

## Micronutrient supplements in pregnancy: an urgent priority

We read with concern the Comment by Anura V Kurpad and Harshpal Singh Sachdev (June, 2022).<sup>1</sup> The authors described some limitations of the recent 2022 study by Caniglia and colleagues inherent to observational studies.<sup>2</sup> This robust programmatic evaluation adds to the existing strong evidence of benefit of antenatal multiple micronutrient supplements (MMS) compared with iron–folic acid supplements (IFAS) alone from a meta-analysis of 17 randomised controlled trials,<sup>3</sup> and accounts for access and adherence in real-world programmes.

The difference in mean birthweight shown in the study is consistent with the shown benefit of MMS versus IFAS. Shifts in the lower tail of the birthweight distribution can occur without large changes in mean birthweight, and are highly beneficial because low birthweight or preterm neonates have increased risks of death and poor growth and development.<sup>4</sup>

Kurpad and Sachdev call for an individualised prescription of prenatal MMS, according to type and extent of micronutrient deficiencies. Although aspirational, this proposition has yet to be achieved in any nation. Furthermore, mapping of micronutrient deficiencies to provide individualised tailored products remains infeasible in most low-income and middle-income countries (LMICs), where even population-level micronutrient deficiencies data are scarce. When such data are available, they clearly justify MMS, as multiple micronutrient deficiencies coexist during pregnancy.

Kurpad and Sachdev raised concerns about excessive doses of micronutrients in the UN International Multiple Micronutrient Antenatal Preparation (UNIMMAP) MMS formulation. We previously showed that this formulation

does not result in excessive concerning micronutrient intakes, even when paired with adequate diets—which are not accessible to most pregnant women in LMICs.<sup>5</sup> In fact, data from the largest MMS trial revealed that MMS, although reducing adverse birth outcomes and improving micronutrient status, was unable to eliminate deficiencies, suggesting that higher—not lower—micronutrient doses might be needed to replete pregnant women in LMICs.<sup>6</sup> Iron intake beyond the daily requirement might increase oxidative stress, but it is of more concern for IFAS providing 60 mg of iron, than for UNIMMAP MMS providing 30 mg of iron. Research on subclinical metabolic risks would be useful, and current evidence suggests that MMS—versus IFAS—might decrease metabolic risk for the mother and offspring.<sup>7</sup>

Dietary adequacy with appropriate quantity and quality of diverse foods remains central, yet still lags due to access and cost constraints in many LMICs. This paucity makes MMS an urgent, important, cost-effective, and complementary intervention to improve pregnancy and birth outcomes.

We declare no competing interests.

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