



BP100 OR PLUMPY NUT?

June 2002

**Faryab province
MSF-B**

BP 100 OR PLUMPY NUT?

Introduction

MSF is running 6 feeding centers in Faryab province. In these centers, we take care of moderate and severe malnourished children.

It is not easy to have a good follow-up of the severe malnourished children because there are some cultural constraints. The mothers cannot stay all the day in the center with the children; they cannot sleep on the spot. It's difficult for MSF to find the best way to help these children without a supervision 24h/24 (like in a standard TFC).

We ask the mothers to stay as long as possible in the center but for most of them, two hours is the longest time they can effort to stay. They are living very far and they have to go back home as soon as possible. Other tasks are waiting for them at home too.

In order to improve the follow-up of these children, we decided to make a small survey about two kinds of food used for the severe malnourished children: BP100 and Plumpy Nut. We analyzed the two products in order to know what should be the best for the children admitted in the ambulatory therapeutic feeding center.

Methodology

We conducted this survey in two feeding centers: Maimana and Shakh.

We implemented the two kinds of food in these two centers: half of the children received Plumpy Nut and half received BP100.

We began the survey in March 2002 when the BP100 was introduced. After three months (June 2002) we are able to analyze the data.

We chose the center of Maimana because it was easier for the supervision: the expatriates should go easily to follow up the children. It's really close from the office. We took the opportunity to go as often as possible to check the children.

We chose the center of Shakh because we had a lot of severe malnourished children in this area.

The sample covers 36 children: 18 children received Plumpy Nut and 18 received BP100. All the severe malnourished children come the same day in the center in order to facilitate their follow-up.

We divided the children randomly.

Half of the children received Plumpy Nut (545 Kcal/100gr):

>85cm: 5 sachets /day
<=85cm: 3 sachets /day

One sachet of Plumpy Nut (92gr) is 500 Kcal. (See annex 1).

Half of the children received BP100 (529.4 Kcal/100gr):

>85cm: 9 bars /day
<=85cm: 5 bars /day

One bar of BP 100 (56.7gr) is 300 Kcal. (See annex 2).

This ration is given in addition to 2.3kg of Premix (oil+sugar+CSB for the family).
The amount of Kcal is the same for all the children (PN or BP100).

After three months, we decided to analyze the status of our selected target population: weight gain and length of stay in the center.
The expatriates or the local teams also asked some questions to the mothers about the food they received (See annex 3).

Some difficulties were encountered during this survey:

- ⇒ The different language between the mothers and the expatriates is a big barrier. We always need a translator to discuss with them.
- ⇒ The feasibility of the survey was not easy. The mothers are very shy; they don't dare to answer properly. It took a lot of time to get some clear answers. The level of understanding of some women was not high so a lot of patience and simplicity were required.
- ⇒ It was not always possible for an expatriate to be there to fill in the questionnaire with the local team. We noticed some incomplete answers after the collection of the papers.
- ⇒ Some severe malnourished children were absent several times; we had some defaulters (3 consecutive absences) so it reduced the sample.

Results

Weight gain

We calculated the weight gain for the 36-targeted children.

Formula: Exit weight (gr) – entry weight (gr) : Entry weight (Kg) X length of stay (days)

For the children who received Plumpy Nut, the gain weight is: **3.3** gr/kg/day.

For the children who received BP 100, the gain weight is: **4** gr/kg/day.

No obvious difference between the two diets.

Length of stay

The length of stay is exactly the same for the children who received Plumpy Nut or BP100: they stayed **47 days** in the ambulatory therapeutic feeding program. The exit criterion is to reach two consecutive weeks the target weight of 80%.

Answers of the questionnaire

⇒ BP100

All the mothers answer that their child likes BP100 and that the child is better since he received BP100. The children have more appetite and more power.

The majority of the children don't have complains when they are eating BP100. Just 2 children had diarrhea and one complained about stomachache.

Most of the children (15/18) prefer to eat BP100 than Premix.

Nearly all the mothers prepare the BP100 like porridge at home: they dilute the biscuit in boiled water. The targeted children are between 7 months and 3 years. Only some older children eat BP100 like a biscuit but they also prefer porridge.

The children are happy to eat BP100; they eat it with good appetite. The mothers have not to insist to give it.

The mothers are giving BP100 between 3 and 5 times a day. Some mothers (8) are also giving the food during the night.

The quantity of BP100 given seems enough according the mothers: most of the children eat everything during the week. Some children (3) are weak and cannot finish all the biscuits.

The severe malnourished children eat other kind of food beside the BP100 and Premix: soup or rice for some of them.

The mothers continue to breast feed the child (before 2 years old).

Amongst the targeted families, it was no other malnourished children. The mothers say that they never share the BP100 between the other children of the family; they never sell the biscuits on the market.

The mothers said that they are happy to receive BP100. They also know Plumpy Nut. Just 5 of them should prefer to receive Plumpy Nut.

⇒ Plumpy Nut

Nearly all the mothers answer that their child likes Plumpy Nut. Just two children don't like it so much. All the children are better since they received Plumpy Nut. Their general status is better according the mothers.

Some children have complains when they are eating Plumpy Nut: 3 children had diarrhea and 3 other ones complained about vomiting.

Most of the children (16/18) prefer to eat Plumpy Nut than Premix without hesitation!

The mothers open the sachet and give it directly to the child with a spoon or a finger. Some of them dilute the Plumpy Nut in water (5/18).

The children are happy to eat Plumpy Nut; they eat it with good appetite. The mothers have not to insist to give it. Just 3 mothers explain they have to force the child.

The mothers are giving Plumpy Nut between 3 and 5 times a day according to the age of the child. Some mothers (9) are also giving the food during the night (generally 1 sachet/night).

Some of the mothers (5) refer that the quantity of Plumpy Nut is not enough for the week, the children required more and should eat more.

The severe malnourished children eat other kind of food beside the Plumpy Nut and Premix: soup, rice or yogurt for some of them.

The mothers continue to breast feed the child (before 2 years old).

Amongst the targeted families, it was no other malnourished children. Two mothers say that they share the Plumpy Nut between the other children of the family or they eat themselves. The other ones never share the food.
Nobody sell Plumpy Nut on the market.

The mothers say that they are happy to receive Plumpy Nut. Most of them don't know BP100.

They are happy to receive Plumpy Nut; they don't want other kind of food. They confirmed their child is getting more power. Their child is getting strong and fat.

Conclusions

After this small survey, we get some results:

The weight gain is nearly the same with both kinds of food,
The length of stay in the ATFC is the same for the children eating Plumpy Nut or BP100,
The answers of the questionnaire are not very different between Plumpy Nut and BP100.

In general, we can say that the children like both products and they prefer eating Plumpy Nut or BP100 than Premix.

Not so many complains about these two kinds of food were registrated.

The mothers know more Plumpy Nut than BP100. If they don't receive BP100, they don't know what is it.

The reliability of the answers is not 100% sure according to the obstacles we had to face.

We don't notice a big difference between the two products: no big advantage or disadvantage for Plumpy Nut or BP100.

This survey will give some information about the two products but we have to consider other factors (price, transport facilities...) to decide what's the best diet for the malnourished children in an Ambulatory Therapeutic Feeding Center. We didn't have the hope to be able to choose between Plumpy Nut and BP100 after the survey.

Considering the small size of the sample, we would consider doing a second round in three months time.

Annexes

Annex 1: Composition of the Plumpy Nut

Plumpy Nut is a ready-to-eat nutritional supplement designed mainly for use in the dietetic treatment of severe malnutrition and for use in supplementary feeding for vulnerable groups (moderately malnourished children, breast-feeding and pregnant women, young children, old people...).

Plumpy Nut is composed of peanut butter, vegetable fat, dry skimmed milk, lactoserum, maltodextrines, sugar, mineral and vitamin complex.

The nutritional value is 545 Kcal/100gr. One sachet (92gr) is 500 Kcal.
10% of protidics calories / 59% of lipidics calories.

Vitamins: vit A (910mcg), vit D (16mcg), vit E (20mg), vit C (53mg), vit B1 (0.6mg), vit B2 (1.8mg), vit B6 (0.6mg), vit B12 (1.8mcg), vit K (21mcg), biotine (65mcg), folic acid (210mcg), pantothenic acid (3.1mg), niacin (5.3mg).

Minerals: Calcium (320mg), Phosphorus (394mg), Potassium (1111mg), Magnesium (92mg), Zinc (14mg), Copper (1.78mg), Iron (11.53mg), Iodine (110mcg), Sodium (189mg), Selenium (30mcg).

Annex 2: Composition of BP100 and F100

BP 100 should be used in the rehabilitation phase during treatment of severe malnourished people. The main issue in the rehabilitation phase is to restore normal body weight as soon as possible to reduce length of stay in the nutrition rehabilitation center.

Ingredients of BP100:

BP 100 is solid F-100 with added iron.

Wheat flour (backed)

Oat flour (backed)

Vegetable oil

Sugar

Milk proteins

Skimmed milk powder

Minerals

Milk calcium

Amino acids

Vitamins

Contains only vegetable ingredients with the exception of the milk constituents.

| | Weight % | Energy % |
|--------------|----------|----------|
| Protein | 14,5 % | 11 % |
| Fat | 31,0 % | 53 % |
| Carbohydrate | 47,5 % | 36 % |

F-100

Milk, Therapeutic powder, low osmolality, 1000Kcal/1,456g. sachet.

| | |
|------------------------------------|------|
| Skimmed milk powder | 42 % |
| Vegetable fat | 31 % |
| Sugar (malto-dextrine, lactoserum) | 25 % |
| Premix of vitamins & minerals | 2 % |

Nutritional value

| | |
|---------------|---------------------|
| Energy | 520-550 Kcal/100 g. |
| Protein | 15 g/100 g. |
| Lipids | 32 g/100 g maximum |
| Carbohydrates | 47 g/100 g. |

Annex 3: Questionnaires

Questionnaire BP100

BP 100

Date:

Weight gain in the TFC:

SFC:

Name of the child:

Length of stay in TFC:

Age of the child:

Height of the child:

Nr of the bracelet:

Zone:

- 1) How many tablets of BP100 do you receive per week?
- 2) Do you receive also Premix?
- 3) Does your child like BP100?
- 4) Is your child better since he eats BP100? Has he gained weight?
- 5) Does your child have some complains when he is eating BP 100? (diarrhea, vomiting, belly pain,...)
- 6) What does your child prefer: BP100 or Premix?
- 7) How do you prepare BP100 at home?
- 8) Do you have to insist to give the BP100 to your child? Does your child refuse this biscuit?
- 9) Is your child happy when you give him BP100? Does he/she eat it easily and with appetite?
- 10) How many times a day do you give BP100 to your child? When?
- 11) Do you give BP100 also during the night?
- 12) Does the child eat all the received BP100 in one week?
- 13) Is the BP100 received enough or does the child require more biscuits?
- 14) Does your child eat other kind of food beside BP100 and Premix? What?
- 15) Are you breast-feeding your child?
- 16) How many children do you have in the family?
- 17) Do you have other malnourished children (in the TFC or SFC)?
- 18) Do you share the BP100 with other children in the family?
- 19) Do you sell these biscuits on the market?
- 20) Are you happy to receive BP100?

- 21) Should you prefer other kind of food? What else?
- 22) Do you know Plumpy Nut?
- 23) Should you prefer to receive BP100 or Plumpy Nut? Why?

Questionnaire Plumpy Nut

PLUMPY NUT

Date:

Weight gain in the TFC:

SFC:

Name of the child:

Length of stay in TFC:

Age of the child:

Height of the child:

Nr of the bracelet:

Zone:

- 1) How many sachets of Plumpy Nut do you receive per week?
- 2) Do you receive also Premix?
- 3) Does your child like Plumpy Nut?
- 4) Is your child better since he eats Plumpy Nut? Has he/she gained weight?
- 5) Does the child have some complains when he/she is eating Plumpy Nut?
(diarrhea, vomiting, belly pain,...)
- 6) What does your child prefer: Plumpy Nut or Premix?
- 7) How do you prepare Plumpy Nut at home?
- 8) Do you have to insist to give the Plumpy Nut to your child? Does your child refuse this food?

- 9) Is your child happy when you give him Plumpy Nut? Does he eat it easily and with appetite?
- 10) How many times a day do you give Plumpy Nut to your child? When?
- 11) Do you give Plumpy Nut also during the night?
- 12) Does the child eat all the received Plumpy Nut in one week?
- 13) Is the Plumpy Nut received enough or does the child require more sachets?
- 14) Does your child eat other kind of food beside Plumpy Nut and Premix? What?
- 15) Are you breast-feeding your child?
- 16) How many children do you have in the family?
- 17) Do you have other malnourished children (in the TFC or SFC)?
- 18) Do you share the Plumpy Nut with other children in the family?
- 19) Do you sell Plumpy Nut on the market?
- 20) Are you happy to receive the Plumpy Nut?
- 21) Should you prefer other kind of food? What else?
- 22) Do you know BP100?
- 23) Should you prefer to receive Plumpy Nut or BP100? Why?