



# Multiple Micronutrient Supplementation During Pregnancy: Frequently Asked Questions

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## The Need

### What is the role of good nutrition during pregnancy?

Good nutrition during pregnancy is critical to good health outcomes for both the mother and her baby. Strong evidence shows that poor nutrition – especially during pregnancy, a period when women have increased nutritional needs – has serious adverse effects on birth and maternal health outcomes, as well as the long-term development of the child. Children born to malnourished women are more likely to be born too small, too soon, or stillborn. Those who survive infancy are more likely to experience physical and cognitive setbacks that can keep them from reaching their full potential as adults.<sup>1-2</sup>

### Why are micronutrients important for pregnant women in particular?

Many vitamins and minerals (collectively referred to as micronutrients) – including vitamins A, B<sub>1</sub>, B<sub>2</sub>, B<sub>3</sub>, B<sub>6</sub>, B<sub>9</sub> (folic acid), B<sub>12</sub>, C, D, E, and the minerals iron, zinc, iodine, copper, and selenium – are essential for a healthy pregnancy and fetal development. During pregnancy, the required daily intake of these micronutrients increases by as much as up to 50%.<sup>3</sup> For example, a non-pregnant woman needs 150 µg of iodine, but a pregnant woman needs 220 µg (+47%) of this nutrient. Iodine is essential in the first 16 weeks of pregnancy; without it, miscarriages and stillbirths are more common, and brain development and cognition are compromised. Other vitamins and minerals have crucial roles in several stages of the baby's development.

An alarmingly high percentage of women (2 in every 3 women) of reproductive age in low- and middle-income countries (LMICs) are already deficient in several key micronutrients<sup>4</sup> and this problem is likely to be even higher in pregnant women, who have increased nutritional requirements. That is why nutrition interventions to supplement micronutrient intake are a critical component of antenatal care (ANC).

## What is MMS?

Multiple micronutrient supplementation (MMS) provides the vitamins and minerals that are necessary for a healthy pregnancy. More than 20 years of research shows that MMS is safe, cost-effective, affordable, and more effective than iron and folic acid (IFA) supplementation, the current standard of care in maternal malnutrition.

## What is UNIMMAP MMS?

MMS refers to the internationally recognized formula used in the United Nations International Multiple Micronutrient Antenatal Preparation (UNIMMAP). The UNIMMAP MMS formulation (hereinafter referred to as MMS) was developed in 1999 through a collaboration between the World Health Organization (WHO), the United Nations University, and UNICEF. In 2021, it was included in the WHO Essential Medicine List, recognizing it as among the most effective and safe interventions when used as an antenatal supplement for pregnant women.<sup>5</sup>

## How many micronutrients does MMS contain, and how are the amounts of each determined?

The recommended MMS formulation contains 15 essential vitamins and minerals for pregnant women and was carefully developed based on multiple criteria to ensure safety and help meet the increased micronutrient demands of pregnancy. Across all 15 ingredients, none exceed the recommended daily intake levels for the target age groups.<sup>6</sup> (Table 1)

## What is the amount of iron contained in IFA in comparison to MMS?

MMS contains 30 milligrams (mg) of iron. WHO antenatal care guidelines recommend iron supplementation between 30-60 mg/day. While most IFA programs use 60 mg of iron, recent analyses showed that MMS with 30 mg of iron is comparable to IFA with 60 mg of iron in preventing maternal anemia during pregnancy<sup>7</sup> and deaths during the first 28 days of life.<sup>8</sup>

## What format does MMS come in, and how should it be taken?

MMS for pregnant women is produced as tablets. Ideally, one MMS tablet would be taken each day.

Table 1

UNIMMAP MMS composition	
Vitamin A	800 µg
Vitamin D	200 IU
Vitamin E	10 mg
Vitamin C	70 mg
Thiamin	1.4 mg
Riboflavin	1.4 mg
Niacin	18 mg
Vitamin B <sub>6</sub>	1.9 mg
Folic Acid	400 µg
Vitamin B <sub>12</sub>	2.6 µg
Copper	2 mg
Iodine	150 µg
Iron	30 mg
Selenium	65 µg
Zinc	15 mg

## **Who should take MMS, and when?**

Pregnant women should begin taking MMS as soon as possible after conception and continue through pregnancy, as early initiation in pregnancy and high adherence to MMS have been associated with greater benefits.<sup>9</sup> MMS is most effective in contexts where dietary quality is poor, micronutrient deficiencies are common, and anemia and low birth weight are public health problems.

The minimum number of MMS tablets pregnant women should take to receive full benefits with a view to reducing adverse birth outcomes is being studied.<sup>10</sup> For practical program planning and implementation research to identify strategies to improve adherence, 180 UNIMMAP-formulated MMS tablets per pregnancy is generally used as the default number of tablets.

Most studies assessed the effect of MMS vs. IFA during pregnancy and initiated supplementation after the first trimester; less is known about the effect of starting MMS before and just after conception, or continuing during lactation, despite preliminary research suggesting that it may bring additional benefits.

## **What are the benefits of transitioning to MMS from IFA? Is this transition cost-effective?**

More than 20 years of research provides clear evidence that MMS is more effective than IFA supplementation in preventing adverse birth outcomes (including preterm birth, stillbirth, low birth weight, and small for gestational age births), with even greater benefits for women who are anemic or underweight.<sup>1-9</sup> A recent review confirmed that MMS has the same benefits for birth outcomes and does not show evidence of any harm to adolescent mothers in LMIC, justifying new MMS programs in this vulnerable population group.<sup>11</sup>

The benefits of MMS for pregnant women include improved nutritional status and adequate weight gain during pregnancy.<sup>12</sup> Even with a small incremental cost for MMS compared with IFA because of the additional micronutrients, MMS is also highly cost-effective<sup>13</sup>, contributing to better health outcomes and human capital gains in the long term. For example, scaling the use of MMS up to 90% coverage is projected to result in 5 million additional school years, leading to an estimated annual increase of approximately \$18 billion in lifetime income.<sup>14</sup> More recently, the 2023 Copenhagen Consensus Report identified MMS as one of the best investments for development, with a return of over \$37 for each dollar spent.<sup>15</sup>

## **Are there any potential risks in administering daily MMS?**

Administering daily MMS UNIMMAP does not result in excessive micronutrient intakes, even when paired with a nutritionally adequate diet (which is rarely available or affordable in resource-poor settings).<sup>16</sup>

A more comprehensive and technical reading on the updated scientific evidence on the benefits of MMS is available at "[MMS TAG \(2023\) Update on the Scientific Evidence on the Benefits of Prenatal Multiple Micronutrient Supplements](#)"; Sight and Life Special Report "Focusing on Multiple Micronutrient Supplements in Pregnancy: Second Edition".<sup>17</sup>

## What is the current guidance around MMS?

WHO guidance supports context-specific implementation of MMS, including in pregnant women affected by an emergency and/or experiencing active tuberculosis, and in the context of rigorous research as part of antenatal care for pregnant women.<sup>18-19-20-21</sup> In 2021, the formulation was included in WHO's Essential Medicines List, recognizing it as among the most efficacious, safe, and cost-effective maternal nutrition interventions.

## What are the steps or phases to introduce MMS at the country level?

MMS implementation generally follows a three-phased approach:

- Exploration: Building an enabling environment for MMS through advocacy and landscape analysis.
- Initial Implementation: Designing and testing implementation strategies through research and ensuring adequate supply.
- Scale-up: Robust planning and integration into existing antenatal care and primary health care services to expand use to the sub-national or national level.

## What type of questions should be answered by implementation research?

Implementation research can help groups and countries better understand how to embed MMS into antenatal care. Assessing the acceptability, feasibility, sustainability, and cost-effectiveness of MMS can help overcome existing barriers to adherence, optimize policies, and improve implementation processes.

## How does the Healthy Mothers Healthy Babies Consortium (HMHB) support the implementation and scaling of MMS?

HMHB, hosted by the Micronutrient Forum, is a collective of more than 150 organizations and individuals dedicated to improving maternal nutrition by accelerating the availability and effective use of MMS in LMICs. To learn more about how HMHB supports collective action, advocacy, and information sharing on MMS activities or to connect directly with stakeholders who have experience and are active in the field of MMS, please contact: [HMHB@micronutrientforum.org](mailto:HMHB@micronutrientforum.org).

## Join Us

Join us to support the scaling up of MMS and help mothers and babies thrive. [Become a member!](#) Explore the [Knowledge Hub](#), and the [Advocacy Resource Center](#) for the latest knowledge, evidence, guidance, and tools such as [Women's Voices](#) short films and videos called [Knowledge Bytes](#) on maternal nutrition and MMS.

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