Inadequate patterns of complementary feeding in 6-24 month old children in four Latin American and Caribbean countries

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Background

Complementary feeding is a critical factor in growth and development of young children. From the age of six months onwards, when breast milk alone is no longer sufficient to meet all nutritional requirements, infants enter a particularly vulnerable period of complementary feeding, making a gradual transition to eating ordinary family foods.

In many developing countries, inadequate intake of several nutrients from complementary foods together with reduced bioavailability of some nutrients in traditional diets often lead to poor nutrition in children.

One way to identify “problem nutrients” would be by comparing the estimates of desirable nutrient density of complementary foods (amount of nutrient per 100 kcal) with the actual densities of the nutrients in the foods consumed by the child.

Methods

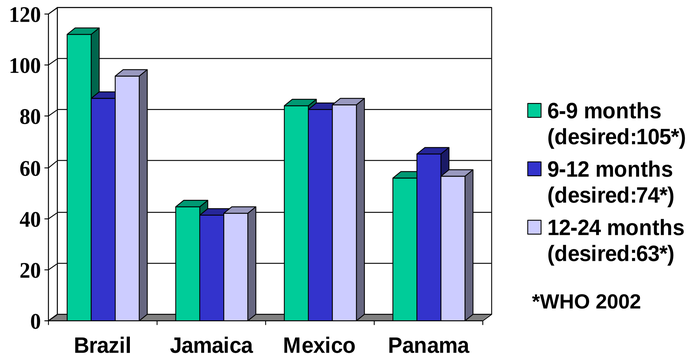
As part of the multi-center study of child feeding practices by the Pan American Health Organization (PAHO) in 2002, we examined the quantity and nutritive quality of the complementary diet in 6-24 month old children in Brazil (n=155), Jamaica (n=150), Mexico (n=164) and Panama (n=168)using both daily intakes and nutrient densities.

The quantitative data in this study included several questionnaires including 24-hour Recall surveys (one measure for all and a repeat measure for a sub sample ~20%) and Household Food Purchase surveys (total amount of different food items purchased by the household in a purchasing period).

Using the 24 hour dietary recall for the children, we calculated the median nutrient densities for calcium, iron, and zinc (the amount of micronutrient in mg in 100 Kcal of the 24 hour diet).

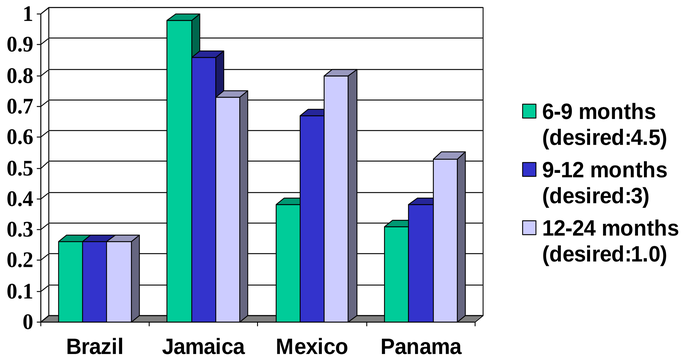
Results

Median calcium density (mg/100kcal) in children's diet

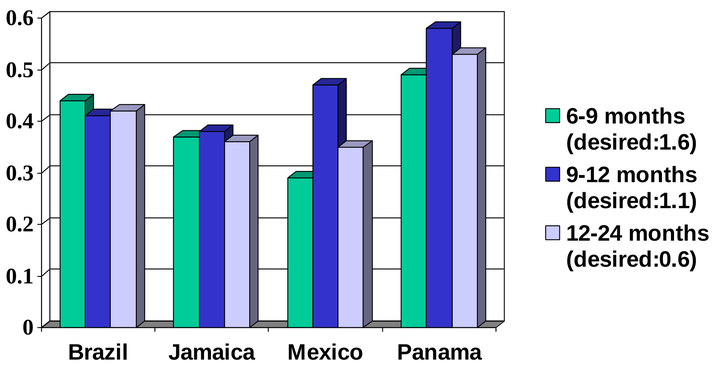


*WHO 2002

Median iron density (mg/100kcal) in children's diet



Median zinc density (mg/100kcal) in children's diet



Results

Most frequently purchased foods by households with higher nutrient densities for calcium, iron, and zinc

Frequently purchased foods with higher calcium density							
Brazil	**Micronutrient density (mg/100 Kcal)**	**Jamaica**		**Mexico**		**Panama**	
CHEESE	163.93	MACKEREL, TINNED	225.33	NOPALES	1018.75	CHEESE	163.93
TORTILLAS	78.83	ONIONS	225.00	CILANTRO	279.17	ORANGES	85.11
ONIONS	52.63	CABBAGE	188.00	CHEESE,MEXICAN	182.31	TORTILLAS,CORN	78.83
BEANS	51.62	FISH, SARDINES	150.00	YOGURT,FRUIT	139.36	DEHYDRATED SOUP	60.00
MOUNTAIN YAM	38.81	ORANGES	85.11	GARLIC	121.48	ONIONS	52.63
Frequently purchased foods with higher iron density							
RTE CERAL AVERAGE	3.58	ONIONS	4.63	CILANTRO	7.00	RTE CERAL AVERAGE	3.58
LENTILS	3.03	PUMPKIN	3.08	NOPALES	4.25	TOMATO PRODUCTS	3.10
BEANS,PINK	1.97	TOMATO	2.38	SQUASH	3.00	LENTILS	3.03
TOMATILLOS	1.94	CABBAGE	2.36	BEANS,KIDNEY	2.46	BEANS,PINK	1.97
BISCUITS	1.71	MACKEREL, TINNED	2.34	TOMATO	2.38	TOMATILLOS	1.94
Frequently purchased foods with higher zinc density							
BISCUITS	2.44	CORNED BEEF	1.99	CHAYOTE,FRUIT	3.89	BISCUITS	2.44
RTE CERAL AVERAGE	1.97	PUMPKIN	1.23	NOPALES	1.81	RTE CERAL AVERAGE	1.97
LENTILS	1.42	ONIONS	1.22	SQUASH	1.43	LENTILS	1.42
PORK	.87	MACKEREL, TINNED	.95	PORK	.87	PORK	.87
CHEESE	.80	AMARANTH	.85	BEANS,KIDNEY	.84	TOMATO PRODUCTS	.83

Discussion/Conclusions

Our results show that the magnitude of inadequacies especially for iron and zinc are large, calling for timely and practical solutions in these countries.

One strategy to obtain needed amounts of these problem nutrients is by optimizing nutrient intake from locally available foods. Looking at the foods that these households are already frequently purchasing enables us to provide them with better advice as what to feed their children to meet their needs.

On the other hand, finding one or several home-prepared foods that meet all the micronutrient needs of these children is quite difficult. Considering that patterns of inadequacies particularly in nutrient densities across these countries were similar in our study, designing a formulation for a low-cost, commercially available complementary food for these four countries can be justified.