Setting the Context of MNPs in Public Health Nutrition Programming

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Goals of development in public health

Emorn Wasantawisut (Mahidol University, Thailand; September 25th, 2015, launching of the GNR at IFPRI). She was asked "What are the main limitations in developing countries to improve nutrition besides money?"

Her answer was more or less: *"1. Create national capacity, do not parachute the intervention, as nothing remains after you left. 2. How to make the programs inter-sectoral and not only health."*

" ...." A Spanish proverb about good intentions.

Our goal is to create local capacities for the countries to decide and implement the appropriate interventions, and for achieving this…..

we need to receive the wisdom from the field; those experiences that are neither published nor many times considered "scientifically" important, because the opinion and knowledge of the local colleagues is essential.

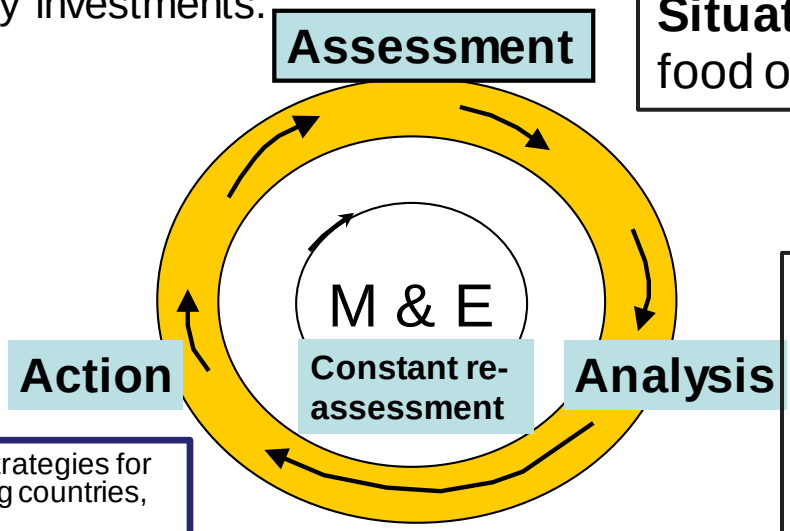
SCIENCE OF DELIVERY or IMPLEMENTATION SCIENCE.

Conditions of success for programs in developing countries

Elizabeth (Betsy) Jordan-Bell (USAID/GH/HIDN/NUT; LNS meeting, October 16th, 2015)

1. The importance of **context assessment:** because it defines needs and causes, and determine potential usefulness of strategies and interventions. Data gap must be filled.
2. The **resources are finite**: and so we need to select wisely the interventions, in order to promote own country investments.

Situation and causes: food or health or care?



Strategies (means for delivering the solutions)**:** feasible? potential efficacious? acceptable? efficient? sustainable?

Concept taken from UNICEF, Strategies for improving nutrition in developing countries, 1990.

Before ***acting***, we need to **assess** the needs (magnitude, severity, extension of the problems, and the possible causes), and **analyze** the feasibility of the potential solutions (acceptance, affordability –and mechanisms of financing-, sustainability).

Immediate factors of "good nutrition"

Food		Health		Care	
Macronutrients: Energy Protein Ess.fatty acids Ca, Mg P, K, Na	Micronutrients: Vitamins Minerals	Hygienic environments Safe water Immunization	Treatment when sick Medicines	Stimulation Love Self-confidence	Interaction with mother, siblings, family, community
Protecting: fiber, antioxidants, non-digestible oligosaccharides, others					

Concept taken from UNICEF, Strategies for improving nutrition in developing countries, 1990.

Although foods (nutrients) are insufficient to assure "good nutrition", they are still essential.

The nutritional value of onion¶

< 1 % RNI	1-3 % RNI	4-5 % RNI
-	Energy, Protein	-
Niacin, Vit. B_{12}	Vit. B_1, B_2, Panthotenate, Folate	Vit. B_6, Vit. C
Vitamins A, D, E, K	-	-
Iron, zinc, selenium	Calcium	Magnesium
Iodine	-	-

¶ % of the WHO Recommended Nutrient Intake for 1-3 years old children, assuming 25 g onion intake. Nutrient composition of the onion taken from the USDA Food Composition Table (edible portion), product NDB: 11283.

But onion also stimulates that the body metabolizes mycotoxins…. Very positive.

All substances required for the human physiology are provide by foods; so, the basic intervention is DIETARY DIVERSITY, regardless the nutrient density of individual foods.

Another wise quote

Selected as the introductory phrase of the National Nutrition Research Roadmap 2015-2020 for Advancing Nutrition Research to Improve and Sustain Health in the USA, by the Interagency Committee of Human Nutrition Research (ICHNR):

"Let food be thy medicine, and thy medicine be thy food"

Hippocrates, "the Father of Medicine" , c 489 BC to c 370 BC

We get from foods much more than the known nutrients, an so "we are what we eat".

Characteristics of unscrupulous medicine

1. It is expensive
2. It is unnecessary
3. It may be harmful

Are the MNP's harmful?

Not at all !!!!

Reason: Because if any risk exists it is due to the amount, the quality, and the moment and conditions of ingestion of the micronutrients that are supplied and not to the vehicle as those are being delivered.

But….

If we accept that the MNP's are safe, we should also accept that ….

…. The MNP's do not have any impact either.

Reason: Because the MNP's are simple vehicles of micronutrients. They are not the solution but the means for delivering the solution (the micronutrients).

The MNP's are neither harmful not efficacious as they are simple vehicles of the solution (micronutrients that are deficient in individuals and populations).

Are the MNP's unnecessary?

We do not know, because everything depends on the context, and therefore this is a question that goes beyond the MNP's; this is general for any intervention that supplies micronutrients.

Kay Dewey (University of California, Davis; LNS meeting, October 16th, 2015):

Synthesis of what has been learned to date from the iLiNS Project and implications for program and policy:

1. **Potential for population to respond**: [Inadequate status (or intake)]

2. **Potential for population to benefit:** [The intervention has the capacity to correct the inadequate condition (amount, quality, moment and frequency of the supply)]

Thus far, it has been demonstrated that consuming iron, vitamin A, and zinc, carried out by MNP's, at least 60 days every 180 days, the nutritional anemia of children can be prevented and corrected (i.e. the "proof of concept").

Are the MNP's expensive?

This is an important question, because it refers to one of the qualities of the MNP's as vehicles to deliver micronutrients and allows their comparison with other alternative means.

Item	MNP's – 1 g	LNS's – 20 g	Blended f. – 42 g	F. staple – 50 g
13 micronutrients*	$0.0030	$0.0015	$0.0027	$0.0028**
+ Ca and Mg ***	-	$0.0034	$0.0050	-
Cost product	**$0.03-0.04**	**$0.10-0.14**	**$0.14**	**$0.025**
Energy (kcal)	4	118	180	180
Protein (g)	-	2.6	16.0	4.9
Ess. Fatty acids	NO	YES	YES	NO
Distribution Cost	?	$0.03-0.14	$0.10-0.20	$0.00

* Cost in 2013 for the WHO formula of MNP to use in emergencies (i.e. 100% RDA/AI, exc. iron -86%- zinc -49%) for 1-3 years old children, and without considering cost of selenium and copper. In this case, about 50% of the cost is due to the addition of vitamin E, and vitamin C.
** Although vitamin C would be difficult to be added in most staple foods, and providing sufficient amounts of some micronutrients may be uncertain. *** LNS and blended flours may also contain Phosphorus, Potassium, and vit. K, but their costs were not added here.

Thus: Combination of complementary strategies is needed

Characteristic	Biofortification	Food Fortification	Supplementation
Principle	Increase nutrient content through selection and breeding of basic vegetable crops	Incorporation of micronutrients to edible vehicles during the manufacturing process	Syrups/tablets/powders, of micronutrients consumed with/without foods (home-"fortification")
Impact	Additional quantity and quality of the supplied micronutrients, and the conditions of ingestions (very little to do with the carrying vehicle)		
PROGRAMMATIC EFFICIENCY (Sustainability)			
Feasible to produce	√	√√	√√√
Easy to deliver	√√√	√√*	√
Accessed by consumers	√√	√√√*	√
Practical to monitor	√	√√*	√√√
Viable <u>total</u> cost.	√√	√√√*	√

* If centralized and reasonable-developed food industries are involved.

Why some programs have worked and others have not? From standards to utilization