

JP Dadhich
National Coordinator,
BPNI.

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Evidence-based interventions for improvement of maternal and child nutrition: what can be done and at what cost?

There are following inconsistencies or unanswered questions:

1. **For Folic acid supplementation in women of reproductive age**, the article suggests 'Fortification of cereals and other foods might be a feasible way to reach the population in need'. A universal fortification means exposing whole population to this intervention when there are reports which says that 'increased folate intake during the early post-fortification period may have been associated with a transient increase in Colo-Rectal Cancer risk.'¹ This article does not take this fact in account.
2. While discussing **Iron or Iron and Folic Acid supplementation**, authors have cited a Cochrane review of iron supplementation in non-pregnant women of reproductive age² and concludes 'intermittent iron supplementation (alone or with any other vitamins and minerals) reduced the risk of anaemia by 27%.' But this is half reporting of conclusions of this review which also says, 'More information is needed on morbidity (including malaria outcomes), side effects, work performance, economic productivity, depression and adherence to the intervention.'
3. While describing **Maternal multiple micronutrient supplementation**, citing a Cochrane review³ authors conclude, 'an 11–13% reduction in low birth weight and SGA births, whereas effects on anaemia and IDA were much the same when compared with iron and folic acid supplements' and recommends 'potential replacement of iron-folate supplements in pregnancy with multiple micronutrient supplements in populations at risk.' Here again, authors have ignored conclusions of the Cochrane review which says, 'Though multiple micronutrients have been found to have a significant beneficial impact on SGA and low birth weight babies, we still need more evidence to guide a universal policy change and to suggest replacement of routine iron and folate supplementation with a MMS. Future trials should be adequately powered to evaluate the effects on mortality and other morbidity outcomes. Trials should also assess the effect of variability between different combinations and dosages of micronutrients, keeping within the safe recommended levels. In regions with deficiency of a single micronutrient, evaluation of each micronutrient against a placebo in women already receiving iron with folic acid would be especially useful in justifying the inclusion of that micronutrient in routine

¹ Zschäbitz S, Cheng TY, Neuhauser ML, Zheng Y, Ray RM, Miller JW, Song X, Maneval DR, Beresford SA, Lane D, Shikany JM, Ulrich CM. B vitamin intakes and incidence of colorectal cancer: results from the Women's Health Initiative Observational Study cohort. *Am J Clin Nutr*. 2013 Feb;97(2):332-43.

² Fernandez-Gaxiola AC, De-Regil LM. Intermittent iron supplementation for reducing anaemia and its associated impairments in menstruating women. *Cochrane Database Syst Rev* 2011; 12. CD009218

³ Haider BA, Bhutta ZA. Multiple-micronutrient supplementation for women during pregnancy. *Cochrane Database Syst Rev* 2012; 11. CD004905

antenatal care.’ STILL, this intervention has find a place in the ‘packages of nutrition interventions at 90% coverage’ (see table 5) and cost-evaluations were done.

The reference no. 29 (a meta-analysis)⁴ has been quoted inappropriately. The original review concludes 'Our meta-analysis provides consistent evidence that MMN supplementation providing approximately 1 RDA of MMN during pregnancy does not result in any reduction in stillbirths, early or late neonatal deaths compared to FE + FA alone.' AND 'and MMN may increase the risk of birth asphyxia.'

4. In the section on ‘**Delayed cord clamping**’, author cites a review⁵ and conclude that in preterm neonates ‘delayed cord clamping was associated with 39% reduction in need for blood transfusion and a lower risk of complications after birth.’ BUT same review, also says ‘the peak bilirubin concentration was higher for infants allocated to delayed cord clamping compared with immediate clamping’, which is not reported in the text though mentioned in the table 2.
5. In the section on ‘**Promotion of breastfeeding and supportive strategies**’ the focus is mainly on promotional strategies, other important strategies like Protection of breastfeeding are not studied and if no studies were found that this fact was not mentioned. Protection is considered an important intervention for successful breastfeeding. Is it because, some of the authors are having association with infant formula companies, as per declaration of conflicts of interest?
6. In the section on ‘**Prevention and treatment of severe acute malnutrition**’, review reports inconclusive evidence for reduction in deaths in facility, while for community settings, it reports, ‘We identified no significant differences in mortality’. It further says, ‘...because of the nature of the evidence, establishing effect estimates for the overall approach to community management has proved challenging. Available evidence shows some positive effects with the use of RUTF compared with standard care for the treatment of SAM in community settings, yet the differences were for the most part small and several outcomes had substantial heterogeneity. An emphasis not only on the choice of commodities, but also on the quality of programme design and implementation is crucial to improvement of outcomes for children with SAM, as is research to fill information gaps, such as optimum treatment methods and approaches for treatment of breastfed infants younger than 6 months.’ BUT surprisingly, management of SAM and MAM still finds number one position among the top ten interventions to reduce child mortality.
7. While **Modelling** the effect of scaling up coverage of nutrition interventions in countries with the highest burden, the article has identified ten ‘most effective’ interventions and concludes that “if these ten nutrition interventions were scaled up to 90% coverage, mortality in children younger than 5 years could be reduced by 15% (range 9—19), with a 35% (19—43) reduction in diarrhoea-specific mortality, a 29% (16—37) reduction in pneumonia-specific mortality, and a 39% (23—47) reduction in measles-specific mortality.” It further says, “The analysis suggested that the interventions with the largest potential affect on mortality in children younger than 5 years are management of SAM, preventive zinc supplementation, and promotion of breastfeeding ([figure 5](#)).” BUT other interventions for disease

⁴ Ronsmans C, Fisher DJ, Osmond C, Margetts BM, Fall CH. Multiple micronutrient supplementation during pregnancy in low-income countries: a meta-analysis of effects on stillbirths and on early and late neonatal mortality. *Food Nutr Bull* 2009; 30: S547-S555

⁵ Rabe H, Diaz-Rossello JL, Duley L, Dowswell T. Effect of timing of umbilical cord clamping and other strategies to influence placental transfusion at preterm birth on maternal and infant outcomes. *Cochrane Database Syst Rev* 2011; 8.

prevention and management were not modeled though some of them have been found significantly effective (see table no. 4). Few such interventions are WASH interventions, Deworming in children, feeding practices in diarrhea, management of malaria in pregnant women and prevention of malaria in children.