

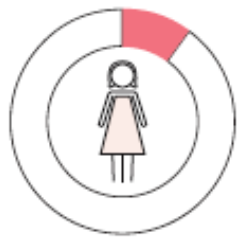
Maternal Nutrition Interventions

Evidence Base and Integration Into ANC

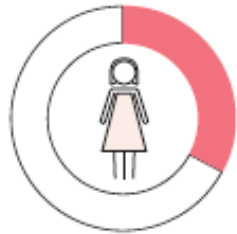
Tina G. Sanghvi, PhD

January 25, 2024

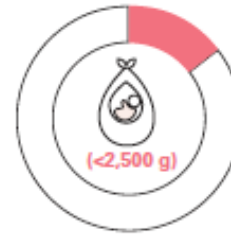
Why Maternal Nutrition?



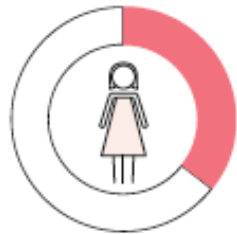
Approximately
170 million
women (9.1%) are
underweight
(BMI <18.5 kg/m²)



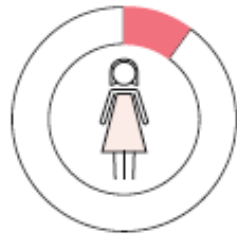
Anaemia affects
520 million
women (32.8%)



Annually,
20.5 million
babies (14.6%) are
born with **low**
birthweight
(<2,500 g)



Nearly
610 million
women (32.5%)
are affected by
overweight
(BMI ≥25 kg/m²)



7 %
of women aged
20–49 years in
LMICs have **short**
stature (<145 cm)

*Nutrition in pregnancy is fundamental to the **survival and well-being of mothers, newborns, infants and children.** There is an **untapped opportunity in the antenatal platform** to provide pregnant women with essential nutrition services and care.*



Victora, C. G., Christian, P., Vdaletti, L. P., Gatica-Dominguez, G., Menon, P., & Black, R. E. (2021). Revisiting maternal and child undernutrition in low-income and middle-income countries: variable progress towards an unfinished agenda. *Lancet*, 397(10282), 1388-1399. doi:10.1016/s0140-6736(21)00394-9; WHO Recommendations on Antenatal Care for a Positive Pregnancy Experience, 2016; UNICEF Programming Guidance for Maternal Nutrition; <https://www.unicef.org/documents/programme-guidance-maternal-nutrition>

Evidence on Interventions

- **Iron and folic acid supplements**

WHO recommends a daily intake of 30–60 mg iron and 400 µg folic acid for all women throughout pregnancy

- 47% reduction in the risk of maternal anemia
- 12% reduction in the risk of low birthweight
- Risk of postpartum hemorrhage linked to iron deficiency anemia

NOTE: Updated evidence supports the use of multiple micronutrient supplementation

- **Calcium supplements (any dose) in women with low calcium intake**

- 55% reduction in the risk of maternal pre-eclampsia and eclampsia

- **Food supplementation, balanced energy protein supplementation** (protein < 25% of the total calories)

- 61% reduced risk of stillbirth
- 40% reduced risk of low birthweight
- 29% reduction in SGA

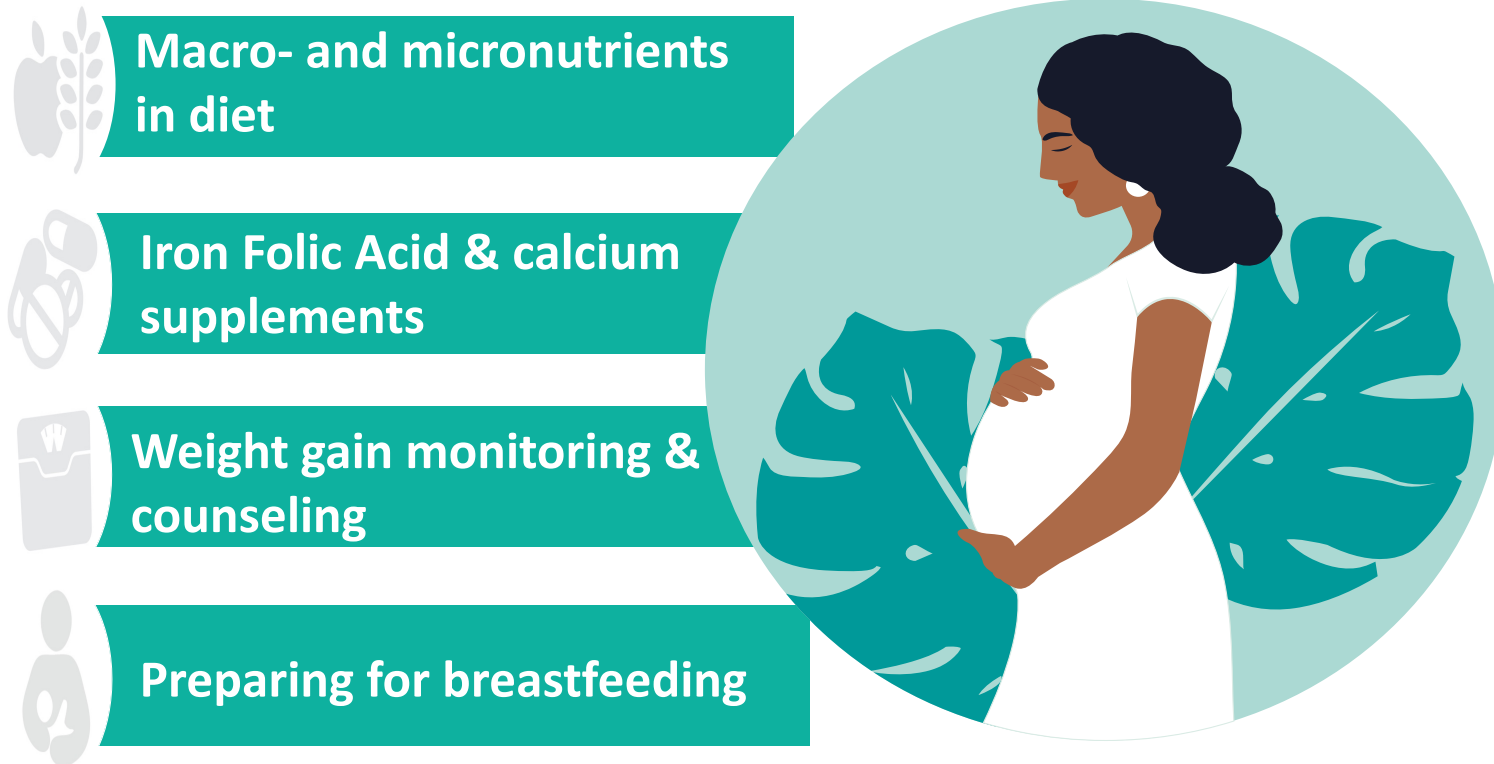
- **General food distribution programs**

- 8% reduced risk of low birthweight
- 18% lower risk of neonatal stunting
- 13% lower risk of neonatal wasting

- **Nutrition and dietary counseling** Refs: Ota E, Hori H, Mori R, et al (2015) Cochrane Database of Systematic Reviews. Girard AW, Olude O. (2012). Paediatric and Perinatal Epidemiology. 2012

Keats, E. C., Das, J. K., Salam, R. A., Black R.E. et al (2021). Effective interventions to address maternal and child malnutrition: an update of the evidence. *Lancet Child Adolesc Health*, 5(5), 367-384. doi:10.1016/s2352-4642(20)30274-1; WHO database: <https://www.who.int/tools/elena/interventions/nutrition-counselling-pregnancy>; WHO 2016 Recommendations

Package of Maternal Nutrition Interventions Tested for Integration Into Antenatal Care Services



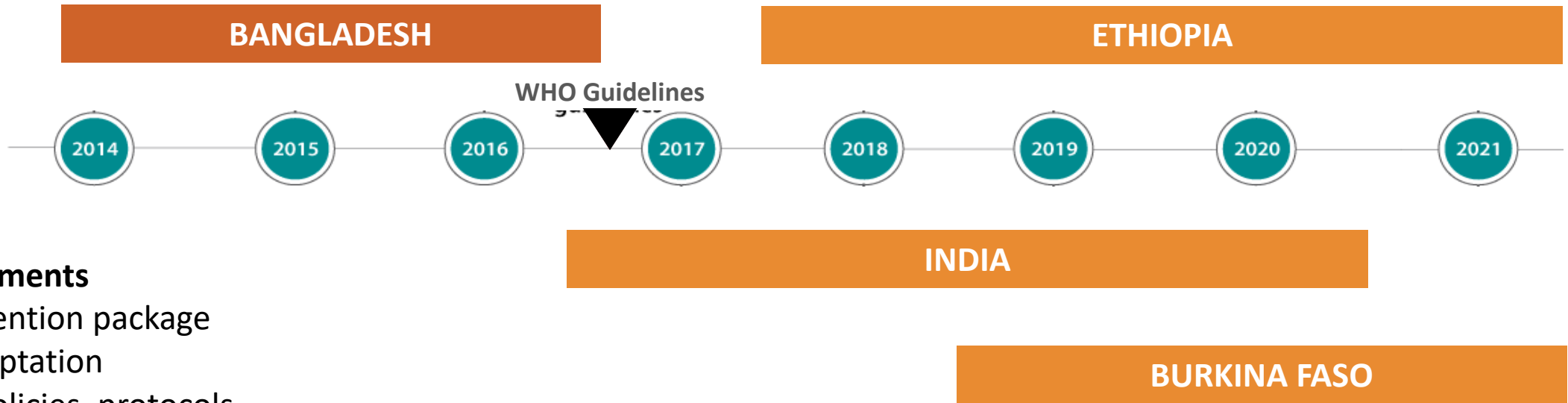
2016



WHO
Recommendations
on Antenatal Care
for a Positive
Pregnancy Experience

- Emphasis on number of ANC contacts
- Community components
- Task allocation and use of diverse cadres
- Family engagement

Timeline of Maternal Nutrition Implementation Research



Common Elements

- Core intervention package
- Country adaptation
 - Policies, protocols
 - Service delivery
 - Community context, maternal practices
- Formative research, participatory testing
- Strategic use of data, adaptive management
- RCT evaluations

Intervention Strategies to Fill Country Gaps

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ORIGINAL ARTICLE

Maternal & Child Nutrition WILEY

Gaps in the implementation and uptake of maternal nutrition interventions in antenatal care services in Bangladesh, Burkina Faso, Ethiopia and India

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Abstract

Antenatal care (ANC) is the largest health platform globally for delivering maternal nutrition interventions (MNIs) to pregnant women. Yet, large missed opportunities remain in nutrition service delivery. This paper examines how well evidence-based MNIs were incorporated in national policies and programs in Bangladesh, Burkina Faso, Ethiopia and India. We compared the nutrition content of ANC protocols against global recommendations. We used survey data to elucidate the coverage of micronutrient supplementation, weight gain monitoring, dietary and breastfeeding counselling. We reviewed literature, formative research and program assessments to identify barriers and enabling factors of service provision and maternal nutrition practices. Nutrition

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ORIGINAL ARTICLE

Maternal & Child Nutrition WILEY

Process of developing models of maternal nutrition interventions integrated into antenatal care services in Bangladesh, Burkina Faso, Ethiopia and India

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Abstract

Integrating nutrition interventions into antenatal care (ANC) requires adapting global recommendations to fit existing health systems and local contexts, but the evidence is limited on the process of tailoring nutrition interventions for health programmes. We developed and integrated maternal nutrition interventions into ANC programmes in Bangladesh, Burkina Faso, Ethiopia and India by conducting studies and assessments, developing new tools and processes and field testing integrated programme models. This paper elucidates how we used information and data to contextualize a package of globally recommended maternal nutrition interventions (micronutrient supplementation, weight gain monitoring, dietary counselling and counselling on breastfeeding) and describes four country-specific health service delivery models. We developed a Theory of Change to illustrate common barriers and strategies for strengthening nutrition interventions during

Comprehensive Approach for Improving Adherence to Prenatal Iron and Folic Acid Supplements Based on Intervention Studies in Bangladesh, Burkina Faso, Ethiopia, and India

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Abstract

Background: The World Health Organization recommends daily iron and folic acid (IFA) supplementation during pregnancy, but consumption remains low, and high prevalence of anemia among pregnant women (PW) persists.
Objectives: This study aims to (1) examine factors at the health system, community, and individual levels, which influence adherence to IFA supplements; and (2) describe a comprehensive approach for designing interventions to improve adherence based on lessons learned from 4 country experiences.
Methods: We conducted literature search, formative research, and baseline surveys in Bangladesh, Burkina Faso, Ethiopia, and India and applied health systems strengthening and social and behavior change principles to design interventions. The interventions addressed underlying barriers at the individual, community, and health system levels. Interventions were further adapted for integration into existing large-scale antenatal care programs through continuous monitoring.
Results: Key factors related to low adherence were lack of operational protocols to implement policies, supply chain bottlenecks, low capacity to counsel women, negative social norms, and individual cognitive barriers. We reinforced antenatal care services and linked them with community workers and families to address knowledge, beliefs, self-efficacy, and perceived social norms. Evaluations showed that adherence improved in all countries. Based on implementation lessons, we developed a program pathway and details of interventions for mobilizing health systems and community platforms for improving adherence.

- Sanghvi, T., Nguyen, P. H., Tharaney, M., Ghosh, S., Escobar-Alegria, J., Mahmud, Z., . . . Kim, S. (2022). Gaps in the implementation and uptake of maternal nutrition interventions in antenatal care services in Bangladesh, Burkina Faso, Ethiopia and India. *Matern Child Nutr*, 18(2), e13293. doi:10.1111/mcn.13293
- Sanghvi, T., Nguyen, P. H., Ghosh, S., Zafimanjaka, M., Aalissa, T., Karama, R., . . . Kim, S. S. (2022). Process of developing models of maternal nutrition interventions integrated into antenatal care services in Bangladesh, Burkina Faso, Ethiopia and India. *Matern Child Nutr*, e13379. doi:10.1111/mcn.13379
- Sanghvi, T. G., Nguyen, P. H., Forissier, T., Ghosh, S., Zafimanjaka, M., Walissa, T., . . . Kim, S. (2023). Comprehensive Approach for Improving Adherence to Prenatal Iron and Folic Acid Supplements Based on Intervention Studies in Bangladesh, Burkina Faso, Ethiopia, and India. *Food Nutr Bull*, 44(3), 183-194. doi:10.1177/03795721231179570

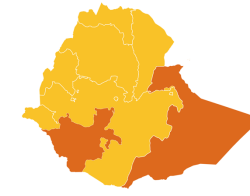
Testing of Country-Specific Health Systems Strengthening and Service Delivery Approaches for Global Scale-Up



India



Burkina Faso



Ethiopia

Systems Strengthening	Strengthen service delivery protocols, micronutrient supplies, tools, trainings and refreshers, supervision, progress reviews, data recording and monitoring	Strengthen service delivery protocols, micronutrient supplies, tools, trainings, supportive supervision, and meetings to review health data	Strengthen service delivery protocols, micronutrient supplies, tools, trainings and refreshers, supervision, progress reviews, data recording and monitoring
Health Facility	Only as related to community-based activities, e.g., referrals	Nurse-midwives provide counselling, weight gain monitoring, distribute IFA supplements, and speak with accompanying husbands, mother-in-laws	Nurse-midwives and HEWs provide counselling, weight gain monitoring, and speak with husbands and accompanying family
Community	Village health, sanitation, and nutrition days (VHSND), husbands' forums, community sensitization sessions, and community media events	Women's group discussions, orientation of community leaders on ANC and maternal nutrition, gatherings of husbands and family members about maternal nutrition	Pregnant Women Conferences/mother support groups, and community gatherings to discuss maternal nutrition
Home Visits	ASHA, AWWs, and ANM provide counselling to pregnant women, and engage family members	ASBCs provide counselling to pregnant women, and engage family members	HEWs provide counseling to pregnant, referrals for ANC and Pregnant Women Conference referrals, and engage husbands

Thank You