



The fortification of complementary foods for older infants and young children

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Elements covered in this talk

The Challenge of Getting Diets Right for older infants and young children

(Pre-)Fortified Complementary Foods

- Characteristics
- Evidence of impact
- Potential for scale
- Sustainability

Home fortification



The challenges of complementary feeding

6 months—1 year

Size of a grapefruit

3 oz - 2 cups



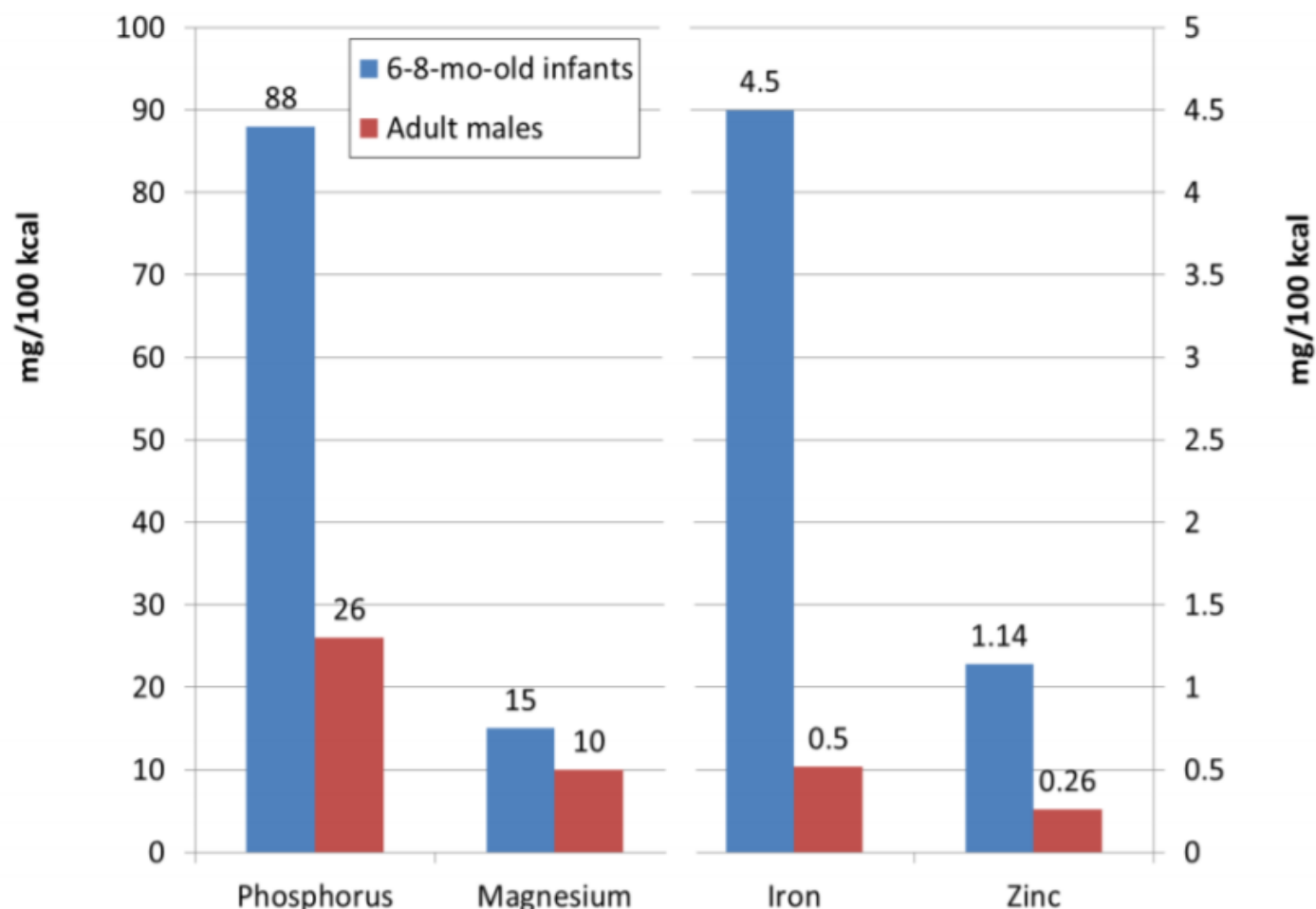
Small stomach +

High nutrient needs for growth and development





Comparison of minimum target nutrient densities for minerals between 6-8-mo-old infants and adult males



Dewey KG & Vitta BS. Strategies for ensuring adequate nutrient intake for infants and young children during the period of complementary feeding. *Alive & Thrive Technical Brief Issue 7*, Nov 2013.

Repeatedly, studies show that it is not possible for older infants/young children to meet their nutrient needs from local foods alone



KEY	
✕	Not possible to meet requirements
■	Possible to meet requirements with local foods (not including In
Liver	Not possible to meet requirements without liver
▶	Not possible to meet requirements without Incaparina

	6–8 Months	9–11 Months	12–23 Months BF	12–23 Months NBF
Calcium	■	▶	▶	▶
Vitamin C	■	■	■	■
Thiamin	■	■	■	■
Riboflavin	■	■	■	■
Niacin	▶	▶	▶	▶
Vitamin B6	■	■	■	■
Folate	■	■	■	■
Vitamin B12	▶	■	▶	■
Vitamin A	▶	■	■	■
Iron	✕	▶	▶	■
Zinc	▶	▶	▶	■

Source: FANTA, 2017

Fortified Complementary Foods





What are Fortified Complementary Foods?

These foods are specifically formulated with appropriate nutritional quality to provide additional energy and nutrients to complement the family foods derived from the local diet by providing those nutrients which are either lacking or are present in insufficient quantities

Typically, cereal-based porridges with added vitamins and minerals, and sometimes dairy

Lipid-Based Nutrient Supplements also meet the definition



Normative guidelines exist



CODEX ALIMENTARIUS

INTERNATIONAL FOOD STANDARDS



Food and Agriculture
Organization of
the United Nations



World Health
Organization

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**GUIDELINES ON FORMULATED COMPLEMENTARY FOODS FOR OLDER INFANTS AND YOUNG
CHILDREN**

CAC/GL 8-1991

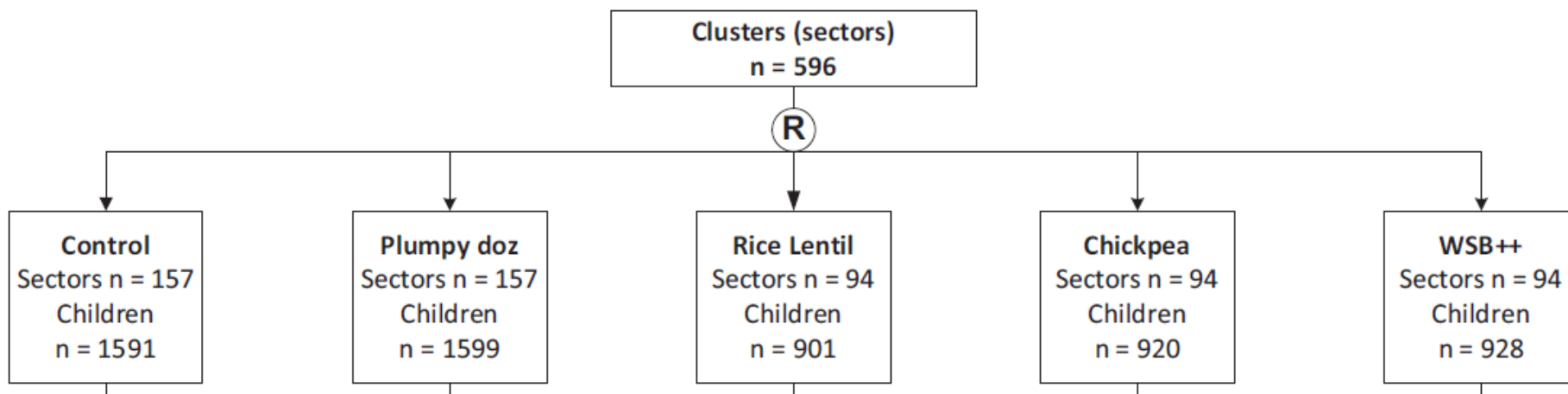
Adopted in 1991. Amended in 2017. Revised in 2013.



Evidence of impact (on growth)

Extremely difficult to separate the impact of the specific food formulation from the behavioural counselling that accompanied it—almost all trials have delivered both together.

An important exception is Christian P. et al., 2015 (Int J Epidemiol):

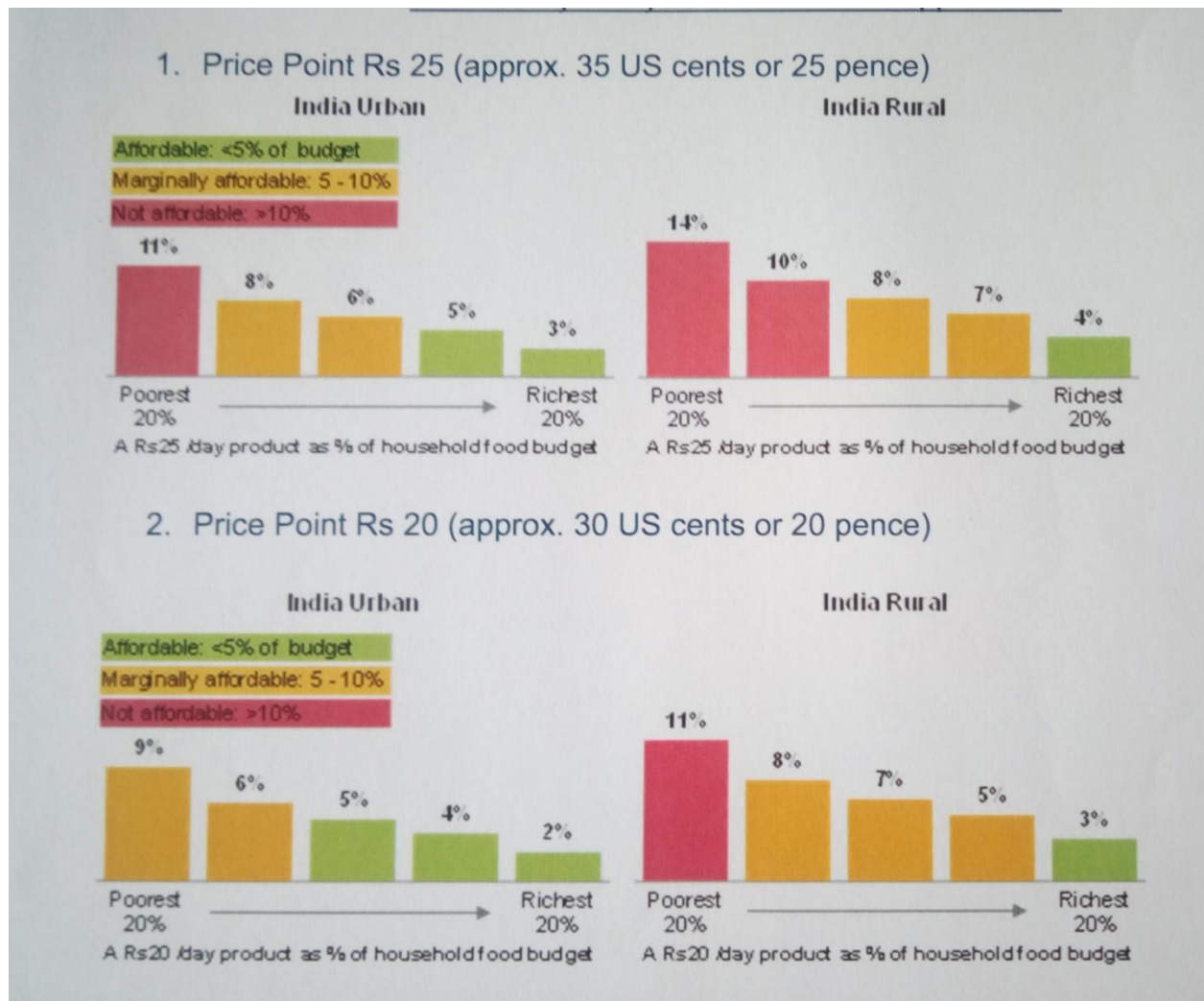




In this trial, impacts on growth were modest

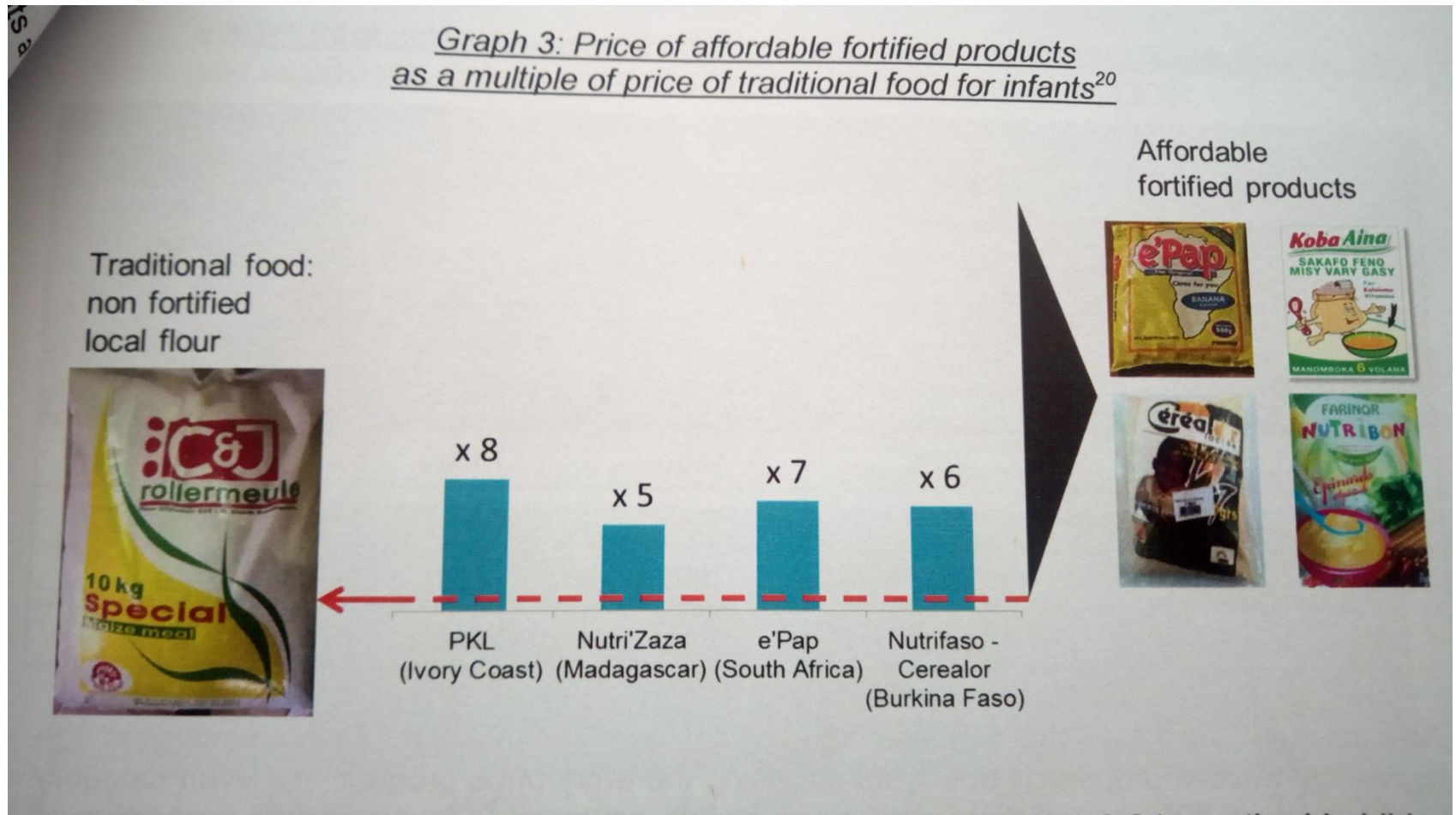
	Control N = 1265	Plumpy'doz N = 1344	Rice-lentil N = 755	Chickpea N = 769	WSB++ N = 770
Stunting (LAZ < -2), %	44.2	40.3	43.7	39.1	44.3
Difference (95% CI), ^a %	–	–5.0, (–8.8, –1.2)	–2.2 (–6.5, 2.0)	–6.2 (–10.6, –1.8)	–3.9 (–8.1, 0.4)
P-value		0.01	0.30	0.006	0.07

To be affordable to populations in need, the total consumer outlay cannot be more than \$0.30/day



Credit: Ashish Deo, GAIN

Some social entrepreneur models have managed to achieve these costs, in defined geographies



Credit: Hystra, 2014

How can governments and development partners make these foods more accessible?



Subsidise capital expenditure? *PKL*

Provide technical assistance to cheapen recipe? *GAIN/WFP Afghanistan*

Subsidise recurrent inputs? *ICDS*



India provides free complementary foods

Fortification is patchy across and within states

Budget allocation is so small (~Rps.5) that severe compromises have had to be made on quality

49% of children aged 6-35mo nationwide access this product, but only half of them regularly

Indonesia also has large-scale free distribution of “Balita” fortified biscuits

Political support for these programmes is massive, in spite of their demonstrated lack of impact



How can governments and development partners make these foods more accessible?



Subsidise capital expenditure

TA to cheapen recipe

Subsidise recurrent inputs

Increase consumer spending power? *WIC*

Professional marketing support? *ANF4W**

Help strengthen the enabling environment?

Legislation intended to promote breastfeeding has a stifling effect on the promotion of FCF



INDIA: The Infant Milk Substitutes, Feeding Bottles and Infant Foods (Regulation of Production, Supply and Distribution) Amendment Act, 2003

(f) "infant food" means any food (by whatever name called) being marketed or otherwise represented as a complement to mother's milk to meet the growing nutritional needs of the infant after the age of six months and up to the age of two years;

3. No person shall

(a) advertise, or take part in the publication of any advertisement, for the distribution, sale or supply of infant milk substitutes feeding bottles or infant foods; or

(c) take part in the promotion of infant milk substitutes, feeding bottles or infant foods;

(2) No container or label referred to in sub-section (1) relating to infant milk substitute or infant food shall -

(a) have pictures of an infant or a woman or both; or

(b) have pictures or other graphic material or phrases designed to increase the saleability of infant milk substitutes or infant food

cont. Legislation intended to promote breastfeeding has a stifling effect on the promotion of FCF



KENYA: BREAST MILK SUBSTITUTES (REGULATION AND CONTROL) ACT, 2012

- “complementary food product” means any food suitable or presented as a suitable complement to breast milk, for infants from the age of six months up to the age of twenty-four months;
- (1) A person shall not advertise or promote to the general public or cause to be advertised or promoted a designated or complementary food product

Home fortification:
an alternative?





What is home fortification?

Home fortification is an innovation aimed at improving diet quality of nutritionally vulnerable groups, such as young children. It is typically done with Micronutrient Powders (MNP).

The term Micronutrient Powders (MNP) refers to sachets containing dry powder with micronutrients that can be added to any semi-solid or solid food that is ready for consumption. Home fortification with MNP aims to ensure that the diet, i.e. complementary foods and breast milk combined, meets the nutrient needs of young children.



Home Fortification Technical Advisory Group



MNPs: take home messages

Home fortification with Micronutrient Powders is feasible and affordable, and reduces anaemia

The lack of distribution platforms reaching the poor is the key constraint to scale

MNPs are not an intrinsically attractive product, so regularity of consumption is challenging



THANK YOU



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ANNEX slides



A series of studies of the use of Small-Quantity Lipid-based Nutrient Supplements are encouraging



Ghana

Less stunting, more kids able to walk independently at 12 months

Malawi

No difference in stunting, more kids able to walk independently at 12 months

Burkina Faso

Less stunting, wasting, anaemia

Indonesia

Less stunting

Bangladesh

Less stunting

Many of these studies included
other co-interventions

If prices are kept affordable, margins for producers are extremely low



One tonne of fortified complementary food costs between \$1300 and \$3500 to produce, depending on the recipe, the country of operations, and the type of packaging

Multi-national corporations have generally found that they cannot produce affordable products and keep to the margins that the companies expect of individual brands

Social entrepreneurs have used donor funding, debt, institutional sales, or cross-subsidy to sustain operations

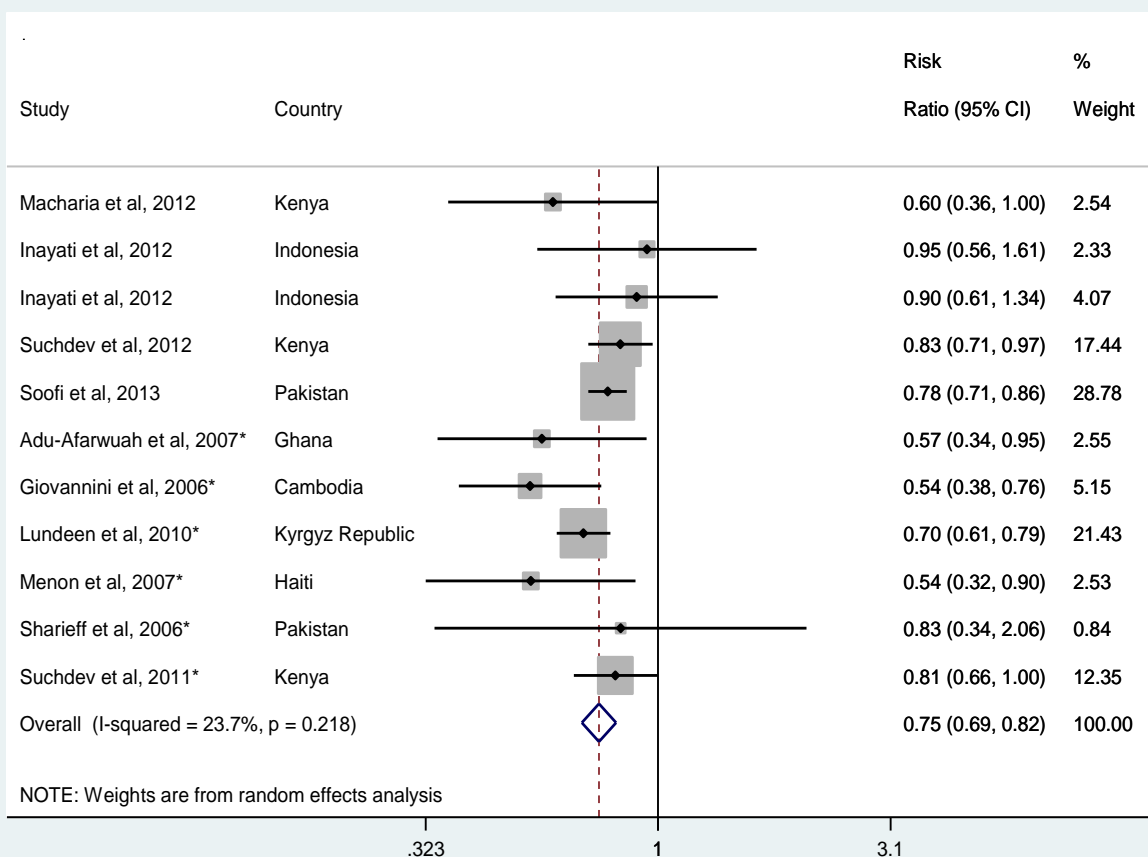
Little money has been invested in marketing and distribution, limiting expansion

Significant further price reduction would require radical innovation on quality protein and packaging, at a minimum



Evidence of impact

MNPs clearly reduce anaemia





Potential for scale: free distribution

Bolivia, the Dominican Republic, Guyana, Mexico, Mongolia, and Kyrgyzstan are some of the countries that have implemented large-scale public sector programmes, reaching 50% or more of the target population

Limited awareness of MNP and micronutrient deficiencies requires significant demand-generation. While most countries communicate MNP messages, many programmes lack communication strategies or the formative research to inform them

Costs of providing one child with MNP for one year (120-180 sachets) are estimated between approximately \$3.50 and \$4.50 for the commodity, with additional delivery costs for capacity building, promotion, distribution, etc. between \$3-5 per child per year, depending on the implementation context



Potential for scale: commercial/hybrid distribution

In Western Kenya a commercial model using door-to-door sales tactics reached 31-38% households (purchasing MNP at least once) between 2007 and 2010. Starting in 2010 BRAC, with support from GAIN, is now reaching 65% of the target population with messages on MNP and has achieved contact coverage (ever used MNP) of 39%

Mark-ups throughout the retail chain can drive the consumer price of MNP up to an estimated \$6.60 or more per child per year (based on 120 sachets)

The lack of existing markets for similar products targeting low-income families requires significant upfront investments to generate demand and low absolute margins mean that profitability depends on achieving large scale implementation with high volumes

Sustainability



Free distribution models are necessary to reach the most vulnerable, but with limited public resources or funding for the provision of MNP this could be short-lived, project-specific, or limited in coverage (e.g. Ethiopia, Indonesia, Zambia, Cameroon), limiting sustainability and scalability. However, an increasing number of countries are allocating substantial contributions from their own health budgets towards the provision of MNP and some programmes like Mexico or Kyrgyzstan are entirely nationally funded

It is assumed that hybrid/market models may have higher potential for sustainability. However, for commercial models issues around compliant utilisation might be exacerbated by the desire of cash-constraint consumers to only purchase one or two sachets at a time, threatening health and efficacy impact. An important challenge of bringing this approach to scale, is the limited reach of most community based networks and the low profit margins for the sales force.



Take home messages

Local foods alone cannot meet nutrient needs in older infants/young children

There is no proven business model for fortified complementary foods; A detailed business model review should precede any new investment

Boosting demand is key, but regulation may hamper this

Home fortification with Micronutrient Powders is feasible and affordable

The lack of distribution platforms reaching the poor is the key constraint to scale

MNPs are not an intrinsically attractive product, so regularity of consumption is challenging

Appropriate complementary feeding remains one of the most important life-saving nutrition interventions, and must be aggressively promoted across the world.