How large-scale food fortification will define Nigeria's future

Nigeria has a severe problem with micronutrient deficiencies. Many Nigerians are not getting the nutrients they need for proper brain development, immunity, and physical and mental health.

Iron deficiencies are severe and deadly

Nigeria has one of the highest levels of anemia in the world, caused primarily by too little iron in the diet.



In 2019, 68.9% of Nigerian children under 5 - more than two-thirds - were anemic¹.



Nigeria accounts for almost 20% of the world's maternal deaths⁶. Iron deficiency anemia is a leading cause of maternal death globally.



Infants with iron-deficiency anemia score 6-15% lower in intelligence tests², while children with insufficient iron are three times less likely to finish secondary school³.



Iron sufficient infants have more than twice the coordination and gross motor skills of infants with iron deficiency anemia⁴.



In 2019, 55.9% of pregnant women in Nigeria were anemic¹. Women with severe anemia are more than twice as likely to die⁵ in childbirth.

% of Children with Anemia



Vitamin A deficiencies are catastrophic

The last comprehensive survey found 28.5% of Nigerian children had insufficient vitamin A⁸.

17 trials across nearly 200,000 children⁹ found sufficient vitamin A from supplementation reduced childhood deaths by 24%.

Food fortification with vitamin A has the potential to prevent deficiency in 3 million children globally each year.

This is why we are working so hard to get adequate vitamin A into Nigeria's staple foods.



Micronutrient deficiencies are costing the Nigerian economy millions of dollars every day.

The World Bank estimates **Nigeria loses \$1.5bn of GDP a year** to micronutrient deficiencies. These losses come from multiple sources, including lost productivity, early death, illness, reduced capacity, and resources diverted to healthcare.

Take the chain from iron deficiency to less food:



By adding vitamins and minerals to staple foods, in line with the mandated national standards, and reducing Nigerians' micronutrient deficiencies, fortified food producers have the power to transform the health of the nation.

1. https://ourworldindata.org/micronutrient-deficiency

 Agaoglu L, Torun O, Unuvar E, Sefil Y, Demir D. Effects of iron deficiency anemia on cognitive function in children. Arzneimittelforschung. 2007;57(6A):426-30. doi: 10.1055/s-0031-1296691.
PMID: 17691592

3. Betsy Lozoff, Julia B. Smith, Niko Kaciroti, Katy M. Clark, Silvia Guevara, Elias Jimenez, Functional Significance of Early-Life Iron Deficiency: Outcomes at 25 Years, The Journal of Pediatrics, Volume 163, Issue 5, 2013

4. Angulo-Barroso RM, Schapiro L, Liang W, et al. Motor development in 9-month-old infants in relation to cultural differences and iron status. Dev Psychobiol. 2011;53(2):196-210. doi:10.1002/ dev.20512

5. Daru J, Zamora J, Fernández-Félix BM, Vogel J, Oladapo OT, Morisaki N, Tunçalp Ö, Torloni MR, Mittal S, Jayaratne K, Lumbiganon P, Togoobaatar G, Thangaratinam S, Khan KS. Risk of maternal mortality in women with severe anaemia during pregnancy and post partum: a multilevel analysis. Lancet Glob Health. 2018 May;6(5):e548-e554. doi: 10.1016/S2214-109X(18)30078-0. Epub 2018 Mar 20. PMID: 29571592

6. https://www.who.int/reproductivehealth/maternal-health-nigeria/en/

7. https://borgenproject.org/women-in-nigeria/

8. Vitamin A Deficiency Is Prevalent in Children Less Than 5 y of Age in Nigeria Busie B. Maziya-Dixon, Isaac O. Akinyele, Rasaki A. Sanusi, Tunde E. Oguntona, Sagary K. Nokoe, Ellen W. Harris The Journal of Nutrition, Volume 136, Issue 8, August 2006, Pages 2255–2261, https://doi. org/10.1093/jn/136.8.2255 9. Mayo-Wilson E, Imdad A, Herzer K, Yakoob M Y, Bhutta Z A. Vitamin A supplements for preventing mortality, illness, and blindness in children aged under 5: systematic review and meta-analysis BMJ 2011; 343 :d5094 doi:10.1136/bmj.d5094. <https://www.bmj.com/content/343/bmj.d5094

10. Beaton GH, Martorell R, Aronson KJ, Edmonston B, McCabe G, Ross AC, Harvey B. Effectiveness of vitamin A supplementation in the control of young child morbidity and mortality in developing countries. Nutrition Policy Discussion Paper 13: Administrative Committee on Coordination-Subcommittee on Nutrition, Geneva (Switzerland): WHO; 1993

11. 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

12. https://data.worldbank.org/indicator/SH.DYN.MORT?locations=NG

13. Ratio of under-5 mortalities to all mortalities from 0-17 years based on data on 711 deaths in under-18 year olds in: An https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4003715/

14. https://cirddoc.org/women-lead-agriculture-in-nigeria/

15. Meeks Gardner, J., Grantham-McGregor, S., Himes, J., & Chang, S. (1999). Behaviour and Development of Stunted and Nonstunted Jamaican Children. The Journalof Child Psychology and Psychiatry and Allied Disciplines, 40(5), 819-827, doi:10.1111/1469-7610.00497

16. E Olayemi, E; Halim, NKD.Anaemia in Apparently Healthy Adult Nigerians. Journal of College of Medicine Vol.10(1) 2005: 31-33

