

Monday 23 January, 2023

Esteemed Members of the WHO Executive Board:

As organizations committed to ending the devastating global crisis of micronutrient malnutrition, **we urge your support for the resolution “Accelerating efforts for preventing micronutrient deficiencies, spina bifida and other neural tube defects through safe and effective food fortification,” which has been submitted for your consideration at the 152nd session of the Executive Board, 30 January – 7 February 2023.**

Colloquially referred to as “hidden hunger,” deficiencies in essential vitamins and minerals, specifically folate, iron, vitamin A, and zinc, affect 50% of all preschool aged children and 67% of all women of reproductive age (WRA) worldwide, according to a recent study published in *The Lancet Global Health*.ⁱ These deficiencies cause devastating birth defects, blindness, fragile immune systems, and death during childbirth. Iodine deficiency, still prevalent in many countries, impairs brain development in children, undermining their ability to learn and their eventual earning potential and productivity. Altogether, these preventable deficiencies are among the greatest global threats to human potential.

We already know how to tackle this problem. Large scale food fortification (LSFF) adds essential vitamins and minerals to widely consumed items, such as wheat and maize flours, rice, cooking oil, and salt in accordance with national consumption patterns and deficiencies. Fortifying foods and condiments that are consumed by nearly everyone is an inexpensive and incredibly effective way to improve nutrition across entire populations, making it a critically important tool to combat hidden hunger. Just one dollar invested in fortification brings 27 dollars on average in economic return through improved health and productivity,ⁱⁱ while sparing countless families the pain of disease, intellectual disability, miscarriage, termination of a wanted pregnancy, still birth, or the death of an infant or child.

The unacceptably high prevalence of folic acid-preventable spina bifida and anencephaly is a striking example of preventable death and morbidity for which LSFF is part of the solution.ⁱⁱⁱ These neural tube birth defects are among the top contributors to child morbidity without a cure and most affected pregnancies result in miscarriages, terminations, stillbirths, or under-five mortality. Children born with spina bifida require immediate specialized medical intervention as well as lifelong access to multidisciplinary care to reach their full potential while living with lifelong paralysis, incontinence, and other co-morbidities. Access to essential healthcare and support services is not the reality for most people with spina bifida and their families, especially in low-income countries, resulting in further preventable infant and child mortality and morbidity.

There are 30 years of unequivocal scientific evidence on the protective effect of folic acid to prevent neural tube birth defects. A 2019 systemic review and meta-analysis found that food fortification with folic acid reduces the prevalence of such birth defects by 41%



on average, reaching women during a critical period as the neural tube of an embryo forms around the 28th day after conception, before most women know that they are pregnant.^{iv} Despite this evidence, mandatory fortification of cereal grains with folic acid and other micronutrients is implemented in only 91 countries, and many of these programs and policies are under resourced and insufficiently enforced, preventing less than 25% of the estimated cases of spina bifida and anencephaly worldwide.^v

A staggering 3 billion people worldwide cannot afford a healthy, nutritious diet, one that is diverse, supplies the vitamins and minerals that all humans need to be healthy and productive, and contributes to preventing non-communicable disease.^{vi} But micronutrient deficiency is not exclusive to those who cannot afford a healthy, nutritious diet. Higher income often brings with it unhealthy food consumption, including sweets, packaged snacks, fast food, and other ultra-processed food that is nutritionally poor.^{vii} Crucially, for some micronutrients, such as folate and iodine, adequate consumption without fortified foods is extremely difficult, even with a healthy, diverse diet.

Fortification of staple foods has proven to be the most successful policy in reducing the prevalence of congenital malformations such as spina bifida, anencephaly, and other neural tube defects,^{viii} as well as iodine deficiency disorders such as congenital hypothyroidism.^{ix} Fortification with micronutrients such as iron, zinc, and vitamin A, strengthens immunity to disease and significantly increases energy and productivity, among other effects.

Food fortification programs have a proven global record of success over the past 30 years. Over 160 countries have implemented salt iodization, virtually eliminating iodine deficiency and goiter in much of the world. 90 countries have implemented cereal grain fortification programs and over 30 fortify oil, margarine, and ghee, reducing the prevalence of folate, iron, vitamin A, vitamin D, and zinc deficiencies, especially where these programs are mandatory and well implemented and enforced.

Still a large unfinished agenda on food fortification remains; doubling down to improve the reach and quality of food fortification programs has huge potential to combat hidden hunger. Micronutrient deficiency is a crisis that affects all communities globally, be they low-income or high-income.^x 84 countries could benefit from establishing mandatory fortification programs, and most existing programs can be strengthened to reach more people with more nutritious food.^{xi} As a global community we must rise to this challenge and quickly. In an increasingly volatile and fragile world, we cannot afford for the next generation to grow up without access to the nutrients they need to develop and thrive.

In recognition of the enormous amount of preventable suffering and disease currently caused by micronutrient deficiency and the existence of a proven cost-effective solution that has yet to be fully deployed, the undersigned organizations urge you to ensure that the resolution “Accelerating efforts for preventing micronutrient deficiencies, spina bifida and other neural tube defects through safe and effective food fortification” is put on the agenda of the 76th World Health Assembly for consideration and passage:





Access to Nutrition Initiative | The American Society of Pediatric Neurosurgeons | Associação Spina Bífida e Hidrocefalia de Portugal | Bioanalyt | Center for Spina Bífida Prevention at Emory University | Central Uganda Spina Bífida & Hydrocephalus Network | Child Help | Child Help SBH, Malawi | Children's Hospital Capital Institute of Pediatrics | CDH International | Food Fortification Initiative | The Foundation for International Education in Neurological Surgery | Global Alliance for Improved Nutrition | Global Alliance for the Prevention of Spina Bífida F | The Global Alliance for Surgical, Obstetric, Trauma and Anaesthesia Care | Guangzhou Women and Children's Medical Center | Harvard Medical School Program in Global Surgery and Social Change | Helen Keller Intl | Indian Society for Paediatric Neurosurgery | International Clearinghouse for Birth Defects Surveillance and Research | International Federation for Spina Bífida and Hydrocephalus | International Rescue Committee | The International Society for Pediatric Neurosurgery | International Zinc Nutrition Consultative Group | Iodine Global Network | March of Dimes | Micronutrient Data Innovation Alliance | Micronutrient Forum | Neurokids | The Neurosurgery Outreach Foundation | Nutrition International | Omni-Net Ukraine | PATH | P Cubed CC | Pediatric Section of the American Association of Neurological Surgeons/Congress of Neurological Surgeons | Reach Another Foundation | RESULTS Canada | Rotary Club of Coppel | Rotary Club of North Atlanta | St. Jude Children's Research Hospital | Sanku - Project Healthy Children | SDG2 Advocacy Hub | Spina Bífida Association | Standing Together for Nutrition | Stronger Foundations for Nutrition | TechnoServe | UNICEF | World Federation of Neurosurgical Societies | World Food Programme | Vitamin Angels



- ⁱ Stevens, G, Beal T, Mbuya MNN, Luo H, Neufeld, L. “Micronutrient deficiencies among preschool-aged children and women of reproductive age worldwide: a pooled analysis of individual-level data from population-representative surveys.” *Lancet Global Health* 2022; 10: e1590-99.
- ⁱⁱ <https://www.gatesfoundation.org/ideas/articles/food-fortification-to-fortify-the-future>
- ⁱⁱⁱ <https://www.who.int/news-room/fact-sheets/detail/birth-defects>
- ^{iv} Keats EC, Neufeld LM, Garrett GS, Mbuya MNN, Bhutta ZA. “Improved micronutrient status and health outcomes in low- and middle-income countries following large-scale fortification: evidence from a systematic review and meta-analysis.” *Am J Clin Nutr.* 2019 Jun 1;109(6):1696-1708. doi: 10.1093/ajcn/nqz023. PMID: 30997493; PMCID: PMC6537942.
- ^v Kancherla V, Wagh K, Priyadarshini P, Pachón H, Oakley GP Jr. A global update on the status of prevention of folic acid-preventable spina bifida and anencephaly in year 2020: 30-Year anniversary of gaining knowledge about folic acid's prevention potential for neural tube defects. *Birth Defects Res.* 2022 Dec 1;114(20):1392-1403. doi: 10.1002/bdr2.2115.
- ^{vi} FAO, IFAD, UNICEF, WFP and WHO. 2022. *The State of Food Security and Nutrition in the World 2022. Repurposing food and agricultural policies to make healthy diets more affordable.* Rome, FAO. <https://doi.org/10.4060/cc0639en>
- ^{vii} <https://news.gallup.com/opinion/gallup/403376/global-diet-quality-project-measures-world-eats.aspx>
- ^{viii} Kancherla, V, Botto, L, Rowe, L, Shlobin, N, Caceres, A, Arynchyna-Smith, A et al. “Preventing birth defects, saving lives, and promoting health equity: an urgent call to action for universal mandatory food fortification with folic acid.” *Lancet Global Health* 2022; 10: e1053-57.
- ^{ix} Institute of Medicine (US) Committee on Micronutrient Deficiencies; Howson CP, Kennedy ET, Horwitz A, editors. *Prevention of Micronutrient Deficiencies: Tools for Policymakers and Public Health Workers.* Washington (DC): National Academies Press (US); 1998. 5, Prevention of Iodine Deficiency. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK230108/>
- ^x Stevens, G, Beal T, Mbuya MNN, Luo H, Neufeld, L. “Micronutrient deficiencies among preschool-aged children and women of reproductive age worldwide: a pooled analysis of individual-level data from population-representative surveys.” *Lancet Global Health* 2022; 10: e1590-99.
- ^{xi} Mkambula P, Mbuya MNN, Rowe LA, Sablah M, Friesen VM, Chadha M, Osei AK, Ringholz C, Vasta FC, Gorstein J. The Unfinished Agenda for Food Fortification in Low- and Middle-Income Countries: Quantifying Progress, Gaps and Potential Opportunities. *Nutrients.* 2020 Jan 29;12(2):354. doi: 10.3390/nu12020354. PMID: 32013129; PMCID: PMC7071326.

