Food Fortification – a contribute for the new PECS-CPLP

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Introduction

- Hunger, as a permanent state of undernutrition, indicates that a certain population is failing to obtain the essential nutrients for a balanced and healthy life, throw diet.
- Poverty limits the access to food, health care and education systems, leading to a highest incidence of illness and lower life expectance[1].
- Investing in nutrition contributes to productivity, economic development and poverty diminishing by increasing work capacity, cognitive development, better academic performance and lower illness and mortality risks[2].
- A poor nutrition perpetuates the poverty and undernutrition cycle directly due to the loss of productivity as a consequence of a bad physical condition and greater predisposal to illness and indirectly by the diminished cognitive development, wasting academic and health care resources[3].
- Between CPLC (Community of Portuguese Language Countries) country members there are very different human development levels, that difference could be observed at the adequate nutrition and health services coverage and quality, being under five years old children and pregnant women most afected[4].

Objectives

•The current revision was done to contribute for the creation of the new Strategic Plan for Cooperation in Health of CPLC, and to be included in an editorial project published in December 2013.

Figure 1. Meetings which lead to the book publication.

Material and methods

•Food fortification will be approached as a strategy to fight undernutrition, trough a research focused on a review of recent literature about the topic, accessing specific examples that may be adapted to various contexts of CPLC. Food fortification with Iron, Vitamin A, Iodine and Zinc were the main micronutrients reviewed.

Results

Iron

•Essential micronutrient in **learning, productivity, maternal and child health**.[5]
•In 2011 there was about **2 billion human beings** worldwide with iron deficiencies.[6]
•**Anemia prevalence** in under five years old children:[4]

- •Angola: 29,9%
- •Mozambique: **74,9%**
- • Timor-Leste: 31,5%

•Issues to think about food fortification with iron:

Legislation → Country laws should obligate food industry to fortify some foods with iron;

Bioavailability and usual diet → Iron is easily absorbed in common foods.

Public-private partnerships → Good evaluation, to asses ethical issues and transparency is needed.

Vitamin A

- When in deficit **increases under five years old children mobility and mortality**[7].
- In 2008 more than **219 million children worldwide** had vitamin A deficies[7];

- Subclinical vitamin A prevalence in under five years old clildren[4]:
  - Angola: **64,3%**
  - Mozambique: **68,8%**

- Vitamin A food fortification was considered as one of the **main direct intervention** that should be carried on in order to reduce vitamin A deficiencies by 2008 Lancet's Nutrition Series.[8]
- Foods like **margarine, flour, sugar and** beverages could be fortified.[9]

Iodine

- Essential micronutrient in fetus and children brain development, when in deficit could lead to irreversible brain damage and stillbirths.[10].
- In 2008 about **2 billion persons worldwide** had iodine deficiencies[10].

- Cape Verde exemple:[11]

  Goiter prevalence (1996) → **25,5%**

  → Salt iodization program (to Human and animal consumption)

  Goiter prevalence (2010) → **7,6%**

Zinc

- Zinc deficits increase risk of **malaria, pneumonia and diarrea**.[12];
- In 2004 IZiNCG (International Zinc Nutrition Consultative Group) estimated that about **20% of the world population** was at risk of zinc deficiency.[7]
- Stunting is the easiest way to identify possible zinc deficiencies.
- Under five years old children stunting prevalence:[4]
  - Angola: **50,8%**
  - Guinea-Bissau: **47,7%**
  - Mozambique: **47,5%**
  - Timor-Leste: **55,7%**

  → High risk of zinc deficit

- Food fortification with zinc showed technical viability, low cost, safety and bioavaliability.[13]

Key findings

- Food fortification seems to be a **promising strategy to control micronutrient deficits**, as iron, iodine, vitamin A and zinc, although there are some important variables to be considered like technical viability, total costs and cost–effectiveness ratios, safety and bioavailability.
- To **evaluate the impact** of the fortification programs on the populations covered by them is something that can not be overlooked.
- **Successes and sustainability** of food fortification programs depend on the adjustment with other ongoing programs like **poverty reduction, social interventions, agriculture, health and education** which promote the right amounts of the right foods.
- Food fortification with micronutrients as iron, vitamin A, iodine and zinc should be seen as a **complementary strategy** to improve micronutrient intake.

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