

Editorial

Iron Deficiency Anemia Finally Reaches the Global Stage of Public Health

This editorial takes a different track than the many articles in this publication. While focusing on iron deficiency anemia, we look outside the clinical setting and toward a global view of this massive public health and nutrition problem. According to the World Health Organization (WHO), anemia is second only to tuberculosis as the world's most prevalent and costly public health problem. WHO also asserts that dietary intake of bioavailable iron is inadequate in more than three-quarters of the world's population. Anemia, caused in large part by iron deficiency, is linked to maternal death and a 5-7 IQ point reduction in those who were anemic as young children. It is also associated with reduced achievement in school children and a 30-40% reduction in physical productivity among adults, especially women. Despite its prevalence and dangers, iron deficiency has frequently been referred to as a "hidden hunger." Until recently, iron nutrition was called an "unclaimed element" in terms of donors' assistance and commitment.

The 1990 United Nations World Summit for Children set a global target for each country to reduce anemia prevalence by 30% in pregnant women by the year 2000. Ten years later, a report to the United Nations Secretary General on the decade's achievements noted that there had been significant progress in eliminating iodine deficiency disorders and reducing the prevalence of vitamin A deficiency.¹ The report also stated, however, that the goal of reducing iron deficiency had neither been

achieved nor had substantial progress been made in any developing country.

Despite this failure, the 1990s resounded with research, intervention development, and program design aimed at eradicating iron deficiency. Work by Pollit and Lozoff established a link between anemia in early childhood and permanent cognitive impairment.²⁻³ This conclusion gave rise to advocacy programs aimed at child rights and at the prevention and control of anemia. The impact of iron deficiency anemia on child and adolescent health and educational achievement also helped broaden the focus of iron deficiency beyond reproductive health to the full lifecycle. In 1998, the United Nations Children's Fund, WHO, and the International Nutritional Anemia Consultative Group issued guidelines for the use of iron supplements for all age groups in which anemia prevalence was high.

In 1999, WHO³ issued technical statements specifying the importance of providing iron supplements to those at risk of anemia in malaria-endemic areas as well as in areas where HIV/AIDS was endemic. During the same year, the Micronutrient Initiative, the International Nutrition Foundation, the United Nations University, WHO, and the World Bank reached consensus that iron overload was not a public health issue that should restrict the use of iron supplements and iron-fortified foods in populations. By the year 2000, large-scale advocacy efforts were organized to develop a mechanism for providing substantial funds to promote universal fortification (with iron and folic acid) of wheat and maize flours. Several international activities began to focus on the improvement of both iron and mul-

timicronutrient supplements and on the strategies needed to more effectively deliver them to rural populations in developing countries.

The growing recognition that iron deficiency and anemia are severe problems requiring global action culminated in 2001 with an international commitment to eliminate deficiencies of vitamin and iodine, and to substantially reduce the prevalence of anemia and iron deficiency. This widespread consensus bore fruit in May 2002 at the United Nations General Assembly Special Session on Children. That meeting saw the inauguration of a new international partnership dedicated to the sustained elimination of iodine deficiency by 2005, primarily through universal iodization of salt. Another new initiative, the Global Alliance for Improved Nutrition (GAIN), came out of a tangential event to the 2002 Special Session. With initial funding of U.S. \$70 million from the Bill and Melinda Gates Foundation and other corporate and nongovernmental sponsors, GAIN will provide grants to national groups for food fortification in developing countries.

Perhaps the most important and long-term outcome of the Special Session was the document, "A World Fit for Children."⁵ Among the several stated goals dealing with rights, health, welfare, and development of children, there were numerous goals relating to nutrition, including country-specific targets for reduction of anemia, and a general goal of reducing iron deficiency anemia by 30% by the year 2010. This new objective guaranteed a higher priority for anemia prevention and control on the health and social agendas of developing countries and bolstered national and international work geared toward building the commitment, advocacy, technical support, and resources needed to develop and implement effective intervention programs.

Success will require the collection, dissemination, and use of lessons learned from the past, as well as the incorporation of current research results into the most effective models and technical means of preventing and controlling anemia. Much can be gleaned from strategies developed primarily during the 1990s that effectively and substantially reduced deficiencies of iodine (iodization of salt) and vitamin A (periodic supplementation). Unlike vitamin A and iodine deficiency disorders, however, strategies to reduce the prevalence of anemia in a nation by 30% will require multiple-intervention approaches.

Much of the consensus regarding how to prevent and control anemia that grew during the 1990s stemmed from the agreement that a "package" of interventions was needed. The optimal amount of nutritional iron required varies substantially in an individual at the different lifecycle stages of older infancy, adolescence, pregnancy, and among adult men versus women of child-bearing age. Because of the differences in needs, the complexities related to bioavailability and the need to assure that too much iron is not absorbed over long periods, a complex public health approach is needed. This requires multiple interventions that address the higher iron needs of various groups in a national population.

Prevailing interventions include food fortification, oral supplements, promotion of improved diets infection control, and coordination of anemia prevention and control with related public health and clinical strategies. Initial and sustained effectiveness of these interventions will require supportive information, communication, and educational activities, along with a system for monitoring and evaluating programs and conducting operational research. Within this context, various intervention sets are needed that can be introduced independently and later integrated to form a populationwide strategy covering every age group.

Several interventions themselves need further development. These include improved pediatric supplements, better supplement delivery and compliance strategies, improved fortificants for staple foods, and new iron-rich agricultural varieties such as rice and wheat.

New alliances of both public and private groups as well as donors and nongovernmental organizations (NGOs) in developing countries will also be necessary. For example:

- Coalitions of millers, bakers, public health officials, and trade groups can work well together on food fortification.
- Health professionals, pharmaceutical companies, community pharmacy networks, local leaders, and social marketing groups can join together to improve the kinds and quality of supplements as well as their delivery and consumer compliance with recommended use.
- Media, educational leaders, health officials, NGOs, and the community comprise an alliance key to effectively promoting changes in dietary practices

that improve iron nutrition and remove risk factors for anemia.

A "grand alliance" with additional collaboration from donors, new ties among countries, and networks providing international technical expertise and relevant research may be needed to bring together the necessary interventions to coordinate a decade-long effort to reduce anemia prevalence.

These actions will be needed to reduce the prevalence of anemia to the goal set at the 2002 Special Session of the General Assembly. Acceptance of this goal by the international community, heads of state, and governments will make it more feasible to find the resources necessary for solving this problem. Neither technical nor financial resources will be the main determinants of success: dedicated research, good planning, establishment of alliances, commitment, and determination are just as important. Reducing the prevalence of anemia requires the establishment and development of new

alliances within developing countries and better collaboration within the international community.

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