

***Zinc is an essential nutrient for human health. Ensuring adequate levels of zinc intake should be a key component in efforts to reduce child illness, enhance physical growth and decrease mortality in developing countries. In spite of the proven benefits of adequate zinc nutrition, approximately 2 billion people still remain at risk of zinc deficiency.***

## **Zinc is important for public health**

When zinc is provided as a supplement to children in lower-income countries, it reduces the frequency and severity of diarrhea<sup>1,2</sup>, pneumonia<sup>3</sup>, and possibly malaria<sup>4</sup>. Moreover, studies have shown that children who receive zinc supplements have lower death rates<sup>3,5,6</sup>.

Adequate zinc intake is also required for normal child growth. Zinc supplements increase the growth and weight gain of stunted or underweight children<sup>7</sup>. There is also evidence that zinc supplementation of pregnant women may prevent adverse outcomes of pregnancy and contribute to increased post-partum infant weight gain and a reduced risk of infection<sup>8,9</sup>.

## **Zinc intervention programs can help achieve the Millennium Development Goals**

The United Nations agencies have recently proposed Millennium Development Goals (MDGs). Zinc intervention programs can help to achieve all of the four health-related MDGs:

**MDG 1: Reduce extreme poverty and hunger** – The target that has been set for reducing hunger is to decrease the prevalence of children aged less than 5 years who are underweight. Zinc deficiency is one of the major causes of growth retardation, and zinc intervention programs have repeatedly found increased growth of underweight children. Therefore, zinc supplementation can help to reduce the prevalence of underweight children.

**MDG 4: Reduce child mortality** – Zinc supplementation substantially reduces the rates of diarrhea and pneumonia, which are the most common causes of death among children in developing countries. Therefore, interventions to enhance the zinc intake of children in low-income countries are a useful strategy for reducing child mortality rates.

**MDG 5: Reduce maternal mortality** – Zinc deficiency can result in protracted labor, which increases maternal mortality rates and adversely affects the fetus. Therefore,

improving the zinc intake of women before and during pregnancy may help to reduce maternal mortality and benefit infant growth and survival.

**MDG 6: Combat HIV/AIDS, malaria, and other diseases** – There is evidence that zinc supplementation may reduce the severity of malaria. In addition, zinc supplementation of HIV-positive children reduces their risk of both diarrhea and pneumonia<sup>10</sup>, which frequently complicate HIV infections. Therefore, zinc supplementation may reduce fatalities from these diseases.

### **Approximately one third of the world's population live in areas at high risk of zinc deficiency**

Estimations of the global prevalence of zinc deficiency, based on the availability of zinc in national food supplies (as derived from FAO National Food Balance Sheets) and on rates of impaired child growth, indicate that approximately one third of the world's population live in countries that have a high risk of zinc deficiency<sup>11</sup>. The most vulnerable population groups are infants, young children, and pregnant and lactating women because of their elevated requirements for this essential nutrient. Unfortunately, very few surveys have been completed to determine directly the extent of zinc deficiency.

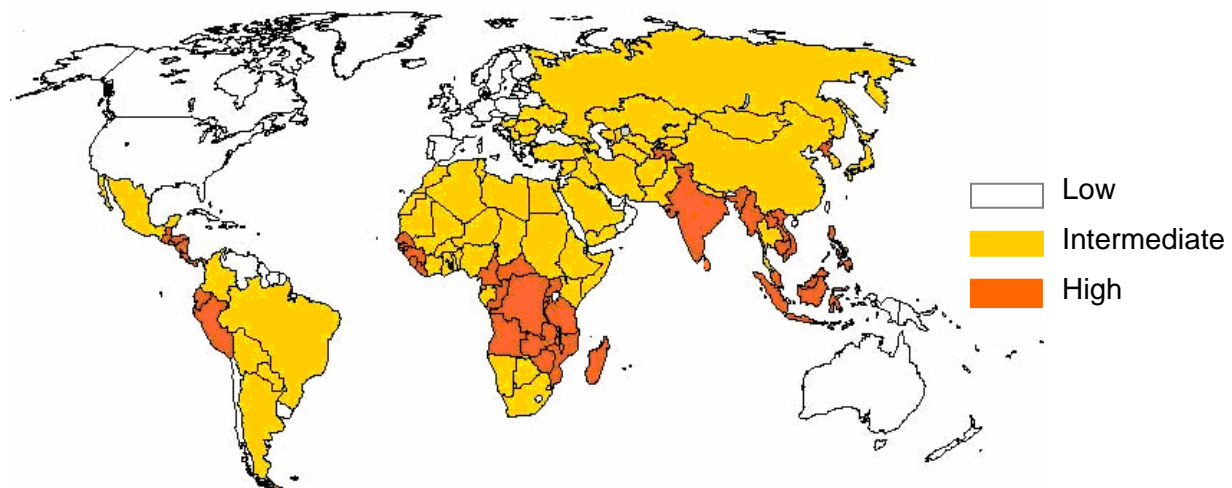


Figure 1: National risk of zinc deficiency based on combined information regarding the percent of individuals at risk of inadequate zinc intake and the prevalence of childhood growth-stunting

## **How can we begin to eliminate zinc deficiency?**

Affordable approaches to eliminate zinc deficiency exist<sup>12</sup>, and these need to be implemented and evaluated.

To plan effective interventions to control zinc deficiency, there is an urgent need to have better information on the zinc status of populations. Therefore, such assessment should be included in future national nutrition surveys. The World Health Organization and UNICEF have recently developed recommendations on assessment of population zinc status<sup>13</sup>.

Efforts should be made to implement zinc supplementation for diarrhea treatment<sup>14</sup> and for treatment of severe malnutrition<sup>15</sup>, as recommended by the World Health Organization.

Zinc can be added to the mineral pre-mixes used in fortification programs in countries with a high or moderate risk of zinc deficiency<sup>16</sup>.

Preventive zinc supplementation should be considered for children less than 5 years of age in high risk countries.

Another longer term intervention strategy to improve zinc nutrition is dietary diversification/modification. Exclusive breastfeeding during the first six months of life should be supported because breast milk is an excellent source of bioavailable zinc during this period. For young children, improved complementary feeding practices with zinc-rich foods, such as animal source foods, and/or zinc-fortified complementary foods should be promoted. Agricultural and food processing technologies could be applied to increase the amount of absorbable zinc in staple foods.

## **Add zinc to existing public health programs**

Opportunities to improve zinc status should be considered in the context of ongoing general health and nutrition programs, using existing personnel and infrastructure, such as growth monitoring programs, diarrhea treatment facilities, integrated management of childhood illnesses (IMCI) interventions, and national and targeted fortification programs. Zinc should be included in the activities of national and international micronutrient alliances, along with other important micronutrients, such as vitamin A, iodine and iron.

## **Who is IZiNCG?**

IZiNCG is the International Zinc Nutrition Consultative Group, whose primary objectives are to promote and assist efforts to reduce global zinc deficiency through interpretation of nutrition science, dissemination of information, and provision of technical assistance

to national governments and international agencies. IZiNCG focuses on the identification, prevention and treatment of zinc deficiency in the most vulnerable populations of low-income countries around the world. The Steering Committee of IZiNCG consists of 8 – 10 well-recognized international scientists with longstanding expertise in zinc nutrition.

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