



Multiple Micronutrient  
Supplementation in Pregnancy  
TECHNICAL ADVISORY GROUP

## Two New Studies Add to Evidence to Support Introduction of Multiple Micronutrient Supplementation (MMS) in Pregnancy over Iron Folic Acid (IFA)

The MMS in Pregnancy Technical Advisory Group, hosted by New York Academy of Sciences, has conducted two comprehensive analyses to examine the effect of antenatal multiple micronutrient supplementation (MMS) vs. iron and folic acid (IFA) on 1) third trimester maternal anemia and iron status outcomes, and 2) neonatal mortality. The goal of both studies was to address the possible concerns related to use of MMS with 30 mg of iron vs. IFA with 60 mg of iron.

MMS, specifically United Nations International Multiple Micronutrient Antenatal Preparation (UNIMMAP) MMS, is a widely used, researched, and well-established intervention to reduce adverse pregnancy and birth outcomes. Most MMS contain 30 mg of iron, while IFA typically consists of 60 mg of iron.

The World Health Organization (WHO) currently recommends 30 to 60 mg of iron and suggests 60 mg of iron in populations where anemia is a severe health threat. WHO guidelines published in 2020 noted that more evidence was needed on the effects of switching to a 30 mg dose of iron from a higher dose of iron (e.g., 60 mg), particularly in settings where higher doses of iron are routinely used due to a high anemia prevalence or other reasons. Some concerns were also raised that MMS could be less effective in reducing neonatal mortality, when compared to IFA with 60 mg of iron.

**Two new studies published in *Annals of the New York Academy of Sciences* and *Public Health Nutrition* confirm that providing MMS with 30 mg of iron during pregnancy is comparable to IFA with 60 mg of iron in terms of preventing maternal anemia and deaths during the neonatal period (the first 28 days of life).**

The first study analyzed the effects of MMS vs. IFA on maternal anemia and iron status within subgroups of studies categorized by dose of iron provided by the supplements (varying between daily doses of 30 mg and 60 mg in both formulations), total iron intake during the study period, and baseline anemia prevalence. The authors extracted published data and obtained additional, previously unpublished data from clinical trial investigators of 11 studies from a Cochrane review (Keats et al, 2019) and found that:

- **MMS with 30 mg of iron does not increase the risk of adverse maternal iron-related outcomes (including anemia, iron deficiency anemia, or decreased hemoglobin concentration) when compared to IFA with equal or higher doses of iron.** These results were independent of baseline levels of anemia.
- **Providing MMS with 30 mg of iron during pregnancy is comparable to IFA with 60 mg of iron in terms of preventing third trimester anemia.** This effect may be explained by the additional micronutrients in MMS—including vitamin A, vitamin C, and riboflavin—that can improve the absorption of iron. Vitamins B<sub>12</sub> and vitamin A may also improve key deficiencies known to cause anemia in pregnant women.

The second study analyzed the effects of MMS vs. IFA on neonatal mortality within subgroups of studies categorized by dose of iron provided by the supplements (varying between daily doses of 20 mg and 60 mg in both formulations.) The authors reanalyzed published data from 13 trials included in the 2020 WHO guidelines, and while doing so, uncovered methodological issues that were corrected. The adjusted analysis found that:

- **There were no statistically significant differences in neonatal mortality between MMS and IFA within any of the subgroups.** When data from the 2020 WHO analysis was extracted and corrected, there was no increase in risk of neonatal mortality with MMS, regardless of iron dose in either supplement.
- **Providing MMS with 30 mg of iron during pregnancy likely results in little or no difference in neonatal mortality, when compared to IFA with 60 mg of iron.** A transition from IFA containing 60 mg of iron to MMS containing 30 mg of iron would not adversely affect neonatal mortality.

There are also additional benefits of MMS when compared to IFA in the risk reduction of stillbirth, infant mortality at 6 months, low birthweight, preterm birth, and being born small-for-gestational age, with greater risk reductions among anemic pregnant women. **The authors suggest that policymakers proceed with the transition from IFA to MMS providing 30 mg of iron to take advantage of the additional well-established benefits of MMS in preventing adverse pregnancy and birth outcomes.**

Read the full papers here:

<https://nyaspubs.onlinelibrary.wiley.com/doi/10.1111/nyas.14756>

<https://pubmed.ncbi.nlm.nih.gov/35466910/>

---

#### References:

Gomes, F., Agustina, R., Black, R.E., Christian, P., Dewey, K.G., Kraemer, K., Shankar, A.H., Smith, E.R., Thorne-Lyman, A., Tumilowicz, A. and Bourassa, M.W. (2022). Multiple micronutrient supplements versus iron-folic acid supplements and maternal anemia outcomes: an iron dose analysis. *Ann. N.Y. Acad. Sci.*, <https://doi.org/10.1111/nyas.14756>.

Gomes, F., Agustina, R., Black, R. E., Christian, P., Dewey, K. G., Kraemer, K., Shankar, A. H., Smith, E., Tumilowicz, A., & Bourassa, M. W. (2022). Effect of multiple micronutrient supplements vs iron and folic acid supplements on neonatal mortality: a reanalysis by iron dose. *Public health nutrition*. <https://doi.org/10.1017/S1368980022001008>