



Safety and Efficacy of Antenatal Iron Supplementation in a Malaria-endemic Area in Kenya: A Randomised Trial

**Martin N. Mwangi^{1,2*}, Johanna M. Roth¹, Menno Smit¹, Laura Trijsburg¹,
Alice Mwangi³, Ayşe Y. Demir⁴, Petra Mens^{5,6}, Andrew M. Prentice^{7,8},
Pauline E. A. Andang^{1,2} and Hans Verhoef^{1,7}**

¹Wageningen University, Cell Biology and Immunology Group, Wageningen, The Netherlands.

²Maseno University, School of Public Health and Community Development, Maseno, Kenya.

³University of Nairobi, Applied Nutrition Programme, Nairobi, Kenya.

⁴Meander Medical Centre, Laboratory for Clinical Chemistry and Haematology, Amersfoort,
The Netherlands.

⁵Royal Tropical Institute, Amsterdam, The Netherlands.

⁶KIT Biomedical Research, Amsterdam, The Netherlands.

⁷London School of Hygiene and Tropical Medicine, MRC International Nutrition Programme, London,
UK.

⁸MRC Keneba, Keneba, Gambia.

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ABSTRACT

Objectives: Whereas coverage of antenatal iron supplementation is low and benefits are uncertain, there are concerns that it can increase the burden of malaria, with potentially devastating effects on maternal and neonatal health outcomes. We aimed to measure the effect of iron supplementation during pregnancy on maternal *Plasmodium* infection assessed at delivery, birth weight, gestational age, fetal growth and maternal and infant iron status.

Methods: Rural Kenyan women (n=470) with singleton pregnancies, gestational age 13–23 weeks and haemoglobin concentration ≥ 90 g/L were randomised to supervised daily supplementation with iron (60 mg as ferrous fumarate) or placebo until 1 month postpartum. To prevent severe

Correspondence: Lucie Bohac, Coordinator, Micronutrient Forum Secretariat (email: lbohac@micronutrient.org)

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anaemia, all women additionally received 5.7 mg iron/day through flour fortification. Intermittent preventive treatment against malaria was given as usual. *Plasmodium* infection was assessed at birth by dipstick tests, PCR and histological examination of placental biopsies.

Results: There was no evident effect on *Plasmodium* infection (both intervention groups: 45%; difference, 95% CI: 0%, -9% to 9%). Iron supplementation increased birth weight by 143g (95% CI: 58–228g) and reduced the prevalence of low birth weight (<2,500g) by 65% (95% CI: 13%–86%). The effect on birth weight was larger in women who were initially iron-deficient than in those who were iron-replete (250 g versus -13 g; p-interaction=0.008), and the improved birth weight seemed achieved mostly through improved fetal growth. Iron supplementation resulted in improved maternal iron status at 1 month postpartum, and improved infant iron stores.

Conclusions: Coverage of universal antenatal iron supplementation must be increased.

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