Multiple Micronutrient Supplementation

Micronutrient Forum
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What is Multiple Micronutrient Supplementation?

Maternal and child undernutrition in low- and middle-income countries (LMICs) is the underlying cause of nearly half of all child deaths under the age of five.\(^1\) Supplementation is the only affordable and accessible way for pregnant women in resource-constrained settings to meet their micronutrient requirements.

- **MMS is a once-a-day pill of critical micronutrients** - typically 15 nutrients as outlined by the UNIMMAP formula - that that mothers need during pregnancy.

- Maternal nutrition is critical to ensuring that women have **healthy pregnancies and that children grow into healthy adults**, yet MMS are often unavailable to women in low-resource settings who could benefit from them the most.

- **MMS is a safe, efficacious, affordable, and cost-effective** intervention, which is ready for scale-up by the global development and nutrition communities as one of the interventions to improve maternal nutrition.

- **MMS can be procured at cost-parity with current IFA programs, and Nutrition International has found that “...MMS is very cost-effective, with an unprecedented return on investment.”**\(^2\)

- **Existing antenatal care programs must be strengthened** to reach more women more effectively.

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### The United Nations International Multiple Micronutrient Antenatal Preparation (UNIMMAP) Formula

| Nutrient          | Percent of RDA in the UNIMMAP Formula |
|-------------------|--------------------------------------|
| Vitamin A         | 800 µg                               |
| Vitamin C         | 70 µg                                |
| Vitamin D         | 5 µg                                 |
| Vitamin E         | 10 µg                                |
| Thiamin (B1)      | 1.4 mg                               |
| Riboflavin (B2)   | 1.4 mg                               |
| Niacin (B3)       | 18 mg                                |
| Pyridoxine (B6)   | 1.9 mg                               |
| Folic Acid        | 400 µg                               |
| Cobalamin (B12)   | 2.6 µg                               |
| Iron              | 30 µg                                |
| Iodine            | 150 µg                               |
| Zinc              | 15 mg                                |
| Selenium          | 65 µg                                |
| Copper            | 2000 µg                              |

Percent of RDA for Pregnant Women Aged 19-50
Highlights of MMS Efficacy From Recent Metareviews

Two recent meta-analysis have concluded that MMS are safe and effective and outperform IFA from a health and cost perspective.

“Our findings show that pregnant women who take antenatal multiple micronutrient supplements including iron and folic acid have a lower risk of having a baby with low birthweight, a preterm birth, or having a small for gestational age baby.” Smith et al.

“On the basis of this review of evidence, the task force concluded that the use of a daily MMS does not increase the risk of adverse effects, has a number of additional benefits for mortality and birth outcomes compared with IFA, and can be a cost-effective intervention for pregnant women in LMICs, where multiple micronutrient deficiencies persist.” Bourassa et al.

| Low birthweight | Preterm births | 6-month mortality | Cost effectiveness | Risks |
|-----------------|----------------|-------------------|--------------------|-------|
| Low birthweight occurs in 16% of births Worldwide. MMS decreased low birthweight by 12% compared to Iron or IFA in LMIC settings. Also, MMS deceased very low birthweight by 22% in the same context. |
| Preterm birth occurs in 10.6% of births worldwide. MMS decreased preterm births by 8% compared to Iron or IFA in LMIC settings. Also, MMS deceased very preterm birth birthweight by 13% in the same context. |
| MMS decreases neonatal mortality by 2% and infant mortality by 3% compared to Iron or IFA in LMIC settings. A separate review found MMS particularly improves survival for female neonates. |
| The Nutrition International MMS Cost-Benefit Tool indicates that in many cases, MMS is ‘very cost effective’ according to the WHO guidelines. |
| Multiple micronutrient supplements did not significantly increase the risk of stillbirth or neonatal, 6-month, or infant mortality, neither overall or in any of the 26 examined subgroups. |
Growing Global Interest and Commitments for MMS

Increasing global multi-sectoral collaboration focused on the scale-up of MMS.

| Supply | Demand | Delivery |
|--------|--------|----------|
| • New York Academies of Science through the MMS-Technical Advisory Group recently published a UNIMMAP product specification documentation to support manufacturers.  
• Kirk Humanitarian is manufacturing and distributing five million cycles of MMS per year for the next three years to governments and NGOs operating in LMICs. | • Sight and Life Foundation compiled a special report on MMS to inform policymakers and implementors.  
• Nutrition International launched a tool for governments to calculate the cost-effectiveness of prenatal multiple micronutrient supplementation.  
• DSM is working with retailers, and others to develop their own MMS product and partnering with NGOs to advocate for MMS scale up at global and regional events. | • Vitamin Angels is providing technical assistance support to both health to integrate MMS into antenatal care services.  
• Elenore Crook Foundation has pledged funds for advocacy, implementation research, and pilot activities.  
• UNICEF is creating demand and improve adherence by assessing and proposing innovations to increase uptake. |
The current COVID-19 pandemic increases the need for interventions such as MMS:

- Disruptions in food systems will decreased availability of nutritious foods
- Resulting in more food insecurity, hunger, and all forms of malnutrition
- More difficult for pregnant women to get sufficient micronutrients from their diets

New UNICEF guidance on maternal nutrition in the context of the COVID-19 pandemic recommends to “Introduce multiple micronutrient supplements (MMS) in settings with a high prevalence of nutritional deficiencies or where food supplies are significantly disrupted”