

From Evidence to Action: Lessons from Ethiopia on Scaling MMS

Questions and Answers from the Coffee and Chai Chat:

1. Evidence, Effectiveness and Research Findings

Answered

- What is the effect of multiple micronutrient supplementation (MMS) on birth weight compared with iron-folic acid (IFA)?
- Would greater benefits be expected if women started antenatal care (ANC) earlier and took 180 tablets?

Not Answered

- What about the effect of MMS on stunting reduction? – The following paper addresses this question: *Gomes F, Adu-Afarwuah S, Agustina R et al. (2025). Effect of prenatal multiple micronutrient supplementation compared with iron and folic acid supplementation on size at birth and subsequent growth through 24 mo of age: A systematic review and meta-analysis. The American Journal of Clinical Nutrition 122 (2025) 185–195 <https://doi.org/10.1016/j.ajcnut.2025.04.022>.*
In brief, the meta-analysis compared prenatal MMS with IFA during pregnancy and assessed infant growth from birth to 24 months. The review included 19 high-quality randomized controlled trials from 14 countries conducted between 2003 and 2021. Overall, the findings suggest that, compared with IFA, MMS improves birth size and early infant growth (including a 9% reduction in stunting at birth and 14% at 3 months of age), but the benefit does not appear to persist beyond six months. This may be because, after six months, growth is increasingly influenced by other factors such as complementary feeding and infections. It may also reflect the smaller sample sizes at later follow-up periods, which may have reduced the ability to detect differences between groups. Subgroup analyses found stronger effects in populations with a high prevalence of low birthweight and where supplementation continued into the postpartum period.

- What are the quality measures used to improve the reliability of the data in this study?
Several quality control measures were implemented during the study. Research assistants conducted routine supervision throughout data collection. For the primary outcome (birth weight), midwives calibrated the digital scales regularly using a standard test weight before measuring each delivery. All midwives also received standardized training on accurate measurement protocols before the trial began.
- Was there any effect on outcomes other than birth weight, especially maternal outcomes?
No, we did not measure other health outcomes related to the mother.

2. Side Effects and Safety

Answered

- Are there differences in side effects between MMS and IFA?
Side effects were self-reported by 27% of MMS users and 40% of IFA users.
- Are there physiological effects or side effects when MMS is taken in early pregnancy?
We did not analyze the early intake of supplements on physiological status. Nevertheless, it is known that multiple micronutrients are required for the successive stages of fetal development, with some playing a crucial role very early in pregnancy, e.g. for implantation and the period of embryogenesis in the first 2-8 weeks of gestation (Gernand et al. 2016. Micronutrient deficiencies in pregnancy worldwide: health effects and prevention. Nat Rev Endoc 12: 274–289).

3. Adherence, Behavior Change and Community Engagement

Answered

- What measures improve adherence to MMS in low-resource communities?
- How are cultural and family influences affecting adherence addressed?
- Are there plans for community mobilization and nutrition education?

Not Answered

- How are pregnant women's behaviors specifically being changed to improve long-term MMS adherence? –The main changes were observed in terms of improved demand for ANC services, i.e. coming early and frequently – which improved early ANC but also the number of contacts pregnant mothers had with health care workers/extension workers. Women also reported high compliance with taking the MMS – slightly less towards the

last trimester (more from pill fatigue – rather than side effects experienced). However – we observed equity gaps (despite high level of overall adherence) – rural women had slightly less adherence compared to urban, less educated (less adherence compared to educated); and importantly, young mothers had relatively low adherence compared to adult mothers – implying the need and importance to pay attention to demand generation and sustaining the demand, while closing the equity gap.

4. Packaging, Dosage and Product Use

Answered

- Why was 90 days used instead of 180 days?
- What was the packaging configuration?
- Were tablets fixed at 200 per woman or adjusted?

Not Answered

- Were the 100-tablet bottles repackaged from standard 180-tablet UNIMMAP packs?
We provided 2 bottles of 100 tablets for each pregnant mother during ANC 1. This is to ensure that the mother has in possession sufficient MMS to take throughout her pregnancy and is guided to take remaining tablets post-delivery and during the breastfeeding period. The decision to provide two bottles at once and avoid re-packaging was mainly to ensure proper storage conditions of the tablets; once exposed to air – likely to happen with re-packaging – MMS tend to oxidize, potentially decreasing the content of light-sensitive vitamins, and change color, which might be concerning. Second, avoid the risk of contaminating tablets if not properly handled; third, avoid the risk of double counting next time they come to ANC for follow-up and potential misuse of the product. One aspect that we closely monitored was the unintended consequence that women with sufficient MMS at hand might choose not to come back to ANC – but we found no evidence that this is the case. Pregnant mothers maintained frequent ANC contacts. It is also true that bottle packaging might be less costly and have better storage compared to blisters. As part of the counselling, pregnant mothers were also informed in the local language about the importance of proper storage and continuing to take remaining tabs post-delivery.

5. ANC Delivery, Service Quality and Health System Strengthening

Answered

- What challenges were experienced recruiting women early in ANC?
- Can MMS improve ANC services?

6. Supply Chain & Distribution

Answered

- Does MMS go through the Ministry of Health and then to facilities?
- How will supply chain management work at scale?
- Are all districts currently receiving MMS?

7. Financing, Cost and Sustainability

Answered

- Is MMS cost-effective despite being more expensive than IFA?
- Has the Ethiopian government accepted the additional cost of MMS?
- Is there a strategy to secure sustainable financing?
- How is Ethiopia mobilizing resources for scale-up?
- What about local manufacturing? (partially addressed)

Not Answered

- Are MMS currently procured jointly by government and partners?
The Government of Ethiopia has developed a costed roadmap – incorporating the cost of the product required and currently developing a financing strategy that will guide procurement of MMS, including Government financing and procurement.
- Do women receive MMS free of charge or pay for it?
Pregnant mothers receiving MMS through the public ANC do not pay for the product. The same is true for public facilities in urban settings. An exception will be (soon) where MMS social marketing is implemented - pregnant mothers attending private service providers who can afford it will receive MSI Ethiopia-branded UNIMMAP formulation at a subsidized cost—estimated at 10–15% of pregnant mothers receiving care from private service providers, mainly in urban settings.
- How did Ethiopia continue to support IFA while financing MMS scale-up?
Ethiopia has a MoH endorsed scale up plan enrolling 200 new woredas (districts) into MMS every year to reach national scale-up by 2030. All transitioning woredas do not receive IFA allocations and, in parallel, are supported to incorporate MMS instead of IFA with their annual supply forecasting and planning. Local production is a priority to the government and will be considered as a long-term strategy.

8. Monitoring, Evaluation and Research

Answered

- Is there an M&E system to track MMS implementation?
- How is adherence monitored?

Not Answered

- Was supply controlled in the IFA arm or did it face routine stock-outs?
The woredas implementing IFA continued to receive supply through the routine/standard supply chain system. The MoH prioritized the woredas to ensure adequate IFA, as well as standard support, is provided compared to MMS-implemented woredas. Evaluation of the program was also monitored during program implementation, including supply stock across IFA- and MMS- implemented woredas – informing the program implementation.

9. Clinical Use and Special Populations

Not Answered

- Were anemic pregnant women also receiving MMS, and what additional treatments were provided?
Pregnant mothers who presented with anemia received IFA until anemia correction, before resuming MMS. The Global MMS TAG issued an expert opinion-based guidance on the use of MMS alongside the treatment of anemia in pregnant women ([MMS TAG, 2023](#)). MMS should be used throughout pregnancy to prevent anemia, alongside context-specific anemia prevention measures, such as deworming and intermittent preventive treatment of malaria. MMS (with 30 mg of iron) has comparable effects to IFA (with 60 mg of iron) for the prevention of maternal anemia ([Gomes, 2022](#)). If a pregnant woman is diagnosed with anemia, MMS should generally be continued, while additional iron therapy is initiated according to local protocols, with a typical total supplemental iron target of 60–120 mg/day for mild-to-moderate anemia. Where iron deficiency anemia exists, there is a high likelihood that other micronutrient deficiencies exist, which benefit from the 15 micronutrients provided by UNIMMAP MMS. The continued use of MMS (with additional iron interventions) during anemia treatment is justified by the fact anemic pregnant women have the greatest benefits for improved birth outcomes with MMS compared with IFA ([Smith, 2017](#)), and MMS also provides several micronutrients involved in hemoglobin synthesis, erythropoiesis, and iron metabolism ([Atkinson, 2025](#)).
- Is MMS provided during postnatal care as an official program intervention?
Although not a national policy, in this trial pregnant mothers were guided to continue

taking remaining MMS tablets post-delivery until they finish all 200 tablets received. While pregnant women should be the primary target for receiving MMS in national antenatal care services, if MMS tablets remain after delivery of the baby, women may use the remaining MMS tablets postpartum. Despite the limited evidence, the presumed postpartum benefit of MMS is biologically plausible, and MMS is likely to be a safe and valuable addition to a mother's postpartum diet and, consequently, for the breastfed baby ([MMS TAG, 2025](#)).

- What is the guidance on MMS use in women with sickle cell disease?
MMS is generally safe and beneficial in pregnant women with sickle cell disease (SCD), except if there is evidence of iron overload or a history of repeated blood transfusions. The 2025 FIGO good practice recommendations on anemia in pregnancy state that "Multiple micronutrient supplementation is beneficial and should be considered in pregnant women with sickle cell disease because of a higher risk of malnutrition and micronutrient deficiencies". FIGO also recommend provision of additional folic acid supplementation (on top of MMS) to achieve the target of 5 mg/day in women with SCD, unless taking intermittent preventive treatment for malaria with sulfadoxine-pyrimethamine. In these cases, switching to low-dose (e.g. 400 µg) folic acid for 14 days after administration of sulfadoxine-pyrimethamine should be considered ([FIGO, 2025](#)).
- Is MMS recommended in preconception care?
Although some studies suggest benefits of preconception MMS on maternal and infant outcomes, the limited evidence is heterogeneous, varying with supplement formulations, dosing regimens, cointerventions and study designs. Only one large trial has directly compared MMS initiated before conception and continued during pregnancy with MMS initiated during pregnancy alone; preliminary findings suggested a reduction in miscarriage risk when MMS was initiated during preconception, but no impact on other birth outcomes. In summary, the current evidence is insufficient to support routine, population-wide implementation of preconception MMS, underscoring the need for further clinical and implementation research on effectiveness, safety, feasibility, targeting, and cost-effectiveness before policy adoption ([MMS TAG, 2026](#)).
- How should MMS be used in clinically malnourished pregnant women alongside balanced energy-protein supplements?
Although guidance is still being developed to comprehensively address this question, the answer will depend on a variety of factors, such as the nutritional status of the women, the extent of micronutrient deficiencies, the composition of the balanced-energy-protein supplements (fortified vs not fortified with micronutrients, level of micronutrient fortification), adherence to these supplements and the likelihood of sharing with household members. The daily consumption of both MMS and balanced-energy-protein supplements fortified with micronutrients (at the same level as provided by MMS UNIMMAP) could reach the tolerable upper intake levels of some micronutrients. Thus, if there is evidence of good adherence and counselling to avoid

sharing of the daily fortified balanced energy-protein supplements, MMS should not be taken concomitantly. If adherence is suboptimal, continuation of MMS may still be considered to avoid micronutrient gaps.

10. Policy and Scale-Up Strategy

Answered

- What are Ethiopia's priorities for MMS scale-up?

Not Answered

- What are the two most important priorities for transitioning from IFA to MMS?
First, scaling up MMS in the context of the minimum recommended ANC package – hence, systems and ANC platform strengthening, including supply chain, information systems, HR, financing, etc. to ensure demand is generated and sustained high, service delivery is improved, and effectiveness coverage, including adherence, is high. Second, local production of MMS in Ethiopia to ensure program sustainability, given the high number of pregnant mothers (4.2 million annually, to reach 4.6 million annually by 2030).
- Should other Sub-Saharan African countries shift to MMS based on Ethiopia's findings?
Ethiopia's experience/evidence layered on top of the global evidence provides sufficient learning and evidence for other countries planning to scale up MMS – and there is no need to re-litigate whether MMS works; but rather focus on how to move faster and sustain scale instead of proving efficacy. Countries can use available evidence to accelerate policy shift, costed roadmaps, financing and, as scale-up happens, pay attention to improving/sustaining adherence and closing the equity gap.