NEW FOOD BASED APPROACHES TO ACHIEVE MICRONUTRIENT ADEQUACY IN COMPLEMENTARY FEEDING

- André Briend
- Boussingault meeting
- Paris 9-10 July 2002

Background

Micro nutrient deficiencies common during the complementary feeding period. Currently proposed solutions:

- Education with optimal use of local food
- Use centrally processed cereal based fortified complementary foods (ex: Corn Soy blends).

These two approaches have limited success

Towards “Complementary Food Supplements” (CFS)

- New food based approaches are being proposed based on adding micro nutrients supplements to complementary food by either:

-Tablets

-Sprinkles

-Spreads

All these approaches should reduce the cost of a balanced diet during the complementary feeding period compared to processed or local foods

All proposed CFS

- Use products with high levels of vitamins and minerals packed in a small food volume
- At the border between food and pharmaceutical technology
- Can only be produced with at least some input from the industry

Objectives of the meeting

- **Review technological aspects of CFS development**

- **No attempt made to choose between the possible approaches**

These approaches are at the development stage

Optimal solution may vary according to situation: cost constraints, distribution channels etc..

Tablets CFS

Two models tested /being tested. Both are dispersible tablets with taste of micro nutrients hidden

- IRIS Tablet: large tablets with Fe, Zn, Cu and I + 10 vitamins

- WHO chewable tablets: Fe + Zn

Tablets rely on well known pharmaceutical technology. More nutrients could be added.

Questions: will they be perceived by families as a medicine, limiting their acceptability ?

Supplefer

Sprinkles

Sprinkles CFS

Developed by Stan Zlotkin with support from Heinz

Can be regarded as “uncompressed tablets”

Technology is well known. Inclusion of multiple micro nutrients possible.

Shown to be effective in treating anemia.

Question: how will they be perceived by families, as they do not look like a usual food ?

Spread CFS

Spreads contain vegetable fat + powdered ingredients as “filler agent”

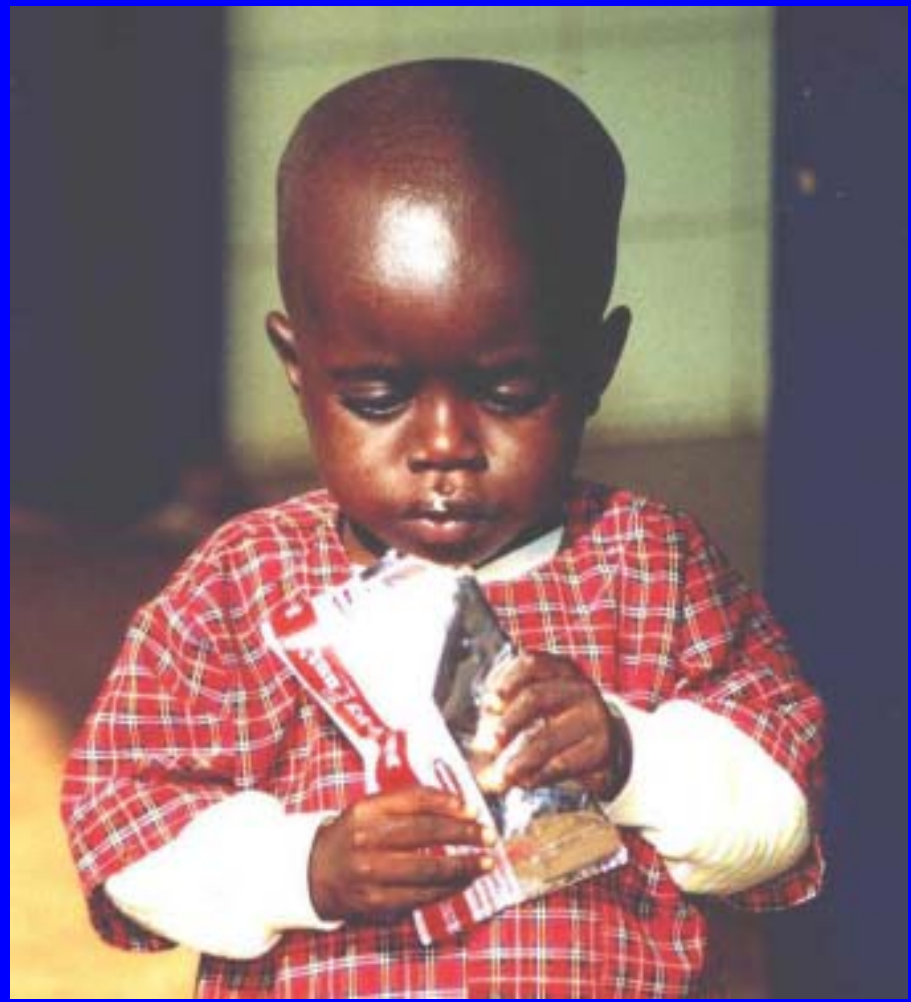
Technological properties:

- **low surface to volume ratio**
- **flexible formulation**

How the idea of using a spread for infant feeding came in ?

- Failed attempts to develop a bar, instead of a liquid feed (WHO F100), to feed severely malnourished children
- When high fat WHO F100 formula was used, the bar always melted in high temperature.
- Decision was taken to make a spread instead and to put it into a sachet

Therapeutic version of the spread, for treatment of severe malnutrition



Prototype of a concentrated spread version for prevention of vitamin deficiencies

Spreads CFS

Simple technology

Can be used to produce foods with a cost in relation to nutrient content (iron, zinc, retinol, water soluble vitamins) lower than most locally available foods

Questions:

- **optimal balance between macro and micro nutrients ?**
- **acceptability in young well nourished children ??**

Conclusions of the meeting

- CFS represent a promising approach for preventing micro nutrient deficiencies in children
- Still many knowledge gaps before large scale prevention programs can be developed
- Tablets, sprinkles: known technologies, but potential for prevention to be tested
- Spreads: new technology, development work needed to get a spread optimized for prevention