Executive Summary

Recommendations for indicators of population zinc status

Zinc deficiency is among the most important causes of morbidity in developing-country settings. There are as yet very limited data available on the prevalence of zinc deficiency at the country level. Promotion of the collection of such data requires that clear guidelines on the use of indicators of population zinc status be in place. A consultation workshop was convened by the World Health Organization (WHO), the International Atomic Energy Association (IAEA), the United Nations Children's Fund (UNICEF), and the International Zinc Nutrition Consultative Group (IZiNCG) to review available indicators of population zinc status assessment and to present a set of recommendations to be adopted for international use.

Biochemical indicators of population zinc status

Serum or plasma zinc is the best available biomarker of the risk of zinc deficiency in *populations.*

For population assessment, the advised indicator to use is the percentage of the population with serum zinc concentration below the age/sex/time of day specific appropriate lower cutoff [1, 2].

The risk of zinc deficiency is considered to be elevated and of public health concern when the prevalence of low serum zinc concentrations is greater than 20%. An intervention to improve population zinc status is advised.

The same indicator can be used to assess the impact of an intervention program by comparing the percentage of individuals with low serum zinc concentrations before and after initiation of the intervention.

Dietary indicators of population zinc status

The advised intake levels that were based on the updated information and are most appropriate for international use were those presented by IZiNCG (2004). It is thus suggested that WHO/FAO/IAEA review their current guidelines in light of new scientific evidence so that a single set of dietary reference intakes for zinc can be set.

For population assessment, the specific indicator to be used is the prevalence of the population with zinc intakes below the estimated average requirement (EAR).

The risk of zinc deficiency is considered to be elevated and of public health concern when the prevalence of inadequate intakes is greater than 25%. An intervention to increase dietary zinc intakes is advised.

The same indicator can be used to assess the impact of food-based interventions by comparing the percentage of individuals with inadequate zinc intakes before and after initiation of the intervention.

Functional indicators of population zinc status

Height- or length-for-age is the best-known functional outcome associated with the risk of zinc deficiency in populations. For population assessment, the advised indicator to use is the percentage of children under 5 years of age with length- or height-for age less than –2.0 SD below the age-specific median of the reference population.

The risk of zinc deficiency is considered to be elevated and of public health concern when the prevalence of low height- or length-for-age is greater than 20%. An intervention to improve population zinc status is advised.

Opportunities to evaluate the validity of these indicators and cutoffs should be sought. As more experience is gained, these guidelines should be reviewed and refined as necessary.

References

1. Hess SY, Peerson JM, Brown KH. Use of serum zinc concentrations as an indicator of population zinc status. Food Nutr Bull 2007;28(suppl):S403–29.
2. Hotz C, Peerson JM, Brown KH. Suggested lower cut offs of serum zinc concentrations for assessing zinc status: reanalysis of the second National Health and Nutrition Examination Survey Data (1976–1980). Am J Clin Nutr 2003; 78:756–64.