

## Review of the use of antenatal multiple micronutrient supplementation in low- and middle-income countries

Research snapshot<sup>1</sup>

Inadequate micronutrient intakes are relatively common in low- and middle-income countries (LMICs), especially among pregnant women, who have increased micronutrient requirements. This can lead to increased adverse pregnancy and birth outcomes. Supplementation with multiple micronutrient supplements (MMS) that include iron and folic acid (IFA) during pregnancy is practiced in some countries. The World Health Organization (WHO) antenatal care guidelines do not recommend that MMS replace IFA as routine standard of care, due to some evidence of risk and gaps in evidence, although the guidelines suggest that policymakers in populations with a high prevalence of nutritional deficiencies consider giving MMS that include IFA when the benefits outweigh the disadvantages. However, no further guidance is provided regarding the contexts where MMS may be warranted. A task force comprising 33 members from a variety of organisations was convened to reassess the evidence base for antenatal MMS to support policymakers in the implementation of the guidelines.

The task force identified new evidence that shows that, despite the variability in prevalence of micronutrient deficiencies among women of reproductive age and a general lack of data on

dietary intake and micronutrient status among pregnant women in most LMICs, there is clear and consistent evidence from trial data that MMS is beneficial where micronutrient deficiencies are relatively common and where it would reduce the risk for preterm birth, small for gestational age, and low birth weight, in comparison with IFA alone. An individual-participant data meta-analysis also revealed even greater benefits for anaemic and underweight women and female infants. The additional mor-

tality and birth outcome benefits associated with the more expensive multiple micronutrient tablets should result in favourable cost-effectiveness values when compared with other programmes aimed at reducing mortality and undesirable birth outcomes. The task force also identified little risk of exceeding the upper limit of micronutrients, even when combined with adequate dietary intake. The task force concludes that MMS is likely to lead to additional benefits compared to IFA supplementation alone and could be included as part of routine antenatal care to improve maternal micronutrient status.

<sup>1</sup> Bourassa, M.W. *et al* (2019) (2019) Review of the evidence regarding the use of antenatal multiple micronutrient supplementation in low- and middle-income countries. *Annals of the New York Academy of Sciences*, 1444 (1), pp. 6-21. ISSN 0077-8923 DOI: <https://doi.org/10.1111/nyas.14121>



A checkup of a pregnant mother at Nutrition Rehabilitation Centre in Orchha, Narayanpur, Chattisgarh

UNICEF/2018/Altaf Ahmad

## Setting research priorities on multiple micronutrient supplementation in pregnancy

Research snapshot<sup>1</sup>

A series of publications recently presented evidence of the benefits of multiple micronutrient supplementation (MMS) on maternal and perinatal outcomes in addition to those provided by iron and folic acid (IFA) alone. Outcomes included significant risk reduction of low birth weight (LBW), small for gestational age (SGA), preterm birth, and stillbirth. However, important gaps in knowledge remain in the implementation of MMS in prenatal care programmes, which affect the successful implementation of this intervention. To clarify research needs, the Child Health and Nutrition Research Initiative (CHNRI) methodology was applied to inform the direction of research and investments needed to support the implementation of MMS interventions for pregnant women in low- and middle-income countries. Between April and June 2019, a group of international specialists identified and ranked the most urgent gaps in knowledge, focusing

particularly on aspects that would improve the delivery and effectiveness of this intervention.

Seventy-three research questions were received, analysed and reorganised, resulting in a final list of 35 research questions. These were scored in turn against four criteria, yielding a list of 10 ranked-priority research options. The questions that received the highest priority were those that focused on the use of behavioural change and counselling strategies, and community workers to increase antenatal care (ANC) attendance and adherence to MMS. This is not surprising, given that low adherence to prenatal micronutrient supplementation is a major barrier to achieving the full potential benefits of this intervention, even when programme coverage is satisfactory. Other high-ranked questions were about the best (field-friendly and cost-effective) indicators and methods needed to identify populations more likely to benefit from prenatal MMS interventions. This may be justified

by the lack of clear guidance for countries interested in adopting MMS interventions in the 2016 World Health Organization (WHO) Guidelines for ANC. In addition, questions around the potential benefit of extending MMS interventions beyond pregnancy into the lactation period were also ranked high. The lowest-scored question pertains to the marginal costs and benefits of adding each vitamin or mineral to MMS (possibly ranked low due to the presence of the commonly accepted 'UNIMMAP' formulation used in many of the trials that demonstrated additional benefits of MMS over IFA). This exercise identified important research gaps that must be urgently addressed to improve the implementation of this important and cost-effective nutrition intervention.

<sup>1</sup> Filomena Gomes, Megan W. Bourassa, Seth Adu-Afaruwah, Clayton Ajello, Zulfiqar A. Bhutta, Robert Black, Elisabete Catarino, Ranadip Chowdhury, Nita Dalmiya, Pratibha Dwarkanath, Reina Engle-Stone, Alison D. Gernand, Sophie Goudet, John Hoddinott, Pernille Kæstel, Mari S. Manger, Christine M. McDonald, Saurabh Mehta, Sophie E. Moore, Lynnette M. Neufeld, Saskia Osendarp, Prema Ramachandran, Kathleen M. Rasmussen, Christine Stewart, Christopher Sudfeld, Keith West, and Gilles Bergeron. 2019. Setting research priorities on multiple micronutrient supplementation in pregnancy. The Authors. *Annals of the New York Academy of Sciences* published by Wiley Periodicals, Inc. on behalf of New York Academy of Sciences. <https://doi.org/10.1111/nyas.14267>