Child</i>	<i>Mother</i>
6-12	25%	75%
12-18	50%	50%
18-24	75%	25%