

## “A TIMELY LOOK AT MICRONUTRIENTS AND URBANIZATION IN BRAZIL”

Demographic, epidemiologic and nutrition transitions, related to global socioeconomic changes, have been identified recently in several developing countries in which conditions of wealth and development coexist with those of poverty and underdevelopment. In Brazil, a rapid urbanization process occurred during the last few decades, with about 75% of the population currently living in urban areas. This has resulted in fundamental changes in the processes of provision of and access to food and has led to problems of concurrent *under-* and *over-*nutrition. In many urban/metropolitan areas of Brazil a remarkable decline in undernutrition has been observed, whereas there is an increase in problems of dietary excess and in morbidity and mortality rates from noncommunicable diseases. This is especially true for cardiovascular diseases, which affect both the poor and the rich. With the transition in dietary patterns and health conditions, possible deficits in micronutrients may become evident, resulting either in marginal deficiencies (limiting the potential to achieve optimal function and health), in classical clinical deficiencies (with pathological manifestations) or both. Specific micronutrient inadequacies may also increase the risk of contracting certain chronic noncommunicable diseases. In general, data on micronutrient status in major Brazilian cities are scarce and fragmented and the impact of micronutrient inadequacies as risk factors for noncommunicable diseases is unknown.

Responding to the present reality of urbanization and nutrition transition in Brazil, a workshop entitled “Micronutrient Status and Urban Lifestyles in Brazil” was held in Rio de Janeiro in April 1997 under the auspices of the regional branch of *Sociedade Brasileira de Alimentação e Nutrição* (SBAN) and of the Committee II/3 on Urbanization and Nutrition of the International Union of Nutritional Sciences. The general concerns of this Workshop are related to those of a previous International Workshop on “Modern Lifestyles and Micronutrient Deficiency” held in Indonesia in 1995, with the general objectives: 1) “to identify research opportunities” and 2) “to develop new prophylactic and preventive strategies to reduce micronutrient deficiencies in middle and high income groups in South East Asia.” (Proceedings published in the *Asia Pacific Journal of Clinical Nutrition*, vol 5, no. 3, 1996). In many ways, the realities of urbanization and demographic, economic and nutrition transitions in South East Asia present similarities with those of Latin America in general, and Brazil in particular.

The Workshop in Rio aimed at: 1) evaluation of inadequate micronutrient status in major cities; 2) evaluation of its possible relation with noncommunicable diseases; and 3) identification of strategies for prevention of micronutrient inadequacies and of research priorities. Presentations were organized into sections, acquainting the participants with the biological background of the relationship between micronutrient inadequacies and noncommunicable diseases, and with the nutritional and epidemiological trends in Brazil in relation to urbanization. These were followed by a section in which selected studies in Brazil regarding micronutrient status in urban areas were presented along with an overview of the subject in other developing countries, specifically

Guatemala (where urban populations are still not predominant), and Indonesia (where a recent and substantial urbanization has occurred).

As an outcome of the group discussions, and considering the available evidences, an urgent need to obtain systematic and comprehensive information on micronutrient status in urban areas of Brazil was recognized. This should be based on a common protocol applied at various urban sites throughout the nation. Descriptive population studies on distribution of biochemical and functional indices and of dietary intakes of micronutrients are required to evaluate the distribution patterns and prevalence of specific micronutrient inadequacies in small, medium and large cities of different Brazilian regions. These studies will be useful for planning case-control studies that relate specific micronutrient inadequacies with morbidity/mortality rates from noncommunicable diseases. Expansion of the data on composition of nutrients and bioactive phytochemicals in Brazilian foods is a requirement for adequate evaluation of dietary effects. Regarding micronutrient deficiencies and their classical consequences, research priorities should be on iron, zinc, and vitamin A in infants and preschool children; and on iron, folate, calcium and vitamin A in pregnant and lactating women. As for the relation between micronutrient status and chronic-degenerative diseases, research should focus on folate/antioxidant micronutrients and cardiovascular diseases, and on calcium and osteoporosis. Strategies for improvement of urban micronutrient status such as food fortification, supplementation and development of novel foods, should be adapted to specific needs. Besides government programs, free market strategies and alternative distribution methods could be developed.

This Workshop was a valuable opportunity to bring together investigators actively pursuing research in urban nutrition and micronutrients into a forum for discussion of these issues within the *Brazilian* context. We hope that this first experience will be followed by many others, and will open new research opportunities for a better understanding, and the eventual alleviation, of nutritional problems in Brazil.

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