Delivering Balanced Energy and Protein (BEP) Dietary Supplements to Pregnant and Lactating Women: Implementation Lessons from Nine Countries

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PUBLICATION BRIEF

Maternal undernutrition remains a serious global health problem, particularly in low- and middle-income countries (LMICs), where millions of women are underweight and/or anemic. The World Health Organization (WHO) recommends balanced energy and protein (BEP) supplementation for pregnant women in settings where at least 20% of women of reproductive age are underweight, to reduce the risk of adverse health outcomes. This study, titled "National and Sub-National Delivery of Balanced Energy and Protein (BEP) Supplements to Pregnant and Lactating Women in LMICs: Lessons from Multi-Country Implementation Case Studies," published in Nutrients, examines how nine countries across diverse contexts have implemented BEP supplementation programs through both government-led and donor-supported models. It identifies opportunities, challenges, and lessons to guide future efforts, underscoring the need for implementation research to inform best practices.

THE STUDY

The study draws on qualitative data from interviews and focus group discussions with 15 experts on BEP supplementation, including government officials in nine countries: **Haiti, India, Malawi, Mexico, Nigeria, Pakistan, Rwanda, Senegal, and Sri Lanka**. It analyses factors such as acceptability, feasibility, cost, and program adoption. A desk review comparing BEP product formulations complements these findings, offering programmatic and technical insights to inform future policy and practice.

KEY FINDINGS

1. Implementation Models: Two distinct implementation models emerged. In non-humanitarian settings, BEP supplementation was often integrated into government-led programs. In humanitarian or emergency contexts, it was primarily led by partners or donors.

- **Government-led national programs** in India, Sri Lanka, Mexico (no longer active), Rwanda, and Pakistan, integrated BEP supplementation into existing health systems or social protection programs, achieving nearly universal coverage delivered through

antenatal care (ANC) related health facilities, hospitals, or community feeding centers, often with local production, stable financing, and greater national ownership.

- **Partner- or donor-led programs** in Haiti, Malawi, Nigeria, and Senegal, operated primarily through UN agencies and NGOs in emergency or food-crisis contexts. They prioritized crisis zones and severely food-insecure households but were constrained by supply disruptions, funding gaps, and geographic fragmentation.

2. Supplement Types and Sources: BEP supplement choices were shaped by local habits, food practices, and infrastructure constraints, including water, fuel, and storage. The main products were corn-soya blend fortified with micronutrients (CSB+) and lipid-based nutrient supplements for pregnant and lactating women (LNS-PLW), both widely acceptable, especially when integrated into local recipes or perceived as beneficial. Countries with locally produced supplements (Sri Lanka's Thriposha, Rwanda's Shisha Kibondo, Pakistan's Maamta, Mexico's Nutrivida, and India's hot cooked meals and take-home rations) achieved better community integration, whereas those without local production capacity relied on imported, donor-supported supplies.

3. Delivery Approaches: BEP supplementation was supported by operational guidelines, training, behavior change communication tools, and monitoring systems developed by governments, the UN, and NGO partners to ensure proper preparation, safe use, consistent distribution, and adherence. Distribution was primarily led by health professionals, including doctors, nurses, and midwives, with support from frontline workers and volunteers. In emergency or NGO-led settings, trained community health workers or volunteers often handled delivery and provided counselling.

4. Implementation Challenges clustered across three areas:

- **System constraints** included high costs, stock shortages, weak storage and supply chains, and limited frontline workforce capacity, often exacerbated in humanitarian settings with uneven coverage.

- **Adherence issues** were common, with supplements frequently shared with family members or livestock, reducing their effectiveness; however, adherence was higher for LNS-PLW, as it was seen as a personal supplement.

- **Operational gaps** included inconsistent screening methods, delayed identification of pregnancies, supply disruptions (including conflict-related), and weak warehouse monitoring.

5. Enabling Factors: Successful BEP implementation was characterized by national policy integration with clear protocols, the use of locally produced, culturally adapted BEP products, social and behavior change communication (SBCC) efforts, strong community health worker delivery networks, ANC-linked distribution points, and conditional cash transfers as an incentive.

WHY IT MATTERS

Pregnant and lactating women in LMICs face disproportionately high risks of undernutrition, especially in humanitarian settings. Despite a clear WHO recommendation, evidence on large-scale BEP implementation remains limited. Insights from diverse regions highlight that effective delivery depends on strong health system integration, particularly with social protection programs, government leadership, sustained financing, supply chains, frontline worker capacity, and community engagement, offering key lessons for countries introducing this intervention.

IMPLICATIONS FOR MATERNAL NUTRITION POLICY AND PROGRAM DESIGN

The findings underscore key implications for policy and program design in countries currently implementing BEP supplementation, as well as those planning its introduction:

- **Policy Integration and Standardization:** Governments should integrate BEP supplementation into maternal health and social protection policies with clear eligibility criteria and exit standards, while adopting standardized screening protocols to ensure consistent targeting and strengthen program impact.
- **Local Production and Sustained Financing:** Investing in local production capacity and strengthening supply chains can reduce reliance on imports, enhance national ownership, and improve supply sustainability, especially in humanitarian settings.
- **Implementing Behavior Change Strategies:** Embedding behavior change communication, counselling, and awareness-building efforts within BEP supplementation programs for both frontline health workers and beneficiaries can improve adherence and reduce supplement sharing.
- **Equity and Women-Centered Design:** Future research and program design should prioritize the perspectives of pregnant and lactating women to better understand acceptability, adherence, and unmet needs for effective programs.

This study demonstrates that effective BEP implementation requires more than policy. It depends on strong systems, sustained support, and women-centered design. Strengthening these elements can significantly improve program reach, impact, and equity, particularly for the most vulnerable mothers and their babies.

LEARN MORE

1. The Publication - National and Sub-National Delivery of Balanced Energy and Protein (BEP) Supplements to Pregnant and Lactating Women in LMICs: Lessons from Multi-Country Implementation Case Studies.
2. WHO recommendations on antenatal care for a positive pregnancy experience
3. Framework and Specifications for the Nutritional Composition of a Food Supplement for Pregnant and Lactating Women (PLW) in Undernourished and Low-Income Settings.
4. Global Nutrition Cluster. Review of the Use of Balanced Energy Protein (BEP) Supplementation for Pregnant and Breastfeeding Women and Girls (PBW/G).

SCAN FOR LANGUAGE TRANSLATIONS

Available in French, Spanish, Portuguese and Arabic

ABOUT HMHB

The Healthy Mothers Healthy Babies Consortium (HMHB), hosted by the **Micronutrient Forum,** is the central platform for evidence, knowledge, collaboration, and advocacy in maternal nutrition. HMHB accelerates progress by fostering collective action on critical priority interventions such as multiple micronutrient supplementation (MMS) and balanced energy and protein (BEP) dietary supplementation, proven strategies to improve maternal and newborn health outcomes, particularly in low- and middle-income countries (LMICs). Comprising over 450 individuals and organizations, HMHB also hosts Technical Advisory Groups (TAGs) on **MMS** and **BEP,** bringing together experts in nutrition, maternal health, and public health to interpret evidence, identify knowledge gaps, and provide guidance to governments, NGOs, and partners.

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Delivering Balanced Energy and Protein (BEP) Supplements to Pregnant and Lactating Women:

Implementation Lessons from Nine Countries

WHAT THE STUDY SHOWS

TWO IMPLEMENTATION MODELS

Government-led

- Integrated into national health or social protection systems
- Locally produced supplements
- Stable, domestically financed
- Blanket or eligibility-based targeting
- Delivered via health facilities, hospitals, or community feeding centres

Partner or donor-led

- Humanitarian or emergency response context
- Operated via UN agencies and NGOs
- Targeted by crises zones and severely food-insecure households
- Vulnerable to supply disruptions, funding gaps, and geographic fragmentation

TWO DOMINANT SUPPLEMENT TYPES

Shaped by local habits, food practices, and infrastructure constraints such as water, fuel, and storage

CSB+

Corn soya blend
Fortified with micronutrients
Culturally familiar
Can be cooked multiple ways

LNS - PLW

Lipid-based nutrient supplement
Fortified with micronutrients
No cooking needed
Higher adherence as it felt personal

KEY IMPLEMENTATION CHALLENGES

- High costs and frequent stock shortages
- Weak storage systems and supply chains
- Limited frontline workforce capacity
- Supplement-sharing with family members/livestock
- Inconsistent screening, late pregnancy identification
- Supply disruptions and weak warehouse monitoring

ENABLING FACTORS

- National policy integration with clear protocols
- Locally produced, culturally adapted products
- Social and behavioral change communication (SBCC)
- Community health worker delivery networks
- Conditional cash transfers as an incentive
- ANC-linked distribution points

WHY IT MATTERS

POLICY AND PROGRAM IMPLICATIONS

- Formally embed BEP supplements in national maternal health policies with clear entry and exit criteria
- Invest in local production to reduce import dependency and build national ownership
- Integrate SBCC and peer support to reduce supplement sharing and improve adherence
- Develop more sustainable models for humanitarian settings to reduce donor dependency
- Standardize screening protocols and training across all delivery platforms
- Include pregnant and lactating women's voices in future implementation research

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SOURCE: Kissell MC, Afsana K, Askari S, Byadya R, Chowdhury R, Christian P, de Pee S, Huybregts L, Jehan F, Lama TP, et al. National and Sub-National Delivery of Balanced Energy and Protein (BEP) Supplements to Pregnant and Lactating Women in LMICs: Lessons from Multi-Country Implementation Case Studies. Nutrients. 2026; 18(9):1471. https://doi.org/10.3390/nu18091471