Online appendix E. High-level summary of high/medium confidence SRs

Appendix Table 4: Effectiveness of fortification interventions, based on findings from high- or medium-confidence SRs

Intervention, population and other details (if specified)	Positive effect found	Insufficient evidence to conclude	Little to no effect	Mixed effects
Iron-fortified food	**Children** Increase ferritin1 (Das et al. 2013; Eichler et al. 2012) Increase serum folate (De-Regil, Jefferds, and Peña-Rosas 2017) **Iron and multiple micronutrient fortified food for children** Reduce anaemia (measured as risk), increase haemoglobin (Eichler et al. 2012) **Women** Increase serum ferritin (Gera, Sachdev, and Boy 2012; Das et al. 2013) **Full Population** Increase haemoglobin, reduce anaemia (measured as risk), reduce iron deficiency (measured as risk), increase serum ferritin (Gera, Sachdev, and Boy 2012)	**Children** Serum zinc, serum vitamin E, zinc deficiency, vitamin A deficiency (De-Regil, Jefferds, and Peña-Rosas 2017) **Women** Anaemia prevalence (Das et al. 2013) **Full Population** Serum zinc (Gera, Sachdev, and Boy 2012)	**Children** Ferritin1, serum retinol or serum vitamin B12 **Women** Haemoglobin (Das et al. 2013)	**Children** Some studies report reduced anaemia prevalence and iron deficiency (De-Regil, Jefferds, and Peña-Rosas 2017), increased haemoglobin (Das et al. 2013; De-Regil, Jefferds, and Peña-Rosas 2017; Eichler et al. 2012) and reduced anaemia risk (Eichler et al. 2012), yet others report little to no effect on anaemia prevalence[1] (Das et al. 2013) or iron deficiency anaemia (De-Regil, Jefferds, and Peña-Rosas 2017)
Iron-fortified wheat flour	**Full Population** Reduce anaemia (measured a risk) (Field, Mithra, and Peña-Rosas 2021) **Combined with other micronutrients** Reduce iron deficiency (measured as risk) (Field, Mithra, and Peña-Rosas 2021)		**Full Population** Iron deficiency (Field, Mithra, and Peña-Rosas 2021) **Combined with other micronutrients** Anaemia (Field, Mithra, and Peña-Rosas 2021)[1]	
Iron-fortified maize flour		Anaemia, iron deficiency, haemoglobin, ferritin (Maria N. Garcia-Casal et al. 2018)		
Iron-fortified rice			Anaemia, vitamin A deficiency, serum/plasma retinol, serum/plasma zinc (Peña-Rosas et al. 2019)	

Intervention, population and other details (if specified)	Positive effect found	Insufficient evidence to conclude	Little to no effect	Mixed effects
Iron- and iodine-fortified salt	Increase haemoglobin and reduce anaemia (measured as risk) (Ramirez-Luzuriaga et al. 2018)			
Folic acid-fortified wheat or maize flour	Increase serum folate (Centeno Tablante et al. 2019)	Anaemia or haemoglobin (Centeno Tablante et al. 2019)		
Vitamin A and other micronutrients-fortified food	Reduce vitamin A deficiency (measured as risk) (Hombali et al. 2019) **Children** Increase serum Vitamin A (Eichler et al. 2012)			
Zinc-fortified staple food	**Compared to foods without adding zinc:** Increase serum/plasma zinc (Shah Dheeraj et al. 2016)		**Fortification with zinc and other micronutrients, compared to foods fortified with other micronutrients without zinc:** Zinc concentration (Shah Dheeraj et al. 2016) Anaemia, haemoglobin (Shah Dheeraj et al. 2016) **Combined with other micronutrients** Zinc serum levels (Eichler et al. 2012)	
Multiple micronutrient-fortified food	**Children** Increase serum ferritin, serum zinc; (Das et al. 2013) Increase and ferritin; reduce iron deficiency (Suchdev et al. 2020) Reduce iron deficiency anaemia and iron deficiency prevalence (Eichler et al. 2019)	**Children** Serum retinol (Suchdev et al. 2020)	**Children** Vitamin A deficiency (Das et al. 2013) Serum zinc, malaria (Suchdev et al. 2020) Zinc serum levels (Eichler et al. 2012) **Adolescents** Haemoglobin (Salam et al. 2019) **Antenatal point-of-use fortification, compared to multiple micronutrient powders:** Anemia and hemoglobin (Suchdev, Peña-Rosas, and De-Regil 2015)	**Children** Some results show an increase haemoglobin levels (Das et al. 2013; Eichler et al. 2012; Suchdev et al. 2020) and a reduction the risk of anaemia (Eichler et al. 2012) and prevalence of anaemia (Das et al. 2013; Suchdev et al. 2020), while other results show little or no effect on haemoglobin, anaemia (not iron-deficiency anaemia; Eichler et al. 2019)

[2]Compared to children receiving zinc alone, children receiving iron and zinc had lower zinc concentrations, though higher zinc concentrations compared to children receiving iron alone (et al.

Appendix Table 5: Effectiveness of supplementation, based on findings from high- or medium-confidence SRs

Intervention, population and other details (if specified)	Positive effect found	Insufficient evidence to conclude	Little to no effect	Mixed effects
Iron supplementation	**Adolescents** Increase haemoglobin (Salam et al. 2019) **Intermittent iron supplementation for adolescents and adult menstruating women** **Compared to no supplementation:** reduced anaemia prevalence, increased haemoglobin (Fernández-Gaxiola 2019) **Anenatal** Reduce risk of maternal anaemia and iron deficiency; and increase haemoglobin and serum/plasma ferritin (Oh, Keats, and Bhutta 2020) **Antenatal, combined with folic acid supplementation** Reduce anaemia prevalence during pregnancy, increase haemoglobin and increase serum/plasma ferritin (Oh, Keats, and Bhutta 2020) Reduce maternal anemia (Keats et al. 2021)	**Intermittent oral iron supplementation, compared to daily supplementation** Infant Hb or ferritin concentrations within first 6 months (Peña-Rosas et al. 2015)	**Intermittent iron supplementation for adolescents and adult menstruating women** **Compared to no supplementation:** Iron deficiency (Fernández-Gaxiola 2019) **Antenatal** **Intermittent oral iron supplementation, compared to daily supplementation:** Maternal anemia at term, Hb concentrations (Peña-Rosas et al. 2015) **Antenatal, combined with folic acid supplementation** Maternal serum/plasma transferrin receptor concentration (Oh, Keats, and Bhutta 2020)	
Supplementation	**Preconceptional iron-folic acid supplementation** Reduce anemia prevalence	**Preconceptional folic acid supplementation** Anaemia (Lassi et al. 2021)		
Antenatal multiple micronutrient			**Maternal** anaemia or iron deficiency anaemia (Oh, Keats, and Bhutta 2020) **Multiple micronutrients**	

Intervention, population and other details (if specified)	Positive effect found	Insufficient evidence to conclude	Little to no effect	Mixed effects
supplementation			**supplementation, compared to iron supplementation:** Maternal anemia (Keats et al. 2021)	
Iron/ferreous sulfate supplementation	**Children** Reduce anaemia and iron deficiency anemia, increase haemoglobin and ferritin levels(Pasricha et al. 2013)[2]		**Children** Retinol levels, clinical malaria (Pasricha et al. 2013)	
Vitamin A supplementation	**Children** Increase serum Vitamin A and reduce the incidence of diarrhea **Anenatal** **Vitamin A supplementation alone:** Reduce maternal anaemia (McCauley et al. 2015) **3-3.5 months postpartum** Increased maternal breastmilk retinol concentration, maternal serum retinol (Oliveira, Allert, and East 2016)	**Children** Malaria incidence (Imdad et al. 2022) **Anenatal** Haemoglobin and serum/plasma retinol (Oh, Keats, and Bhutta 2020) Supplementation with vitamin A and micronutrients, compared to micronutrients without Vitamin A: anaemia-related outcomes (McCauley et al. 2015) Vitamin A deficiency (infants) **Neonatal** Vitamin A deficiency, anaemia (Haider, Sharma, and Bhutta 2017)	**Children** Vitamin A deficiency, infants (Imdad Aamer, Z Ahmed, and Bhutta Zulfiqar A 2016) **Anenatal** Serum/plasma zinc (Oh, Keats, and Bhutta 2020) **Postpartum** Maternal and infant mortality and morbidity (Oliveira, Allert, and East 2016) **3-3.5 & 6 months postpartum** Infant serum retinol (Oliveira, Allert, and East 2016) **6-9 months postpartum** Maternal breastmilk retinol concentration, maternal serum retinol (Oliveira, Allert, and East 2016)	
Vitamin D supplementation	**Adolescents, combined with calcium** Increase serum 25(OH)D (Salam et al. 2019) **Antenatal** Increase vitamin D (Oh, Keats, and Bhutta 2020) and serum vitamin D (Keats et al. 2021)		**Antenatal** Serum/plasma calcium (Oh, Keats, and Bhutta 2020)	

Intervention, population and other details (if specified)	Positive effect found	Insufficient evidence to conclude	Little to no effect	Mixed effects
Zinc supplementation	**Children, zinc alone** Increase zinc concentration; reduce zinc deficiency, incidence of persistent diarrhea, copper concentration (Imdad et al. 2023) **Children, zinc and iron** Reduce prevalence of anaemia and iron deficiency, increase haemoglobin, iron concentration (Imdad et al. 2023)	**Children, zinc alone** Haemoglobin or iron deficiency (Imdad et al. 2023)	**Children, zinc alone** Incidence of malaria, iron concentration, haemoglobin, anaemia prevalence, iron deficiency (Imdad et al. 2023) **Adolescents** Serum zinc levels (Salam et al. 2019) **Antenatal** Serum/plasma zinc (Oh, Keats, and Bhutta 2020)	

Appendix Table 6: Effectiveness of other nutrient supplementation or consumption, based on findings from high- or medium-confidence SRs

Intervention, population and other details (if specified)	Positive effect found	Insufficient evidence to conclude	Little to no effect
Yingyangbao, a nutrient-dense food supplement, children	Increase haemoglobin and reduce anaemia prevalence in (Li et al. 2019)		
Lipid-based nutrient supplement	Delivered with complementary feeding for children: Reduce anaemia prevalence (Das et al. 2019)	Antenatal lipid-based nutrient supplementation: maternal anaemia (Das et al. 2018)	
Animal-source food consumption for children		Haemoglobin (Shapiro et al. 2019) Anaemia and iron deficiency (Eaton et al. 2019)	
Supplementary feeding interventions, children (Includes provision of cooked food or meals, take-home rations, lipid-based nutrient supplements, un/fortified blended foods or snacks)	Increase haemoglobin (Kristjansson et al. 2015)	Anaemia (measured as risk) or anaemia prevalence (Kristjansson et al. 2015)	

Appendix Table 7: Effectiveness of interventions to prevent or reduce prevalence of malaria, based on findings from high- or medium-confidence SRs

Intervention, population and other details (if specified)	Positive effect found	Insufficient evidence to conclude	Little to no effect	Mixed effects
Intermittent preventive treatment (IPT) against malaria	**Infants or children** Reduce malaria and anaemia (moderately severe to severe) (Meremikwu et al. 2012) Reduce incidences of clinical malaria and a risk of anaemia (Esu, Oringanje, and Meremikwu 2021)	**Infants or children** Haemoglobin levels (Esu, Oringanje, and Meremikwu 2021) **Mefloquine for pregnant women** Malaria infection and maternal anaemia (González et al. 2018)		**Chilren with anaemia** Some studies showed an increase in haemoglobin levels (Athuman, Kabanywanyi, and Rohwer 2015) while others reported little to no effect on haemoglobin levels (Meremikwu et al. 2012) or on the number of children with anaemia (Athuman, Kabanywanyi, and Rohwer 2015)
Mosquito repellent		Anaemia (Maia et al. 2018)	Clinical malaria or malaria infection caused by P. falciparum or P. vivax or prevent malaria (Maia et al. 2018)	
House modifications	Reduce malaria parasite prevalence and severe anaemia prevalence (Fox et al. 2022)	Clinical malaria incidence (Fox et al. 2022)		
Indoor residual spraying, communities using insecticide (non-pyrethroid)-treated nets	To reduce malaria parasite prevalence (Pryce, Medley, and Choi 2022)		Malaria incidence or anaemia prevalence (Pryce, Medley, and Choi 2022).	
Anti-malarial larviciding, applying insecticides to water bodies or containers		Haemoglobin or malaria transmission (Choi, Majambere, and Wilson 2019)		

Intervention, population and other details (if specified)	Positive effect found	Insufficient evidence to conclude	Little to no effect	Mixed effects
Anti-malarial drug regimens	**Pregnant women** Reduce the prevalence of severe maternal anaemia (Radeva-Petrova et al. 2014**)**	**Single dose of primaquine (PQ) (or an alternative 8-aminoquinolines 8AQ) given alongside treatment for P. falciparum malaria** Malaria incidence and haemoglobin concentration (Graves, Gelband, and Garner 2015) **Ivermectin** Malaria transmission (De Souza et al. 2021)	**Pregnant women** Prevalence of any maternal anaemia or clinical malaria prevalence during pregnancy (Radeva-Petrova et al. 2014)	
Mass-drug administration, areas with very low to low endemicity of plasmodium falciparum malaria or P vivax malaria	Reduce parasitaemia prevalence at 1-3 months after (M. P. Shah et al. 2021)		Malaria incidence at 7-12 months after administration (M. P. Shah et al. 2021)	
Community use of malaria rapid diagnostic tests, malaria-endemic areas	Increase appropriate treatment rate for participants who were diagnosed with the rapid tests, and reduce misdiagnosis and treatment of people with negative malaria parasite results by microscopy or PCR testing (Allen, Wiyeh, and McCaul 2022)		Anaemia and parasitaemia (Allen, Wiyeh, and McCaul 2022)	

Appendix Table 8: Effectiveness of interventions for gynecological and obstetric conditions, based on findings from high- or medium-confidence SRs

Intervention, population and other details (if specified)	Positive effect found	Insufficient evidence to conclude	Little to no effect
Oxytocin administration		Postpartum haemorrhage (Pantoja et al. 2016)	
Phytomedicines		Anaemia and manage sickle cell disease (Oniyangi and Cohall 2020)	
Uterine massage			Postpartum haemorrhage (Hofmeyr, Abdel-Aleem, and Abdel-Aleem 2013)

Appendix Table 9: Effectiveness of deworming interventions and other interventions to prevent soil-transmitted helminth infections, diarrhea or neglected tropical diseases, based on findings from high- or medium-confidence SRs

Intervention, population and other details (if specified)	Positive effect found	Insufficient evidence to conclude	Little to no effect	Mixed effects
Deworming	**Children, soil-transmitted helminth-endemic areas** Praziquantel: increase haemoglobin (Vivian Andrea Welch et al. 2019) With iron or micronutrients: increase haemoglobin (Vivian Andrea Welch et al. 2019) **In helminth-endemic areas** 6-12 weeks after deworming: Reduce HIV viral load for those with soil-transmitted helminth, schistosomiasis or lymphatic filariasis (Means et al. 2016)	**Mass deworming** Burden of all worms, compared to a placebo (Vivian A. Welch et al. 2016)	**Children, soil-transmitted helminth-endemic areas** Mass deworming: haemoglobin (Vivian Andrea Welch et al. 2019) Haemoglobin (Taylor-Robinson et al. 2019) **Non-pregnant adolescent girls and women (ages 10-49)** Anaemia prevalence, severe anaemia, iron deficiency (Tanjong Ghogomu et al. 2018) **Mass deworming** Child health, school performance (Vivian A. Welch et al. 2016) **In helminth-endemic areas** Serum haemoglobin, serum ferritin (Means et al. 2016)	
Improve disposal of feces of children	**Education and hygiene promotion:** reduce diarrhea incidence (Majorin et al. 2019)	**Sanitation hardware and behavior change interventions:** diarrhea prevalence (Majorin et al. 2019)	**Programs to end open defecation:** diarrhea prevalence or soil-transmitted helminth (Majorin et al. 2019)	

Appendix Table 10: Effectiveness of interventions to improve access to nutritious food, based on findings from high- or medium-confidence SRs

Intervention, population and other details (if specified)	Positive effect found	Insufficient evidence to conclude	Little to no effect
Food vouchers or food and nutrition subsidies		Biochemical indicators (e.g. micronutrient levels ; Durao et al. 2020)	
Conditional cash transfers		Prevalence of schistosomiasis or helminthiasis (Ahmed et al. 2022)	