Appendix 1 – MEDLINE Search Strategy

Population:

1. exp infant/ or exp child/ or exp newborn/ or exp child,preschool/ or exp pediatrics/ or (infant* or neonat* or baby* or babies or child*or newborn* or "newborn infant*" or girl* or boy* or toddler* or preschool* or "pre school*" or pre-school* or "preschool child*" or kindergarten* or kindergarden* or "nursery school" or "day care*" NOT adult* or paediatric* or pediatric* or under-five* or "under five*" or "under 5" or under-5 or "5 and under" or "five and under" or "under the age of five" or "under the age of 5").tw,kf

Single or Multiple Micronutrient Supplementation:

- 2. Micronutrients/ or vitamins/ or minerals/ or exp iron/ or exp iron compounds/ or iron, dietary/ or vitamin A/ or exp iodine/ or exp zinc or exp zinc compounds/ or exp vitamin D/ or (micronutrient* or multinutrient* or multi-nutrient* or "multi*nutrient" or "multimicronutrient*" or "multimicronutrient*" or multivitamin* or "multi-vitamin*" or multimineral* or "multi-mineral*" or MMN or "multiple micro nutrient*" or "multiple micronutrient" or micronutrient* or "essential vitamins*" or minerals* or "vitamin d" or "hydroxyvitamin d" or vitamind or "25 hydroxyvitamin d" or "25 hydroxy-vitamin d" or "25-hydroxyvitamin d" or "25hydroxy-vitamin d" or "25-hydroxyvitamin d" or 25ohd or "25-oh-vitamin d" or 25-ohd or "vitamin d2" or vitamin-d2 or "25-hydroxyvitamin d2" or "25-hydroxy-vitamin d2" or "vitamin d3" or vitamin-d3 or "25 hydroxyvitamin d3" or "25 hydroxyvitamin d3" or "25-hydroxy-vitamin d3" or calcidiol or calcifediol or "vitamin a" or "vitamin a1" or retinol* or retinal* or Retinaldehyde or retinoid or Retinoids or retinoic or beta-carotene or "beta carotene" or iron or ferr* compounds or "dietary iron" or zinc or "zn" or "zinc acetate" or "zn acetate" or "zn sulfate" or "zn oxide" or iodine or "iod* compounds" or "ferr* compounds" or "dietary iron").tw,kf 3. Dietary supplements/ or tablets/ or ((supplement* or neutraceutical* or nutraceutical* or nutriceutical* or tablet* or syrup* or drop*).tw,kf)
- 4. 1 AND 2 AND 3

Lipid-Nutrient Supplementation:

- 5. exp Lipids/ or omega-3/ or (lipid* or soy* or peanut* or whey* or sesame* or cashew* or chickpea* or oils or protein* or butter* or fat* or "alpha-linolenic acid" or "docosahexaenoic acids" or "eicosapentaeonic acid").tw,kf
- 6. Dietary supplements/ or (("lipid based" or "lipid-based nutri*" or enrich* or emuls* or powder* or spread* or paste* or LNS*1 or iLiNS or supplement* or neutraceutical* or nutriceutical* or Nutributter* or Plumpy* or PlumpyNut or "ready to use" or "ready-to-use therapeutic food" or RUSF or RUTF).tw,kf)

7. 1 AND 5 AND 6

Large-Scale Fortification:

- 8. exp Food/ or "Food Supply"/ or exp "Agricultural Crops"/ or exp Salts/ or exp "Fish Products"/ or exp "Soy Foods" or exp Cereals/ or exp "Dietary Carbohydrates"/ or exp Oryza/ or exp Milk/ or exp Bread/ or exp Beverages/ or exp Yogurt/ or exp Margarine/ or exp Cheese/ or exp "Zea mays"/ or exp Condiments/ or exp Triticum/ or exp Spices/ or exp "Dietary Fats"/ or exp "Dairy Products"/ or (Food* or "staple foods" or crop* or flour* or salt* or sauce*or cereal* or sugar* or rice* or milk* or bread* or oil* or beverage* or yogurt* or margarine* or cheese* or maize*or corn* or wheat* or "durum wheat*" or "sorghum vulgare" or sorghum or condiment* or spices* or "curry powder*" or fat* or dairy*).tw,kf
- 9. Micronutrients/ or vitamins/ or minerals/ or exp iron/ or exp iron compounds/ or iron, dietary/or vitamin A/ or exp iodine/ or exp zinc/ or exp zinc compounds/ or exp vitamin D/ or exp folic acid/ or (micronutrient* or multinutrient* or multi-nutrient* or "multi*nutrient" or "multimicro-nutrient*" or "multimicronutrient*" or multivitamin* or "multi-vitamin*" or multimineral* or "multi-mineral*" or MMN or "multiple micro nutrient*" or "multiple micronutrient" or micro-nutrient* or "essential vitamins*" or minerals* or "vitamin d" or "hydroxyvitamin d" or "25 hydroxyvitamin d" or "25 hydroxyvitamin d" or "25-hydroxyvitamin d" or "25 hydroxyvitamin d2" or "vitamin d2" or "vitamin d3" or vitamin-d2 or "25 hydroxyvitamin d3" or retinol* or retinal* or Retinaldehyde or retinoid or Retinoids or retinoic or beta-carotene or "beta carotene" or iron or ferr* compounds or "dietary iron" or zinc or "zn" or "zinc acetate" or "zn acetate" or "zn sulfate" or "zn oxide" or iodine or "iod* compounds" or "ferr* compounds" or "dietary iron" or "folic acid" or folate*).tw.kf.
- 10. ("supplemented food*" or "large scale fortif*" or enrich* or fortif*).tw,kf.

11. 1 AND 8 AND 9 AND 10

Targeted Fortification for Infants and Young Children:

- 12. exp "infant food"/ or milk substitutes/ or infant formula/ or soy milk/ or ("baby formula" or "artificial milk" or "complementary food*" or "blended food*" or "infant cereal" or "baby food*" or milk* or cereal* or porridge* or paste*).tw,kf
- 13. ("targeted fortification" or enrich* or fortif* or "supplemented food*").tw,kf

14. 1 AND 12 AND 13

Point-Of-Use Fortification with Micronutrient Powders:

15. Powders/ or vitamins/ or minerals/ or micronutrients/ or ("sprinkles powder" or Sprinkle* or powder* or foodlet* or "foodlet-based" or "crushable nutritabs" or "micronutrient powder" or "multiple micronutrient powder" or mnp).tw,kf

- 16. ("Point-of-use" or "home fortification" or "food fortif*" or enrich* or fortif*).tw,kf 17. 1 AND 15 AND 16
- 18. Developing Countries/ or ("developing country" or "developing countries" or "developing nation" or "developing nations" or "developing population" or "developing populations" or "developing world" or "less developed country" or "less developed countries" or "less developed nation" or "less developed nations" or "less developed population" or "less developed populations" or "less developed world" or "lesser developed country" or "lesser developed countries" or "lesser developed nation" or "lesser developed nations" or "lesser developed population" or "lesser developed populations" or "lesser developed world" or "under developed country" or "under developed countries" or "under developed nation" or "under developed nations" or "under developed population" or "under developed populations" or "under developed world" or "underdeveloped country" or "underdeveloped countries" or "underdeveloped nation" or "underdeveloped nations" or "underdeveloped population" or "underdeveloped populations" or "underdeveloped world" or "middle income country" or "middle income countries" or "middle income nation" or "middle income nations" or "middle income population" or "middle income populations" or "low income country" or "low income countries" or "low income nation" or "low income nations" or "low income population" or "low income populations" or "lower income country" or "lower income countries" or "lower income nation" or "lower income nations" or "lower income population" or "lower income populations" or "underserved country" or "underserved countries" or "underserved nation" or "underserved nations" or "underserved population" or "underserved populations" or "underserved world" or "under served country" or "under served countries" or "under served nation" or "under served nations" or "under served population" or "under served populations" or "under served world" or "deprived country" or "deprived countries" or "deprived nation" or "deprived nations" or "deprived population" or "deprived populations" or "deprived world" or "poor country" or "poor countries" or "poor nation" or "poor nations" or "poor population" or "poor populations" or "poor world" or "poorer country" or "poorer countries" or "poorer nation" or "poorer nations" or "poorer population" or "poorer populations" or "poorer world" or "developing economy" or "developing economies" or "less developed economy" or "less developed economies" or "lesser developed economy" or "lesser developed economies" or "under developed economy" or "under developed economies" or "underdeveloped economy" or "underdeveloped economies" or "middle income economy" or "middle income economies" or "low income economy" or "low income economies" or "lower income economy" or "lower income economies" or "low gdp" or "low gnp" or "low gross domestic" or "low gross national" or "lower gdp" or "lower gnp" or "lower gross domestic" or "lower gross national" or lmic or lmics or "third world" or "lami country" or "lami countries" or "transitional country" or "transitional countries" or Africa or Asia or "Caribbean Region" or

"West Indies" or "South America" or "Latin America" or "Central America" or Afghanistan or Albania or Algeria or Angola or Argentina or Armenia or Armenian or Azerbaijan or Bangladesh or Benin or Byelarus or Byelorussian or Belarus or Belorussian or Belorussia or Belize or Bhutan or Bolivia or Bosnia or Herzegovina or Hercegovina or Botswana or Brazil or Bulgaria or "Burkina Faso" or "Burkina Fasso" or Burundi or Urundi or Cambodia or "Khmer Republic" or Kampuchea or Cameroon or Cameroons or Cameron or Camerons or "Cape Verde" or "Central African Republic" or Chad or China or Colombia or Comoros or "Comoro Islands" or Comores or Mayotte or Congo or Zaire or "Costa Rica" or "Cote d'Ivoire" or "Ivory Coast" or Cuba or Djibouti or "French Somaliland" or Dominica or "Dominican Republic" or "East Timor" or "East Timur" or "Timor Leste" or Ecuador or Egypt or "El Salvador" or Eritrea or Ethiopia or Fiji or Gabon or "Gabonese Republic" or Gambia or Gaza or "Georgia Republic" or "Georgian Republic" or Ghana or "Gold Coast" or Grenada or Guatemala or Guinea or Guiana or Guyana or Haiti or Honduras or India or Maldives or Indonesia or Iran or Iraq or "Isle of Man" or Jamaica or Jordan or Kazakhstan or Kazakh or Kenya or Kiribati or Korea or Kosovo or Kyrgyzstan or Kirghizia or "Kyrgyz Republic" or Kirghiz or Kirgizstan or "Lao PDR" or Laos or Lebanon or Lesotho or Basutoland or Liberia or Libya or Macedonia or Madagascar or "Malagasy Republic" or Malaysia or Malaya or Malay or Sabah or Sarawak or Malawi or Nyasaland or Mali or "Marshall Islands" or Mauritania or Mauritius or Mexico or Micronesia or "Middle East" or Moldova or Moldovia or Moldovian or Mongolia or Montenegro or Morocco or Mozambique or Myanmar or Myanma or Burma or Namibia or Nepal or Nicaragua or Niger or Nigeria or Pakistan or Palau or Palestine or Panama or Paraguay or Peru or Philippines or Philippines or Phillipines or Phillippines or Romania or Rumania or Russia or Russia or Russian or Rwanda or Ruanda or "Saint Lucia" or "St Lucia" or "Saint Vincent" or "St Vincent" or Grenadines or Samoa or "Samoan Islands" or "Navigator Island" or "Navigator Islands" or "Sao Tome" or Senegal or Serbia or Montenegro or Seychelles or "Sierra Leone" or "Sri Lanka" or Ceylon or "Solomon Islands" or Somalia or Sudan or Suriname or Surinam or Swaziland or Syria or Tajikistan or Tadzhikistan or Tadjikistan or Tadzhik or Tanzania or Thailand or Togo or "Togolese Republic" or Tonga or Tunisia or Turkey or Turkmenistan or Turkmen or Uganda or Ukraine or USSR or "Soviet Union" or "Union of Soviet Socialist Republics" or Uzbekistan or Uzbek or Vanuatu or Venezuela or Vietnam or "Viet Nam" or "West Bank" or Yemen or Yugoslavia or Zambia or Zimbabwe or Rhodesia).tw,kf

19. 4 OR 7 OR 11 OR 14 OR 17 20. 19 AND 18

21. Limit 20 to yr="1995-2017"

Append — Eligible Studies Excluded from Meta-Analyses

First author, year	Study design	Country	Age range enrolled	Total study population	Intervention	Intervention dose and formulation	Intervention duration and frequency	Control	Control dose and formulation
Abdelrazik, 2007	Non-RCT	Egypt	4-6 months	248	MMN (with iron) supplementation	5mL of syrup: vitamin A (1200IU), vitamin D3 (100IU), thiamin (1mg), riboflavin (1mg), pyridoxine (0.5mg), vitamin C (50mg), vitamin E (1mg), nicotinamide (5mg), panthenol (2mg), calcium gluconate and phosphate (50mg), ferrous gluconate (43mg eq to elemental iron 5mg), 1 mg/kg iron - adjusted monthly according to infant weight	Daily for 12 months	MMN (without iron) supplementatio n	5ml of syrup: vitamin A (1200IU), D3 (100IU), thiamin (1mg), riboflavin (1mg), pyridoxine (0.5mg), vitamin C (50mg), vitamin E (1mg), nicotinamide (5mg), panthenol (2mg), calcium gluconate and phosphate (50mg)
Abdollahi, 2014	cRCT	Iron	6-24 months	838 (17 clusters)	Zinc supplementation	5 mL of syrup: zinc (5mg)	Daily for 3 months	No intervention	
Aburto, 2010	cRCT	Mexico	4-12 months	187	MNP, MMN supplementation or fortified food group	MNP and MMN (syrup): iron (10mg), zinc (10mg), vitamin A (400mcg), vitamin E (6mg), vitamin C (50mg), vit B2 (0.8mg), vitamin B12 (0.7mcg), folic acid (50mcg) Fortified food: also contained energy (194kcal), protein (5.8g), fat (6.6g), carbohydrate (27.9g), sodium (24.5mg).	Daily for 4 months	No intervention	
Acharya, 2018	Natural experiment	Nepal	6-60 months		Vitamin A supplementation	High-dose capsule	Bi-annually	No intervention	
Adom, 2010	RCT	Ghana	6-18 months	56	Iron fortified maize-cowpea flour	184mg/kg dry weight	Daily (3 times a day) for 6 months	Unfortified maize-cowpea flour	
Akrour- Aissou, 2019	Non-RCT	Algeria	1-23 months	150	Vitamin D supplementation	Syrup: 200 000 IU at 1 month of age and 200 000 IU at 6 months of age	2 doses (one at 1 month of age and another at 6 months of age)	No intervention	
Alderman, 2009 Associated refs:	cRCT	Senegal	6-59 months	200,000 households (220 clusters)	Vitamin A supplementation	Syrup: children 6-11 months of age received 100,000IU and children 12-59 months of age received 200,000IU	Bi-annually for 2 years	No intervention	

Linnemayr, 2011									
Almeida, 2014	cRCT	Brazil	12-59 months	184	MNP (with iron only) fortified drinking water	10mg of iron and 100mg of ascorbic acid per liter water (the pre-mix contained 1000 mg of FeSO4-7H2O and 2000 mg of ascorbic acid diluted in 20 ml of water)	Daily for 3 months	Unfortified drinking water	
Asibey- Berko, 2007	RCT	Ghana	1-5 years	157	Iodine and iron fortified salt	1000ppm iron (1g/kg) and 50ppm (50mg/kg) iodine; average daily intake is 70mg/week	Daily for 8 months	No intervention	
Assis, 2000	Non-RCT	Brazil	6-59 months	871	Vitamin A supplementation	Children 6-12 months of age: vitamin A (100,000IU); children >1 year of age: 200,000IU	1 dose	No intervention	
Baqui, 1995	RCT	Bangladesh	6-7 weeks	185	Vitamin A supplementation	Liquid: 25,000IU	3 doses at DPT immunization	Placebo	
Barth-Jaeggi, 2015	RCT	Kenya	6 months	379	MNP (with iron only)	1 sachet: vitamin A (100ug), iron (2.5mg), vitamin D (5ug), copper (0.34mg), tocopherol equivalent (5mg), iodine (30ug), vitamin K1 (30ug), selenium (17ug), thiamine (0.5mg), zinc (2.5mg), riboflavin (0.5mg), pyridoxine (0.5mg), folic acid anhydrous (90ug), niacinamide (6mg), vitamin B12 (0.9ug), vitamin C (60mg)	Daily for 12 months	MNP (without iron)	1 sachet: vitamin A (100ug), vitamin D (5ug), copper (0.34mg), tocopherol equivalent (5mg), iodine (30ug), vitamin K1 (30ug), selenium (17ug), thiamine (0.5mg), zinc (2.5mg), riboflavin (0.5mg), pyridoxine (0.5mg), folic acid anhydrous (90ug), niacinamide (6mg), vitamin B12 (0.9ug), vitamin C (60mg)
Bisimwa, 2012	RCT	Democratic Republic of Congo	4-5 months	1383	LNS (RUCF)	50g: vitamin A (412IU), vitamin D (307IU), vitamin C (75mg), thiamine (0.7mg), riboflavin (1.0mg), vitamin B12 (1ug), pyridoxine (0.24mg), niacin (10.3mg), pantothenic acid (3.8mg), folic acid (0.07mg), vitamin K (0.01mg), calcium (514mg), phosphorus (265mg), iron (9.5mg), zinc (8.3mg), copper (0.3mg), iodine (0.07mg), selenium (0.003mg), magnesium (23.4mg), phytic acid (2.1mg)	Daily for 6 months	MMN fortified corn soy blend flour	70g: Vitamin A (537IU), vitamin D (140IU), vitamin D (140IU), vitamin C (42mg), thiamine (0.2mg), riboflavin (0.6mg), vitamin B12 (0.9ug), pyridoxine (0.11mg), niacin (3.5mg), pantothenic acid (2.0mg), folic acid (0.14mg), vitamin E (5.3IU), calcium (182mg), iron (5.6mg), zinc (8.4mg), copper (0.5mg), iodine (0.03mg), phytic acid (0.650mg)

Bloem, 1995	Interrupted time-series study	Bangladesh	12-59 months	~124,606	Vitamin A supplementation	1 capsule: 200,000IU	Every 6 months	No intervention	
Bougma, 2018	cRCT	Ethiopia	5-11 months	2136 (60 clusters)	Iodine fortified salt		Usual use for 8-10 months	Iodine (iodised salt gradually made available through regular market channels once production was sufficient and legislation was enforced in Oct 2012)	Usual use for 4-6 months
Caufield, 2013 Associated refs: Colombo, 2014	RCT	Peru	6 months	251	MMN (iron, copper, zinc) supplementation	Liquid: iron (10mg), copper (0.5mg), zinc (10mg)	Daily for 12 months	Iron and copper	Liquid: iron (10mg) and copper (0.5mg)
Chen, 2010	RCT	China	4-12 months	1478 in main trial; 475 in this follow up study	MNP fortified whole soybean flour	10g sachet: iron (6mg), zinc (4.1mg), calcium (385mg), vitamin B2 (0.2mg), vitamin D (7.0ug), protein (3.8g), energy (167kJ)	Daily for 12-20 months	No intervention	
Chen, 2012	cRCT	China	36-72 months	361	1) vitamin A and zinc supplementation 2) MMN supplementation	1) 1 capsule: vitamin A (25000IU), 1 tablet: zinc (10mg) 2) 1 tablet: vitamin A (5000IU), vitamin B1 (1.5mg), vitamin B2 (1.7mg), vitamin B6 (2mg), vitamin B12 (4ug), vitamin C (50mg), vitamin D (400IU), folic acid (100ug), niacinamide (20mg), calcium (162mg)	1) vitamin A once every 14 days and zinc 5 times a week for 6 months 2) 5 times every 14 days for 6 months	Vitamin A	1 capsule: 25,000IU Frequency/duration: once every 14 days for 6 months
Cobra, 1997	RCT	Indonesia	6-10 weeks	617	Iodine supplementation	1 capsule: 100mg		Placebo	
de Almeida, 2005	cRCT	Brazil	12-75 months	150 (6 clusters)	MNP (with iron and vitamin C) in drinking water	10 mg of iron and 100 mg of ascorbic acid per liter water (the pre-mix contained 1000 mg of FeSO4-7H2O and 2000 mg of ascorbic acid diluted in 20 ml of water)	Usual use for 6 months	MNP (with vitamin C only) in drinking water	Water with 10mg of iron and 100mg of ascorbic acid per liter (the pre-mix contained 1000 mg of FeSO4-7H2O and 2000 mg of ascorbic acid diluted in 20 ml of water)

DeLong, 1997	Controlled before-after study	China			Iodine fortified irrigation water	Long Ru: 1992 - 30kg given to an area of 4 villages, 1993 - 80kg given to same areas; Bakechi: 80kg given to an area of 8 villages Tusala: 80kg given to an area of 15 villages	Long Ru: 1992, 1993 Bakechi: 1993 Tusala: 1994	No intervention	
Dutra-de- Oliveira, 2002	RCT	Brazil	1-6 years	21 families (88 members)	MNP (with iron and vitamin C) in drinking water	10mL iron solution to 10L of water: elemental iron (10mg) and ascorbic acid (60mg) per L of drinking water	Daily for 4 months	Placebo	
Fawzi, 1998	RCT	Sudan	9-72 months	28,753	Vitamin A supplementation	1 capsule: 200,000IU	Bi-annually for 18 months	Placebo	
Galasso, 2019	cRCT	Madagascar	6-18 months	3738 households (125 clusters)	LNS	20g	Children in cohorts A and B (–6 months to <6 months at baseline) received the full 12 months of supplementation daily. Children in cohort C (6 months to <12 months) received daily LNS for 12 months or less.	No intervention	
Gebremedin, 2014	Propensity score matched retrospectiv e cohort study	Ethiopia	6-59 months	4794	Vitamin A supplementation	Children aged 6–11 and 12–59 months are given 100,000 and 200,000 IU of VA (i.e. 30 and 60 mg of retinol), respectively in the form of a capsule	1 dose (within the preceding 6 months of the survey)	No intervention	
Hadler, 2008 Associated refs: Medeiros, 2015	cRCT	Brazil	6-24 months	192 (25 clusters)	IFA supplementation	Drops: iron (1.4mg/kg/day), folic acid (50ug)	5 days a week for ~3 months	Iron and folic acid placebo	Iron (1.4mg/kg/day)
Hettiarachchi , 2010	cRCT	Sri Lanka	3-5 years	267	LNS food supplement Thriposha	Per 100g: energy (401.8 cal), fat (7.8g), minerals (4.0g), protein (20g), carbohydrates (61.9g), vitamin A (1700IU), vitamin D (200IU), vitamin E (6IU), vitamin C (40mg), vitamin B6 (6mg), vitamin B12 (4mcg), thiamine	Daily for 9 months	Unfortified Thriposha (corn-soya blend)	50g

						(760mcg), riboflavin (560mcg), niacin (8mg), folic acid (200mcg), pantothenic acid (3mg), calcium (900mg), phosphorus (670mg), magnesium (96mg), iron (18mg), zinc (3mg), iodine (44mcg). Children were given 50g/day			
Iannotti, 2014	RCT	Haiti	6-11 months	589	LNS	20g: protein (2.56g), fat (7.08g), linoleic acid (1.29g), alpha linoleic acid (0.29g), vitamin A (400ug), thiamin (0.3mg), riboflavin (0.4mg), niacin (4mg), pantothenic acid (1.8mg), vitamin B6 (0.3mg), vitamin B12 (0.5mg), folic acid (80ug), vitamin C (30mg), calcium (100mg), copper (0.2mg), iodine (90ug), iron (9mg), magnesium (16mg), manganese (0.08mg), phosphorus (82.2mg), potassium (152mg), selenium (10ug), zinc (4mg)	Daily for 6 months	No intervention	
Isanaka, 2009	cRCT	Niger	6-60 months	3533 (12 clusters)	LNS	92g (500 kcal/day)	Daily for 3 months	No intervention	
Kapur, 2003	RCT	India	9-36 months	451	Iron	20mg	Weekly for 8 weeks	Placebo	
Kartasasmita , 1995	RCT	Indonesia	12-54 months	269	Vitamin A supplementation	200,000IU	2 doses (one at baseline and one at 6 months)	Placebo	
Kujinga 2018	RCT	Kenya	2-6 years	184	Zinc fortified filtered water	8mg/L water	Usual use for 25 weeks	Placebo (filtered water)	
Lopez, 2006	Non-RCT	Peru	6 months-4 years	866	MMN supplementation	1 foodlet: vitamin A as acetate (750ug), vitamin D (10ug), vitamin E (12IU), vitamin C (70mg), niacin (12mg), thiamine (1mg), riboflavin (1mg), pyridoxine (1mg), vitamin B12 (1.8mg), folic acid (300ug), iron as ferrous fumarate (20mg), zinc as zinc gluconate (20mg), copper as cupric gluconate (1.2mg), iodine as potassium iodide (100ug)	Weekly for 8 weeks	No intervention	

Luabeya, 2007 Associated refs: Chhagan, 2009; Chhagan, 2010	RCT	South Africa	4-6 months	373	1) Vitamin A and zinc supplementation 2) MMN supplementation	1) 1 tablet: zinc (10mg), vitamin A (1250IU) 2) 1 tablet: zinc (10mg), vitamin A (1250IU), vitamin B1 (0.5mg), vitamin B2 (0.5mg), vitamin B6 (0.5mg), vitamin B12 (0.9ug), vitamin C (35mg), vitamin D (5ug), vitamin E (6mg), vitamin K (10ug), copper (0.6mg), folate (150ug), iodine (50ug), iron (10mg), niacin (6mg)	Daily for 18 months	Vitamin A supplementatio n	1 tablet: 1250IU
Lutter, 2008	Non-RCT	Ecuador	9-14 months	634	MMN fortified cereal and legume flour	65g	Daily for 11 months	No intervention	
Manaseki- Holland, 2012 Associated refs: Aluisio, 2013	RCT	Afghanistan	1-11 months	3046	Vitamin D supplementation	0.5mL of syrup: vitamin D (100,000IU/2.5mg)	Every 3 months for 18 months	Placebo	
Martinez- Estevez, 2016	RCT	Colombia	6-12 months	355	MMN supplementation	3.5mm of syrup: zinc oxide (5mg), calcium carbonate (525mg), vitamin D3 (70IU)	Daily for 12 months	Calcium and vitamin D supplementatio n	3.5mm of syrup: Calcium carbonate (525mg), vitamin D3 (70IU)
Matias, 2017	RCT	Peru	6-11 months	422	LNS	20g LNS: energy (110kcal/460.24kJ), protein (2.6g), fat (7g), linoleic acid (1.29g), α-Linolenic acid (0.29g), folic acid (80ug), niacin (4mg), pantothenic acid (1.8mg), riboflavin (0.4mg), thiamin (0.3mg), vitamin A (400ug), vitamin B12 (0.5ug), vitamin B6 (0.3mg), vitamin C (30mg), calcium (100mg), copper (0.2mg), iodine (90ug), iron (9mg), magnesium (16mg), manganese (0.08mg), phosphorus (82mg), potassium (152mg), selenium (10ug), zinc (4mg)	Daily for 6 months	MNP	1 sachet: folic acid (160ug), vitamin A (300ug), vitamin C (30mg), iron (12.5mg), zinc (5mg)
Mitra, 1997	RCT	Bangladesh	2-48 months	349	MMN (with iron) supplementation	5mL of syrup: 125 mg of ferrous gluconate (15mg elemental iron), vitamin A (80,000 RE/L), vitamin D as cholecalciferol (2000ug/L), vitamin C (10,000mg/L)	Daily for 15 months	MMN (without iron) supplementatio n	5 mL of syrup: vitamin A (80,000 RE/L), vitamin D as cholecalciferol (2000ug/L), vitamin C (10,000mg/L)

Muslihah, 2016	Non-RCT	Indonesia	6-12 months	269	LNS	20g LNS: energy (118kcal), protein (2.6g), lipids (9.9g), linoleic acid (2.8g), alinolenic acid (0.58g), vitamin A (400ug), vitamin B1 (0.5mg), vitamin B2 (0.5mg), vitamin B3 (6.0mg), vitamin B5 (2.0mg), vitamin B6 (0.5mg), vitamin B12 (0.9ug), folic acid (150ug), vitamin C (30mg), vitamin D (10ug), vitamin E (6mg), vitamin K (30ug), calcium (280mg), copper (0.34mg), iodine (90ug), iron (6mg), magnesium (40mg), manganese (1.2mg), phosphorus (190mg), potassium (200mg), selenium (20ug), zinc (8mg)	Daily for 6 months	No intervention	
Nair, 2017	Non-RCT	India	4-6 months	44	Iron and vitamin D supplementation	Iron (2mg/kg)	Daily for 6-8 months (enrollment until 1 year of age)	Vitamin D	
Newton, 2016	RCT	Ghana	7-9 months	93	MNP (with vitamin A)	1 sachet: elemental iron (12.5mg) as microencapsulated ferrous fumarate, ascorbic acid (30mg), retinyl palmitate (400ug RE), zinc (5mg)	Daily for 5 months	MNP (without vitamin A)	1 sachet: elemental iron (12.5mg) as microencapsulated ferrous fumarate, ascorbic acid (30mg), zinc (5mg)
Nogueira, 2012	cRCT	Brazil	10-23 months	216 (2 clusters)	Iron fortified rice	50g portion: elemental iron (56.4mg) as micronized ferric pyrophosphate (MFPP)	Weekly for 18 weeks	Unfortified rice	
Noor, 2018	RCT	Pakistan	6-11 months	120	Zinc supplementation	20mg	Daily for 14 days	Placebo	
Oliveira, 2016	Non-RCT	Brazil	6-14 months	326	MNP	10 mg Fe (encapsulated ferrous fumarate), 4·1 mg Zn (zinc gluconate), 150 μg folic acid, 400 μg vitamin A (retinol equivalents), 30 mg vitamin C (ascorbic acid), 5 μg cholecalciferol, 5 mg vitamin E (tocopherol equivalents), 0·5 mg thiamin, 0·5 mg riboflavin, 0·5 mg vitamin B6, 0·9 μg vitamin B12, 6 mg niacin, 0·56 mg Cu, 90 μg iodine and 17 μg Se	Daily for 60 days	No intervention	

Olney, 2018	cRCT	Guatemala	Supplementation given at 6 months	~39,000 mother/chil d pairs	LNS	2 x 10 g sachets: 118 kcal, protein 2.6g, fat 9.6g, linoleic acid 4.5g, alpha-linoleic acid 0.6g, Vit A 400ug, Vit C 30mg, vit D 5mg, Vit E 6mg, Vit K 30mg, Vit B1 (thiamin) 0.5mg, Vitamin B2 (riboflavin) 0.5 mg, niacin mg, pantothenic acid 2 mg, vitamin B6, 0.5mg, folic acid 150 ug, vit B12 0.9 ug, iron 9mg, zinc 8mg, copper 0.3mg, selenium 20ug, iodine 90ug, calcium 280mg, magnesium 40mg, manganese 1.2mg, phosphorus 190 mg, potassium 200 mg. Intervention Arm 3: MNP (micronutrient powder) (4g or 2 x2g sachets), each containing Vit A 400ug, Vit C 30mg, vit D 5mg, Vit E 6mg, Vit K 30mg, Vit B1 (thiamin) 0.5mg, Vitamin B2 (riboflavin) 0.5 mg, niacin mg, pantothenic acid 2 mg, vitamin B6, 0.5mg, folic acid 150 ug, vit B12 0.9 ug, iron 9mg, zinc 8mg, copper 0.3mg, selenium 20ug, iodine 90ug, calcium 280mg, magnesium 40mg, manganese 1.2mg, phosphorus 190 mg, potassium 200 mg.	Daily for 18 months	Placebo	
Ouedraogo, 2010	RCT	Burkina Faso	6-23 months	131	MMN fortified gruel	8 mg elemental iron (as ferrous fumarate), 5 mg zinc (as zinc gluconate), 300mg vitamin A (as retinyl acetate), 30 mg ascorbic acid and 60 mg iodine (as potassium iodate)	MMN once daily (6 days a week) and gruel twice daily for 6 months	Unfortified gruel	
Owusu- Agyei, 2013	RCT	Ghana	6-24 months	200	Vitamin A and zinc supplementation	Vitamin A: 100,000 IU for <12mo of age or 200 000 IU for older children, and 10mg zinc capsule	Daily for 6 months	Vitamin A and zinc placebo	100,000IU for <12 mos of age or 200,000IU for older children and placebo capsule

Paganini, 2017	RCT	Kenya	6.5-9.5 months	155	MNP (with iron)	1 sachet: vitamin A(400ug), vitamin D(5ug), tocopherol equivalents(5mg), thiamine (0.5mg), riboflavin(0.5mg), vitaminB6(0.5mg), folic acid(90ug), vitamin C,(30mg), copper(0.56mg), iodine(90ug), selenium(17ug), zinc(4.1mg), phytase(190 FTU), Iron(as ferrous fumarate)(2.5mg), iron(as NaFeEDTA)(2.5mg)+ maltodextrin(add to 11g)	Daily for 4 months	MNP (without iron)	1 sachet: vitamin A(400ug), vitamin D(5ug), tocopherol equivalents(5mg), thiamine (0.5mg), riboflavin(0.5mg), vitamin B6 (0.5mg), folic acid (90ug), vitamin C (30mg), copper(0.56mg), iodine(90ug), selenium (17ug), zinc(4.1mg), phytase(190 FTU), Iron (as ferrous fumarate) (2.5mg), Maltodextrin(add to 11g)
Phuka, 2008 Associated refs: Phuka, 2009; Phuka, 2012	RCT	Malawi	5.5 to 6.99 months	182	LNS	50g: energy (256 kcal), protein (7.0g), carbohydrates (13.8g), fat (16.9g), retinol (400ug RE), folate (160ug), niacin (6mg), pantothenic acid (2mg), riboflavin (0.5mg), thiamin (0.5mg), vitamin B6 (0.5mg), vitamin B12 (0.9ug), vitamin C (30mg), vitamin D (5ug), calcium (366mg), copper (0.4mg), iodine (135ug), iron (8mg), magnesium (60mg), selenium (17ug), zinc (8.4mg)	Daily for 1 year	MMN fortified maize flour	71g: energy (282kcal), protein (10.3g), fat (3.1g), retinol (138ug RE), folate (43ug), niacin (3mg), riboflavin (0.3mg), thiamin (0.1mg), vitamin B6 (0.3mg), vitamin B12 (0.9ug), vitamin C (48mg), calcium (71mg), iron (5mg), zinc (3.6mg)
Rahman, 1999	RCT	Bangladesh	6-71 months	250	MMN (with iron) supplementation	5mL of syrup: 125 mg of ferrous gluconate (15 mg elemental iron), vitamin A [80,000 retinol equivalents (RE)/L], vitamin D (2mg cholecalciferol/L) and vitamin C (10g/L)	Daily for 12 months	MMN (without iron) supplementatio n	5mL of syrup: vitamin A [80,000 retinol equivalents (RE)/L], vitamin D (2mg cholecalciferol/L) and vitamin C (10g/L)
Rooze, 2016	Non-RCT	China (Tibet Autonomou s Region)	0-5 years	207	Vitamin D supplementation	625ug	Monthly for 3 years	No intervention	
Sampaio, 2013	RCT	Brazil	6-48 months	143	MNP (with zinc)	1 sachet: vitamin A (vitamin A acetate) (375mcg), vitamin B1 (thiamine mononitrate) (0.5mg), vitamin B2 (riboflavin) (0.5 mg), vitamin B6 (pyridoxine) (0.5 mg), vitamin B12 (cyanocobalamin) (0.9 mcg), vitamin C (ascorbic acid) (35 mg), vitamin D3 (cholecalciferol) (5.0 mcg),	Daily for 90 days	MNP (without zinc)	1 sachet: vitamin A (vitamin A acetate) (375mcg), vitamin B1 (thiamine mononitrate) (0.5mg), vitamin B2 (riboflavin) (0.5 mg), vitamin B6 (pyridoxine) (0.5 mg), vitamin B12 (cyanocobalamin) (0.9 mcg), vitamin C (ascorbic acid) (35 mg), vitamin D3

						vitamin E (vitamin E acetate) (6.0 mg), niacin (niacinamide) (6.0 mg), copper (copper sulfate) (0.6 mg), iodine (potassium iodide) (50 mcg), iron (ferrous fumarate) (12.5 mg), zinc (zinc gluconate) (5.0 mg)			(cholecalciferol) (5.0 mcg), vitamin E (vitamin E acetate) (6.0 mg), niacin (niacinamide) (6.0 mg), copper (copper sulfate) (0.6 mg), iodine (potassium iodide) (50 mcg), iron (ferrous fumarate) (12.5 mg)
Sazawal, 1997 Associated refs: Sazawal, 1998	RCT	India	6-35 months	609	MMN (zinc) supplementation	5 mL of liquid: vitamin A (240ug retinol equivalents), thiamine (0.6 mg). riboflavin (0.5 mg), vitamin B-6 (0.5 mg), cholecalciferol (2.5ug). vitamin E (3 mg a-tocopherol equivalents), niacin (10 mg niacin equivalents), zinc gluconate (10 mg elemental Zn). During diarrheal illness, this was increased to 10mL to provide for excess stool losses	Daily for 6 months	MMN (without zinc) supplementatio n	5 mL of liquid: vitamin A (240ug retinol equivalents), thiamine (0.6 mg). riboflavin (0.5 mg), vitamin B-6 (0.5 mg), cholecalciferol (2.5ug). vitamin E (3 mg atocopherol equivalents), niacin (10 mg niacin equivalents)
Swami, 2007	Natural experiment	India	1-5 years	528	Vitamin A supplementation		Two rounds of vitamin A supplementatio n	No intervention	
Taneja, 2013 Associated refs: Kumar, 2017; Kvestad, 2015; Strand, 2015	RCT	India	6-30 months	1000	1) LNS (with folic acid only) 2) LNS (with vitamin B12 only)	1) 5g for children 6-11 months of age and 10g for children ≥12 months; Per 10g: energy (54.1kcal), protein (0.7g), fat (3.3g), folic acid (150ug) 2) 5g for children 6-11 months of age and 10g for children ≥12 months; Per 10g: energy (54.1kcal), protein (0.7g), fat (3.3g), vitamin B12 (1.8ug)	Daily for 6 months	LNS (without vitamins and minerals)	5g for children 6-11 months of age and 10g for children ≥12 months; Per 10g: energy (54.1kcal), protein (0.7g), fat (3.3g)
Teshome, 2017	RCT	Kenya	12-36 months	338	1) MNP (with iron as NaFeDTA) 2) MNP (with iron as ferrous fumarate)	1 and 2) 1 sachet: vitamin A (300ug RE) vitamin D (5ug), vitamin E (5mg), vitamin C (30mg), thiamin (0.5mg), riboflavin (0.5mg), niacin (6mg), vitamin B6 (0.5mg), vitamin B12 (0.9ug), iron (either NaFeDTA 3mg or ferrous fumarate 12.5mg), zinc (5mg), copper (0.56mg),	Daily for 30 days	MNP (without iron)	1 sachet: vitamin A (300ug RE) vitamin D (5ug), vitamin E (5mg), vitamin C (30mg), thiamin (0.5mg), riboflavin (0.5mg), niacin (6mg), vitamin B6 (0.5mg), vitamin B12 (0.9ug), zinc (5mg), copper (0.56mg), selenium (17ug), iodine (90ug)

						selenium (17ug), iodine (90ug)			
Venkatarao, 1996	RCT	India	At birth (suppleme ntation given at 6 months of age)	909	Vitamin A	200,000IU	1 dose at 6 months of age	Placebo	
Warthon- Medina, 2015	RCT	Peru	6-17 months	902 in main trial; 200 in this follow- up study	MNP	1 sachet: iron (12.5mg), zinc gluconate (10mg), folic acid (160ug), vitamin C (30mg), vitamin A (300ug)	Daily for 6 months	MNP (with iron only)	1 sachet: 12.5mg
Yadav, 2012	Controlled before-after study	India	12-50 months		Fortified blended food		Duration: ~30 months	No intervention	
Zlotkin, 2013 Associated refs: Aimone, 2013	cRCT	Ghana	6-35 months	1958 (1552 clusters)	MNP (with iron)	1 sachet: elemental iron (as microencapsulated ferrous fumarate) (12.5mg), ascorbic acid (30mg), vitamin A (400µg), zinc (5 mg)	Daily for 5 months	MNP (without iron)	1 sachet: ascorbic acid (30mg), vitamin A (400μg), zinc (5 mg)

Appeux 3 – Eligible Studies Included in Meta-Analyses

First author, year	Study design	Country	Age range enrolled	Total study population	Intervention arms used in meta-analysis	Intervention dose and formulation	Intervention duration and frequency	Control	Control dose and formulation
Aboud, 2011	cRCT	Bangladesh	8-20 months	302 (mother and child pairs)	MNP (Efficacy)	1 sachet: Iron (12.5mg), vitamin A (300ug), folic acid (150ug), vit C (50mg), zinc (5mg)	Daily for 6 months	No intervention	
Adu- Afarwuah, 2007 Associated refs: Adu- Afarwuah, 2008	RCT	Ghana	6 months	409	1) MNP (Efficacy) 2) MMN supplementation (Efficacy) 2) LNS (Efficacy)	1) 1 sachet: beta-carotene (300mcg RE), vit C (50mg), vit D (7.5mcg), folic acid (150mcg), iron (fumarate) (12.5mg), zinc (5mg) 2) 1 tablet: beta-carotene (400mcg RE), vit C (30mg), folic acid (80mcg), thiamine (0.3mg), riboflavin (0.4mg), vit B3 (4mg), pantothenic acid (1.8mg), vit B6 (0.3mg), vit B12 (0.5mg), iron (sulfate) (9mg), zinc (4mg), calcium (100mg), potassium (152mg), copper (0.2mg), selenium (10mcg), iodine (90mcg) 3) 20g: all nutrients in intervention 2 + phosphorus (82mg), magnesium (16mg), manganese (0.08mg), energy (108kcal), linoleic acid (1.29g), linolenic acid (0.29g), phytate (82mg)	Daily for 6 months	No intervention (recruited at baseline)	
Adu- Afarwuah, 2016 Associated refs: Prado, 2016a	RCT	Ghana	At birth (suppleme ntation given at 6 months of age)	1228 infants; 1320 mothers	LNS (Efficacy)	20g: energy (118kcal), protein (2.6g), fat (9.6g), linoleic acid (4.46g), a-linolenic acid (0.58g), vitamin A (400mg RE), thiamin (0.3mg), riboflavin (0.4mg), niacin (4mg), vitamin B-6 (0.3mg), vitamin B-12 (0.5mg), vitamin C (30mg), vitamin D (5mg), vitamin E (6mg), vitamin K (30mg), folic acid (80mg),	Daily for 12 months	No intervention	

Agarwal, 1995	cRCT	India	1-72 months	15, 247	Vitamin A (and vitamin E)	pantothenic acid (1.8mg), iron (6mg), zinc (8mg), copper (0.34mg), calcium (280mg), phosphorus (190mg), potassium (200mg), magnesium (40mg), selenium (20mg), iodine (90mg), and manganese (1.2mg) 15mL of syrup: children 1-6 months of age: vitamin A	Every 4 months for 12 months	Placebo: vitamin E	15 mL of syrup: children 1-6 months of age: vitamin
			mondis		supplementation (Efficacy)	(50,000IU), vitamin E (10IU); children 7-72 months of age: vitamin A (100,000IU), vitamin E (20 IU)	TOT 12 mondas	supplementatio n	E (10IU); children 7-72 months of age: vitamin E (20IU)
Anand 2007	RCT	India	3-6 years	415	MMN fortified candy (Targeted fortification – efficacy)	1 candy: vit A (1000IU), elemental iron (14mg), folic acid (50ug), ascorbic acid (20mg)	6 days a week for 12 weeks	Placebo: Unfortified candy	
Anonymous, 1998 Associated refs: Bahl, 2002	RCT	Ghana, India, Peru	Newborns (suppleme ntation given at >2 months of age)	9424 (mother and child pairs)	Vitamin A supplementation (Efficacy)	1 capsule: 25,000IU/7.5mg	4 doses; at DPT/poliomyel itis and Measles immunization: India and Ghana: 6, 10 and 14 weeks and 9 months of age; Peru: 2, 3, 4 months and 9 months of age	Placebo & vitamin A at 9 months of age (and mothers received placebo)	Placebo (first 3 doses); 1 capsule: 100,000IU/30mg of vitamin A (4th dose)
Arcanjo, 2012	cRCT	Brazil	4 years	120	Iron fortified milk-based cornstarch porridge (Targeted fortification – efficacy)	600 mg ferrous sulfate in liquid form (10 mg elemental iron per portion)	Daily for 14 weeks	Unfortified milk-based cornstarch porridge	
Arcanjo, 2019	cRCT	Brazil	12-36 months	169 (8 clusters total)	MNP (Efficacy)	Vitamin A (400mcg), vitamin D (5mcg), vitamin E (5mg), vitamin E (30mg), vitamin B1 (0.5mg), B2 (0.5mg), B6 (0.5mg), B12 (0.9mcg), niacin (6mg), folic acid (150mcg), iron (10mg), zinc (4.1mg), copper (0.56mg), selenium (17mcg), iodine (90mcg)	5 days a week (Monday to Friday) for 12 weeks	No intervention	

Ashorn, 2015 Associated refs: Prado, 2016b	RCT	Malawi	At birth;	781 infants; 869 mothers	LNS (Efficacy)	20g LNS: energy (118kcal), protein (2.6g), fat (9.6g), linoleic acid (4.46g), a-linolenic acid (0.58g), vitamin A (400mg RE), thiamin (0.3mg), riboflavin (0.4mg), niacin (4mg), vitamin B-6 (0.3mg), vitamin B-12 (0.5mg), vitamin C (30mg), vitamin D (5mg), vitamin E (6mg), vitamin K (30mg), folic acid (80mg), pantothenic acid (1.8mg), iron (6mg), zinc (8mg), copper (0.34mg), calcium (280mg), phosphorus (190mg), potassium (200mg), magnesium (40mg), selenium (20mg), iodine (90mg), and manganese (1.2mg)	Daily for 12 months	No intervention	
Attanasio, 2014 Associated refs: Andrew, 2016	cRCT	Colombia	12-24 months	1420 (96 clusters)	MNP (Efficacy and effectiveness)	1 sachet: iron (12.5mg), zinc (5mg), vitamin A (300μg RE), folic acid (160μg), vitamin C (30mg)	Daily for 18 months	No intervention	
Awasthi, 2013	cRCT	India	~1-6 years	~1,000,000 (72 clusters)	Vitamin A supplementation (Efficacy)	1 capsule: 200,000IU	Every 6 months for 5 years until children reach 6 years of age	No intervention (usual care)	
Ayah, 2007	RCT	Kenya	At birth (suppleme ntation given at 14 weeks of age)	564 (mother and child pairs)	Vitamin A supplementation (Efficacy)	1 capsule: 100,000IU	1Braz dose at 14 weeks of age	Placebo	
Bagni, 2009	cRCT	Brazil	12-60 months	387 (4 clusters)	Iron fortified rice (LSFF – efficacy)	Iron (4.2mg/100g of rice); 90g of rice per meal so approx. 3.78mg of iron/week was obtained	Weekly for 16 weeks	Unfortified rice	

Baqui, 2003 Associated refs: Baqui, 2005; Black, 2004; Fischer Walker 2009	RCT	Bangladesh	6 months	799	1) Iron (and riboflavin) supplementation (Efficacy) 2) Zinc (and riboflavin) supplementation (Efficacy) 3) MMN (and riboflavin) supplementation (Efficacy)	1) Iron (20mg), riboflavin (1mg) 2) Zinc (20mg), riboflavin (1mg) 3) Iron (20mg), zinc (20mg), riboflavin (1mg), twice the WHO recommended daily intakes of iodine, copper, manganese, selenium, vitamin C, vitamin D, vitamin E, thiamin, niacin, pyridoxine, folic acid, cyanocobalamin and pantothenic acid	Weekly for 6 months	Riboflavin	1mg
Barbosa, 2012	cRCT	Brazil	2-6 years	324 (4 clusters)	Iron fortified wheat rolls (LSFF – efficacy)	14 mg of iron/roll; max 3 rolls (20g each) offered per child	5 days a week per 24 weeks	Unfortified wheat rolls	
Barffour, 2019	RCT	Lao People's Democratic Republic (Lao PDR)	6-23 months	3407	1) Zinc supplementation (Efficacy) 2) MNP (Efficacy)	1) 1 tablet: zinc (7mg) 2) 1 sachet: zinc (10mg), iron (6mg), 13 other micronutrients	Daily for ~9 months	Placebo	Powder form
Batra, 2016	cRCT	Guinea- Bissau	3-5 years	533 (9 clusters)	LNS (RUSF) – 15% protein from dairy sources (Efficacy and effectiveness)	92g: energy (478 kcal), protein (11.5g), fat (16.7g), vitamin A (506ug), vitamin D (6.1ug), vitamin E (15.2mg), vitamin K (25.3ug), vitamin C (75.9mg), thiamin (0.5mg), riboflavin (1.0mg), niacin (12.7mg), pantothenic acid (2.0mg), pyridoxine (1.0mg), biotin (10.1ug), folic acid (202ug), cyanocobalamin (2.0ug), sodium (<278mg), potassium (734mg), calcium (476 mg), phosphorus (430mg), magnesium (142mg), copper (0.5mg), iron (4.6mg), iodine (111ug), zinc (10.1mg), selenium (30.4ug)	5 days a week for 3 months	No intervention	

Baum, 2017	cRCT	Haiti	6-59 months	521 (34 clusters)	MNP (Effectiveness)	1 sachet: vitamin A, B, B2, B6, B12, C, D, and E, folic acid, niacin, copper, iodine, iron (2.5mg ferrous lactate), zinc and selenium	Daily for 3 months	No intervention	
Becquey, 2016	cRCT	Burkina Faso	6-30 months	7641 (36 clusters)	Zinc supplementation (Efficacy)	1 tablet: 7mg	Daily for 16, 32 or 48 weeks	No intervention/m orbidity surveillance control	
Begin, 2008	RCT	Guatemala	6-7 months	259	MNP fortified maize based pudding (and whey protein concentrate) (Efficacy)	Vitamin A (400ug RE), vitamin B1 (0.4mg), vitamin B2 (0.5mg), niacin (0.6mg), vitamin B6 (0.6mg), vitamin B12 (0.5ug), vitamin C (35mg), vitamin D3 (400IU), folic acid (35ug), iron (10mg), zinc (5mg), iodine (50ug), selenium (15ug)	Daily for 8 months	Whey protein concentrate maize based pudding	
Bentley, 1997 Associated refs: Rivera, 1998; Ruel, 1997	RCT	Guatemala	6-9 months	108	Zinc supplementation (Efficacy)	4mL liquid: 10mg	Daily for 7 months	Placebo	
Berger, 2000	RCT	Togo	6-36 months	197	Iron supplementation (Efficacy)	1 tablet: 2–3 mg of elemental iron per kg of body weight	Daily for 3 months	Placebo	
Berger, 2006	RCT	Vietnam	4-7 months	915	1) Iron supplementation (Efficacy) 2) Zinc supplementation (Efficacy)	1) Syrup: 10mg 2) Syrup: 10mg	Daily for 6 months	Placebo	
Bhandari, 2002a Associated refs: Bhandari, 2002b; Taneja, 2005; Taneja, 2010	RCT	India	6-30 months	2482	Zinc supplementation (Efficacy)	6 mL for infants: 10mg; 12 mL to older children: 20mg	Daily for 4 months	Placebo	

Brooks, 2005	RCT	Bangladesh	2-12 months	1621	Zinc supplementation (Efficacy)	Syrup: zinc (70mg)	Weekly for 12 months (endline measurements taken at 10 months to minimize attrition)	Placebo	
Cardoso, 2016 Associated refs: Silva, 2017	Non-RCT	Brazil	Intervention group: 6-8 months; control group: 10-14 months	1085	MNP (Efficacy)	1 sachet: iron (ferrous fumarate) (10mg), zinc (gluconate) (4.1mg), folic acid (150ug), vitamin A (RE) (400ug), vitamin C (30mg), vitamin D3 (5ug), vitamin E (5mg), vitamin B1 (0.5mg), vitamin B2 (0.5mg), vitamin B6 (0.5mg), vitamin B12 (0.9ug), niacin (6mg), copper (0.56mg), iodine (90ug), selenium (17ug)	Flexible use; 2 months supply (60 sachets) over a follow up period of 2-3 months (when intervention group reached the age of the control group at enrollment)	No intervention	
Chang, 2010	RCT	Bangladesh	6-18 months	1000	1) Daily alternating zinc and placebo supplementation (Efficacy) 2) Daily alternating IFA and placebo supplementation (Efficacy) 3) Daily alternating MMN and placebo supplementation (Efficacy)	1) 1 tablet: 10mg zinc 2) 1 tablet: 12.5 mg iron and 50IU folic acid 2) 1 tablet: 12.5mg iron, 50IU folic acid, 10mg zinc	Daily for 6 months	Placebo	
Chen, 2005	cRCT	China	≥3 years (3-6 years subgroup)	14,016 residents ≥3 years of age (9 clusters)	Iron fortified soy sauce (LSFF – efficacy)	The actual measured iron concentration of the fortified soy sauce was 23 mg/dL (range, 21–25). The average daily soy sauce consumption of the group consuming the fortified product was 16.4 ml per person, which provided 4.9 mg of iron	Daily for 18 months	Unfortified soy sauce	
Chen, 2008	RCT	China	2-6 years	282	MNP fortified seasoning	1 sachet: vitamin A (500ug), iron (12mg), thiamine (0.7mg), riboflavin (0.7mg),	5 days a week for 6 months	Vitamin A fortified	1 sachet: 500ug

Associated refs: Chen, 2011					powder (Efficacy)	folic acid (0.2mg), niacinamide (7mg), zinc (12mg), calcium (800mg)		seasoning powder	
Chen, 2013 Associated refs: Chen, 2014	RCT	China	3-6 years	445	1) Vitamin A supplementation (Efficacy) 2) Iron supplementation (Efficacy)	1) 1 capsule: 200,000IU 2) 1 tablet: 1-2 mg iron/kg	1) 1 dose 2) Daily for 6 months	No intervention	
Christian, 2015	cRCT	Bangladesh	6 months	5939 (596 clusters)	1) LNS (Plumpy'doz) (Efficacy) 2) MMN fortified wheat soy blend (Targeted fortification – efficacy)	1) ~23g for children 6-12 months; ~46g for children 12- 18 months 2) 1 sachet (32g) for children 6-12 months; 2 sachets for children 12-18 months	Daily for 12 months	No intervention	
Dewey, 2017 Associated refs: Matias, 2017; Matias, 2018; Ullah, 2019	cRCT	Bangladesh	At birth (suppleme ntation given at 6 months of age)	3664 children (live births); 4011 women (64 clusters)	1) LNS (Efficacy and effectiveness) 2) MNP (Efficacy)	1) 20g: energy (118kcal), protein (2.6g), fat (9.6g), linoleic acid (4.46g), α-linolenic acid (0.58g), vitamin A (400ug RE), thiamin (0.5mg), riboflavin (0.5mg), niacin (6mg), folic acid (150ug), pantothenic acid (2mg), vitamin B6 (0.5mg), vitamin B12 (0.9ug), vitamin C (30mg), vitamin D (5ug), vitamin E (6mg), vitamin K (30ug), calcium (280mg), copper (0.34mg), iodine (90ug), iron (9mg), magnesium (40mg), manganese (1.2mg), phosphorus (190mg), potassium (200mg), selenium (20ug), zinc (8mg) 2) 1 sachet: vitamin A (400ug RE), thiamin (0.5mg), riboflavin (0.5mg), niacin (6mg), folic acid (150ug), vitamin B6 (0.5mg), vitamin B12 (0.9ug), vitamin C (30mg), vitamin D (5ug), vitamin E (5mg), copper (0.56mg), iodine (90ug), iron (10mg), selenium (17ug), zinc (4.1mg)	Daily for 18 months	Placebo	

Dibley, 1996 Associated refs: Hadi 2000; Hadi 2004	RCT	Indonesia	6-47 months	1405; on average 782 participated in each cycle	Vitamin A (and vitamin E) supplementation (Efficacy)	Children <12 mos. of age: 1 capsule: 107umol (103,000IU) RE vitamin A and 40umol (17IU) vitamin E; Older participants: 1 capsule: 214umol (206,000IU) RE vitamin A and 84umol (37IU) vitamin E	Every 4 months for 6 cycles	Placebo: vitamin E	Children <12 mos. of age: 40umol (17IU); Older participants: 84umol (37IU)
Dijkhuizen, 20001	RCT	Indonesia	4 months	478	1) Iron supplementation (Efficacy) 2) Zinc supplementation (Efficacy)	1) Syrup: 10mg 2) Syrup: 10mg	5 days a week for 6 months	Placebo	
Domellof, 2001 Associated refs: Domellof 2002; Dewey 2002	RCT	Honduras	4 months	142	Iron supplementation (Efficacy)	Liquid: 1 mg/kg iron - adjusted monthly according to infant weight	Daily for 5 months	Placebo	
Dossa, 2001	RCT	Benin	3-5 years	177	Iron supplementation (Efficacy)	elemental iron (60mg)	Daily for 3 months	Placebo	
Drammeh, 2002	RCT	The Gambia	2-7 years	176	Vitamin A (and vitamin E) supplementation (Efficacy)	1 Capsule: vitamin A (60,000ug) and vitamin E (40mg)	1 dose at baseline	Placebo: vitamin E	1 capsule: 40mg
Ekvall, 2000	RCT	Tanzania	5 months-3 years	207	MMN supplementation (Efficacy)	Liquid: vitamin A (1500IU), vitamin D (400IU), vitamin E (5IU), vitamin C (35mg), vitamin B1 (0.5mg), vitamin B2 (0.6mg), niacin (8mg), vitamin B6 (0.4mg), iron (10mg)	3 times a week for 5 months (56 doses total)	Placebo	
Ermis, 2002	RCT	Turkey	5 months	113	Iron supplementation (Efficacy)	Drops: 1 mg/kg iron - adjusted monthly according to infant weight	Daily for 4 months	Placebo	

Esamai, 2014	RCT	Kenya	5 months	45	MNP (with iron) (Efficacy)	1 sachet: zinc (5mg), vitamin A (300ug), vitamin C (30mg), folic acid (160ug), iron (12.5mg)	Daily for 3 months	Placebo
Faber, 2005	RCT	South Africa	6-12 months	361	MMN fortified maize porridge (Targeted fortification – efficacy)	40g of dry product: β-carotene (3mg), iron (11mg), zinc (3mg), copper (11ug), selenium (10ug), riboflavin (0.4mg), vitamin B6 (0.15mg), vitamin B12 (0.25ug), vitamin E (2.5mg), 2.5 mg vitamin E	Daily for 6 months	Unfortified maize porridge
Fahmida, 2007	RCT	Indonesia	3-6 months	800	1) Zinc supplementation (Efficacy) 2) MMN supplementation (Efficacy)	1) 2mL of syrup: zinc (10mg) 2) 2mL of syrup: iron (10mg), zinc (10mg), vitamin A (1000IU)	Daily for 6 months	Placebo
Fisker, 2013 Associated refs: Fisker, 2014	RCT	Guinea- Bissau	6-17 months	7587	Vitamin A (and vitamin E) supplementation (Efficacy)	Per 0.5mL liquid: vitamin A (100,000IU), vitamin E (20IU); per 1mL: vitamin A (200,000IU), vitamin E (40IU); children <1 years of age received 0.5mL; children ≥1 years of age received 1mL	1 dose at randomization	Placebo
Ghosh, 2019	cRCT	Africa	6 months	970 (38 clusters)	MNP (Efficacy)	1 sachet: vitamin A (200.1ug RE), folic acid (45ug), niacin (3.1mg), riboflavin (0.3mg), thiamin (0.3mg), vit B6 (0.3mg), vit B12 (0.5ug), vit C (30.4mg), Ca (220.3mg), Fe (7mg), P (154.4mg), Zn (2.4mg), choline (62.5mg), vit D (2.5ug), vit E (2.7mg), iodide (0mg), vit K (11ug)	Daily for 12 months	No intervention

Giovanni, 2006 Associated refs: Agnostoni, 2007	RCT	Cambodia	6 months	204	MNP (Efficacy)	1 sachet: fe (fumarate) (12.5mg), Zn (5mg), vitamin C (50mg), vitamin A (300mcg), vitamin D3 (7.5mcg), folic acid (150mcg)	Daily for 12 months	Placebo
Glinz, 2015 Associated refs: Glinz, 2017	cRCT	Cote d'Ivoire	12-36 months	629 (40 clusters)	Iron fortified maize and soy-based porridge 1) with ferrous fumarate 2) ferrous pyrophosphate; We combined groups 1 and 2 (Targeted fortification – efficacy)	25g dry weight: iron as NaFeDTA (2mg), iron as ferrous fumarate or ferric pyrophosphate (3.8mg), and native iron (0.6mg)	6 days a week for 9 months	No intervention
Gokay, 2012	RCT	India	6 months	120	Iron supplementation (Efficacy)	1mg/kg	Daily for 6 months	No intervention
Gupta, 2003	RCT		6-41 months	280	Zinc supplementation (Efficacy)	5mL syrup: elemental zinc (10mg)	5 days a week for 16 weeks	Placebo
Gupta, 2007	RCT	India	6-48 months	1878	Zinc supplementation (Efficacy)	5mL syrup: zinc (25mg)	Weekly for 6 months	Placebo
Hamadani, 2001 Associated refs: Osendarp, 2002	RCT	Bangladesh	1 month	301	Zinc supplementation (Efficacy)	Syrup: elemental zinc (5mg)	Daily for 5 months	Placebo
Hess, 2015a Associated refs:	cRCT	Burkina Faso	8.8-9.9 months	3220 (2390 concessions/ clusters)	1) LNS 5mg zinc + placebo (LNS-Zn5)	1-2) 20g: energy (118kcal), protein (2.6g), fat (9.6g), vit A (400mg), B1 (0.3mg), B2 (0.4mg), B3 (4mg), B5	Daily for 9 months	No intervention

Abbeddou, 2015; Hess 2015b; Prado 2016c; Some, 2015					2) LNS 10mg zinc + placebo (LNS-Zn10) We combined groups 1 and 2 (Efficacy)	(1.8mg), B6 (0.3mg), B12 (0.5mg), folic acid (80mg), vit C (30mg), vit D (5mg), vit E (6mg), vit K (30mg), Ca (280mg), copper (0.34mg), I (90mg), Fe (6mg), Mg (40mg), Mn (1.2mg), P (190mg), K (200mg), Se (20mcg), Zinc (5, or 10mg)			
Huybregts, 2012	cRCT	Chad	6-36 months	1038 (14 clusters)	LNS (Plumpy'Doz) (Efficacy and effectiveness)	46g (247 kcal/day)	Daily for 4 months	No intervention	
Jack, 2012	cRCT	Cambodia	6-7 months	3112 (20 clusters); 1350 recruited to subsample	MNP (Efficacy)	1 sachet: Iron (12.5mg), zinc gluconate (10mg), vit A (300mcg), iodine (90mcg), vit B1 (0.5mg), vit B2 (0.5mg), B6 (0.5mg), B12 (0.9mcg), niacin (6mg), folic acid (160mcg), vit C (30mg), copper (0.3mg), vit D (5mcg), vit E (6IU)	Daily for 6 months	No intervention	
Kemmer, 2012	RCT	Honduras	6-60 months	199	MNP (Efficacy)	1 sachet: iron (12.5mg), zinc (5mg), folic acid (150ug), vitamin A (1600IU), vitamin C (50mg), and vitamin D (300IU)	Daily for 4 months	No intervention	
Kikafunda, 1998	RCT	Uganda	30-89 months	155	Zinc supplementation (Efficacy)	1 tablet: zinc (10mg)	5 days a week (Monday to Friday) for 6 months (2 supplementatio n phases lasting 3 months each with a 2 month break in between due to school break)	Placebo	

Kounnavong, 2011	RCT	Lao People's Democratic Republic (Lao PDR)	6-52 months	336	MNP (Efficacy)	1 sachet: vitamin A (RE 400ug), vitamin D3 (5ug), vitamin E (TE 5mg), vitamin B1, B2, B6 each (0.5mg), folic acid (150ug), niacin (6mg), vitamin B12 (0.9ug), vitamin C (30mg), iron (10mg), zinc (4.1mg), selenium (17ug), copper (0.56mg), and iodine (90ug)	Daily for 24 weeks	Standard of care	
Larson, 2018	cRCT	India	6-18 months	10,000 (90clusters)	MNP (Efficacy and effectiveness)	1 sachet: iron (Ferrous Fumarate) 12.5 mg Zinc (Zinc Gluconate) 5 mg Folic Acid 0.160 mg Vitamin-A (Vit-A Acetate) 0.30 mg Vitamin-C (Ascorbic Acid) 30 mg Vitamin-B12 0.9 mcg Iodine 90 mcg	Daily; baseline and endline surveys conducted on August to September 2014 and from February to March 2016, respectively	No intervention	
Lartey, 1999	RCT	Ghana	<1 month (suppleme ntation given at 6 months of age)	208	MMN fortified Weanimix (cereal-legume blend of maize, soybeans and groundnuts) (Targeted fortification – efficacy)	High: consuming > 60g or low: consuming ≤ 60g: energy (4350kcal), protein (150g), fat (114g), calcium (high 17360mg, low 8950mg), iron (high 366mg, low183mg), zinc (high 171mg, low 86mg), copper (high 25mg, low 13mg), magnesium (1400mg), potassium (high 18960mg, low 12310mg), sodium (30mg), phosphorus (high 17900mg, low 9400mg), ascorbic acid (high 781mg, low 391mg), niacin (high 29mg, low 149mg), pyridoxine (high 31.3mg, low 17.4mg), riboflavin (high 19.5mg, low 9.8mg), thiamine (high 22.1mg, low 13.5mg), vitamin B-12 (high 7ug, low 35ug), folic acid (high 5470ug, low 3070ug), vitamin A (high 18360 RE, low 9360 RE))	Daily for 6 months	Unfortified Weanimix (cereal-legume blend of maize, soybeans and groundnuts)	

Le, 2005	RCT	Vietnam	6-12 months	346	1) MMN supplementation (Efficacy) 2) Iron supplementation (Efficacy)	1) 1 tablet: vitamin A (375ug RE/1250IU), vitamin D (5ug), vitamin E (6mg), vitamin K (10ug), vitamin C (35mg), vitamin B1 (0.5mg), vitamin B2 (0.5mg), vitamin B6 (0.5mg), vitamin B12 (0.9ug), niacin (6mg), folate (150ug), iron (10mg), zinc (5mg), copper (0.6mg), iodine (59ug) 2) 1 tablet: iron (10mg)	Daily for 6 months (both intervention arms)	Placebo	
Le Port 2017	cRCT	Senegal	24-59 months	462 children from 310 households (247 concessions)	MMN fortified yoghurt (traditional Senegalese yoghurt mixed with millet) (LSFF – efficacy)	80g sachet: iron-EDTA (2.1mg), zinc (2.25mg), iodine (24ug), vitamin A (120ug)	Daily for 11 months	No intervention	
Lind, 2003 Associated refs: Lind, 2004; Lind, 2008	RCT	Indonesia	≤6 months	680	1) Iron supplementation (Efficacy) 2) Zinc supplementation (Efficacy)	1) 1.6mL of syrup: iron (10mg) as ferrous sulphate 2) 1.6 mL of syrup: zinc (10mg) as zinc sulphate	Daily for 6 months	Placebo	
Lo, 2011	RCT	Senegal	9-17 months	137	Iron fortified maize and millet-based porridge and MMN supplement (Targeted fortification – efficacy)	25g: per kg dry weight of complementary food: iron as ferrous fumarate (60mg), zinc as zinc oxide (240mg); Per 5mL of MMN supplement: thiamine (0.2mg), riboflavin (0.2mg), niacin (2mg), vitamin B6 (0.2mg), vitamin B12 (0.3ug), pantothenic acid (0.7mg), biotin (2.6mg), vitamin C (5mg)	Daily for 15 days	Iron fortified maize and millet-based porridge, and MMN (without zinc) supplement	25kg: per kg dry weight of complementary food: iron as ferrous fumarate (60mg); Per 5mL of MMN supplement: thiamine (0.2mg), riboflavin (0.2mg), niacin (2mg), vitamin B6 (0.2mg), vitamin B12 (0.3ug), pantothenic acid (0.7mg), biotin (2.6mg), vitamin C (5mg)
Long, 2006 Associated refs: Rosado, 2009	RCT	Mexico	6-15 months	786	1) Vitamin A supplementation (Efficacy) 2) Zinc supplementation (Efficacy)	1) 5mL of liquid: retinol (20,000IU) for children ≤1 years of age or 45,000IU for children >1 years of age 2) 5mL of liquid: zinc as zinc methionine (20mg)	1) Every 2 months for a year 2) Daily for a year	Placebo	
Long, 2007	RCT	Mexico	6-15 months	195	Vitamin A supplementation (Efficacy)	5 mL of liquid: retinol (20,000IU) for children ≤1 years of age or 45,000IU for children >1 years of age	Every 2 months for 15 months	Placebo	

Lopez, 2005	RCT	Peru	6-12 months	313	1) MMN supplementation (Efficacy) 2) Iron supplementation (Efficacy)	1) 1 foodlet: 1 RDA: vitamin A as retinyl acetate (375ug RE), vitamin D (5ug), vitamin E (6mg), vitamin K (10ug), vitamin C (35mg), vitamin B1 (0.5mg), vitamin B2 (0.5mg), vitamin B6 (0.5mg), vitamin B-12 (0.9ug), niacin (6mg), folate (150ug), iron as ferrous fumarate (10mg), zinc as zinc gluconate (5mg), copper as cupric gluconate (0.6mg), and iodine as potassium iodide (50ug) 3) 1 foodlet: iron as ferrous sulfate (10mg)	Daily for 6 months (both intervention arms)	Placebo	
Lopez, 2014	Controlled before-after study	Nicaragua	Anemia sample: 0- 60 months; cognitive sample: 30-60 months	57 in the anemia sample and 1047 in the cognitive assessment sample	MNP (Effectiveness)	1 sachet: six micronutrients (Sprinkles) were administered as per World Health Organization (WHO)/Sprinkles Global Health Initiative (SPGH) protocol	Daily for 2 months	No intervention	
Lozoff, 1996	RCT	Costa Rica	12-23 months	87 (32 ID anemic infants, 54 non-anemic infants)	Iron supplementation (Efficacy)	Drops: 3mg/kg	Twice daily for 6 months	Placebo	
Associated refs: Angulo-Barroso, 2016	RCT	China	At birth (suppleme ntation at 6 weeks of age)	1482 infants; 2371 mothers	Iron supplementation (Efficacy)	Liquid: ~1mg/kg of elemental iron. Each mL contained 2.7 mg elemental iron. To simplify dosing, the volume was 2 mL/d for infants aged <6 mos. and 3 mL/d for infants aged ≥6 mos.	Daily for ~7.5 months	Placebo	
Luby, 2018 Associated refs: Tofail, 2018	cRCT	Bangladesh	Supplemen tation given at 6 months	720 clusters	LNS (Efficacy and effectiveness)	2 x 10 g sachets: 118 Kcal, 9.6 g of fat, 2.6 g of protein, 12 vitamins and 10 minerals	Daily for 18 months	No intervention	
Lucia, 2017	cRCT	Brazil	2-6 years	112	MMN fortified rice (LSFF – efficacy)	50g rice portion containing 0.5 g of UR: iron (4.2mg), zinc (2.1mg), thiamine (vitamin B1) (0.36mg), folic acid (72mg).	5 days a week for 4 months	Unfortified rice	

Lundeen, 2010	cRCT	Kyrgyz Republic (Kyrgyzstan	6-36 months	2193 (24 clusters)	MNP (Efficacy)	1 sachet: elemental iron as microencapsulated ferrous fumarate (12.5mg), vitamin A as retinol acetate (300ug), zinc as zinc gluconate (5mg), vitamin C as ascorbic acid (30mg), and folic acid (160ug)	Daily for 2 months	No intervention	
Luo, 2017	cRCT	China	6-11 months	1802 (351 clusters)	MNP (Efficacy and effectiveness)	1 sachet: Iron (ferrous lactate) (6.0mg), zinc (zinc sulfate) (4.80mg), vitamin A (200μgRE), vitamin C (50.0mg), vitamin D (5.0μg), vitamin E (1.55mg), vitamin B1 (0.30mg), vitamin B2 (0.50mg), vitamin B6 (0.30mg), vitamin B12 (0.5μg), folic acid (66μg), niacin (3.0mg)	Daily for 18 months	No intervention	
Ma, 2016 Associated refs: Sheng, 2019	cRCT	China	6 months	1465	MMN fortified rice cereal (Targeted fortification – efficacy)	20g: iron (1.10 mg), zinc and vitamin B 12	Daily for 12 months	Unfortified local rice cereal	20g
Macharia- Mutie, 2012	RCT	Kenya	12-59 months	279	MNP (Efficacy)	1 sachet: retinyl palmitate (100μg RE), cholecalciferol (5μg), 1-α tocopheryl acetate (5mg TE), phylloquinone (30μg), thiamin (0.5mg), riboflavin (0.5mg), pyridoxine (0.5mg), folic acid (90μg), niacin (6mg), vitamin B12 (0.9μg), vitamin C (60mg), iron as NaFeDTA (2.5mg), zinc (2.5mg), selenium (17μg), copper (0.34mg), iodine (30μg)	Daily for 16 weeks	Unfortified maize porridge	
Maleta, 2015 Associated refs: Bendadenda 2016; Prado, 2016d	RCT	Malawi	5.5-6.5 months	1932	LNS (Efficacy)	20g: energy (490kJ), protein (2.5g), fat (9.5g), linoleic acid (4.44g), alpha-linolenic acid (0.58g), phytate (56mg), vitamin A (400ug RE), vitamin C (30mg), thiamin (0.3mg), riboflavin (0.4mg), niacin (4mg), folic acid (80ug), pantothenic acid (1.8mg), vitamin B6 (0.3mg), vitamin B12 (0.5ug), vitamin D (5ug), vitamin E (6mg), vitamin K (30ug), Fe (6mg),	Daily for 12 months	No intervention	

Malik, 2013 Associated refs: Malik, 2014	RCT	India	6-11 months	272	Zinc supplementation (Efficacy)	Zn (8mg), Cu (0.34mg), Ca (240mg), P (208mg), K (265mg), Mg (50mg), Se (20ug), iodine (90ug), Mn (1.2mg) 5ml of syrup: zinc as zinc sulfate (20mg)	Daily for 2 weeks	Placebo	
Mangani, 2014 Associated refs: Mangani, 2014b; Mangani, 2015	RCT	Malawi	5.5-6.5 months	840	LNS (with milk protein base) (Efficacy)	54g: energy (285kcal), protein (8.2g), fat (17.9g), retinol (400ug RE), folate (160ug), niacin (6mg), pantothenic acid (2mg), riboflavin (0.5mg), thiamin (0.5mg), vitamin B6 (0.5mg), vitamin B12 (0.9ug), vitamin C (30mg), vitamin D (5ug), calcium (366mg), copper (0.4mg), iodine (90ug), iron (6mg), magnesium (78.5mg), selenium (20ug), zinc (6.0mg), phosphorus (186mg), potassium (319mg), manganese (0.6mg)	Daily for 12 months	No intervention	
Massaga, 2003	RCT	Tanzania	12-16 weeks	291	Iron supplementation (Efficacy)	2.5mL of liquid: iron as ferric ammonium citrate mixture (3mg elemental iron/mL)	Daily for 6 months	Placebo	
Mazariegos, 2010	RCT	Guatemala	6-11 months	412	Zinc supplementation (Efficacy)	Half a tablet: zinc (5mg)	Daily for 6 months	Placebo	
McDonald, 2015 Associated refs: Carter, 2018; Locks, 2016	RCT	Tanzania	5-7 weeks	2400	1) MMN supplementation (Efficacy) 2) Zinc supplementation (Efficacy)	1 capsule: vitamin C (60mg), vitamin E (8mg), vitamin B1 (0.5mg), vitamin B2 (0.6mg), niacin (4mg), vitamin B6 (0.6mg), folate (130ug), vitamin B12 (1ug), zinc (5mg) 2)1 capsule: zinc (5mg) 1 capsule through 6 months of age, and 2 capsules from 7 months of age to end of follow-up	Daily for 18 months	Placebo	

Menendez, 1997 Associated refs: Menendez, 2004	RCT	Tanzania	8 weeks	832	Iron supplementation (Efficacy)	2mg/kg; we assumed average body weight of 6kg, therefore children received 2.4 mL of ferrous glycine sulphate containing 5 mg of ferrous sulfate per 5 mL	Daily for 4 months	Placebo	
Menon, 2007	cRCT	Haiti	9-24 months	425 (10 clusters)	MNP (to be added in wheat soy blend) (Efficacy and effectiveness)	1 sachet MMN: iron (12.5mg), zinc (5mg), vitamin A (400ug), folic acid (160ug) and vitamin C (30mg)	Daily for 2 months	Fortified wheat soy blend	
Monteiro, 2001	Non-RCT	Brazil	6-59 months	1134	Iron supplementation (Efficacy)	Children 6-9 months old (30mg of elemental iron), children 10 to 17 months old (40mg), children 18 to 29 months old (50mg), children 30 to 35 months old (60mg), children 36 to 59 months old (80mg).	Weekly for ~7 months	No intervention	
Muller, 2001 Associated refs: Garenne, 2007; Muller, 2003	RCT	Burkina Faso	6-31 months	709	Zinc supplementation (Efficacy)	1 tablet: zinc (12.5mg)	6 days a week for 6 months	Placebo	
Nagpal, 2004	RCT	India	4-6 months	100	Iron supplementation (Efficacy)	Drops: 2mg/kg	Daily for 2 months	Placebo	
Nestel, 2004	cRCT	Sri Lanka	9\-71 months	3228 in total: 745 preschoolers (9-71 months old)	1) Reduced iron fortified wheat flour 2) Electrolytic iron fortified wheat flour; We combined groups 1 and 2 (LSFF – efficacy)	1) 66ppm; analysis of iron content: 76 ± 6.6mg/kg 2) 66ppm; analysis of iron content: 78 ± 15.2mg/kg	24 months	Unfortified wheat flour	
Nguyen, 2002	cRCT	Vietnam	5-12 months	280	Iron supplementation (Efficacy)	2.5mL of syrup: elemental iron (15mg)	Daily for 3 months	Placebo	

Northrop- Clewes, 1996	RCT	Pakistan	<2 years	268	Iron supplementation (Efficacy)	Liquid: iron (15mg) as ferrous sulfate	Daily for 12 weeks	Placebo	
Null, 2018	cRCT	Kenya	Supplemen tation given at 6 months of age	762 clusters	LNS (Efficacy and effectiveness)	2 x 10 g sachets of SQ LNS (to be mixed with food): provided 118 kcal per day and 12 essential vitamins and 10 minerals	Daily for 18 months	No intervention	
Oelofse, 2003	RCT	South Africa	6-12 months	60	MMN fortified cereal (porridge) (Targeted fortification – efficacy)	60g of dry cereal: energy (1304 kJ), protein (12g), fat (6g), carbohydrates (54.8g), vitamin A (1200IU), vitamin C (40mg), vitamin B1 (0.64mg), vitamin B2, (0.24mg), niacin (3.2mg), calcium (368mg), iron (8mg), vitamin D (160IU), vitamin E (4 IU), biotin (20ug), folic acid (17.6ug), pantothenic acid (0.6mg), vitamin B12 (0.6ug), vitamin B6 (0.24mg), phosphorous (232mg), iodine (26ug), zinc (5.6mg), potassium (632mg), sodium (272mg), chloride (440mg)	Daily for 6 months	Normal diet	
Ogunlade, 2011	RCT	South Africa	36-79 months	151	MNP in stiff maize porridge (Efficacy)	35g porridge and MNP: iron (2.86mg), zinc (2.86mg), iodine (34.3ug), calcium (457mg), vitamin A (457 RE), vitamin C (68.6mg), vitamin E (5.71mg), vitamin B12 (1.03ug), thiamine (0.57mg), niacin (6.86mg), riboflavin (0.57mg), folate (103ug), and vitamin B6 (0.57mg).	5 days a week for 11 weeks	Soft maize- meal porridge plus placebo (maize maltodextrin)	28g
Osei, 2015	cRCT	Nepal	6-9 months	335	MNP and enhanced homestead food production program (Efficacy)	10 mg iron (encapsulated ferrous fumarate), 4.1 mg zinc (zinc gluconate), 90 g iodine (potassium iodide), 400 g vitamin A (vitamin A acetate), 150 g folic acid, 0.5 mg vitamin B1 (thiamine mononitrate), 0.5 mg vitamin B2 (riboflavin), 0.5 mg vitamin B6 (pyridoxine), 0.9 g vitamin B12	60 sachets were provided within a 6-month period (twice, for a total of 11 months) and participants were instructed to feed MNP on any day of	Enhanced homestead food production program	

						(cyanocobalamin), 30 mg vitamin C (ascorbic acid), 5 g vitamin D3 (cholecalciferol), 5 mg vitamin E (vitamin E acetate), 6 mg niacin (niacinamide) and 0.6 mg copper (cupric gluconate)	their preference, but to ensure not to feed more than one sachet per day.		
Owino, 2007	RCT	Zambia	6 or 8 months of age	185	Fortified blend of maize, beans, Bambara nuts, and groundnuts (Targeted fortification – efficacy)	Vitamin A 700 ug, vitamin C 200 mg, vitamin D 10 ug, thiamine 0.9 mg, riboflavin 1.0 mg, pyridoxine 860 ug, folate 220 ug, pantothenic acid 4 mg, calcium 700 mg, phosphorus 550 mg, magnesium 100 mg, electrolytic iron 41.8 mg, zinc oxide 400 mg, copper 400 ug, manganese 1200 ug, selenium 20 ug	Daily for 3 months	No intervention	
Palupi, 1997	RCT	Indonesia	2-5 years	299	Iron supplementation (Efficacy)	30g	Weekly for 9 weeks	Placebo	
Phu, 2010 Associated refs: Phu, 2012	cRCT	Vietnam	5 months	426	1) Fortified instant flour made into energy-dense gruel 2) Fortified food complement made into energy-dense gruel We combined groups 1 and 2 (Targeted fortification – efficacy)	1) Raw protein (3.9g), digestible protein (3.6g), lipids (2.24g), vitamin A (38ug RE), ascorbic acid (20mg), thiamin (68ug), riboflavin (95ug), nicotinamide (368ug), folic acid (12ug), pantothenic acid (330ug), vitamin B12 (0.06ug), vitamin B6 (53ug), vitamin K1 (8.4ug), vitamin D (117IU), sodium (73mg), potassium (143mg), chlorine (121mg), calcium (138mg), phosphorus (117mg), magnesium (21.5mg), iron (7.6mg), zinc (1.7mg), iodine (5.1ug), copper (92ug), manganese (319ug), selenium (2.1ug) 2) raw protein (9.7g), digestible protein (8.8g), lipids (5.3g), vitamin A (154ug RE), ascorbic acid (87mg), thiamin (229ug), riboflavin (309ug),	Daily for 6 months	Usual care (traditional gruel made at home by parents)	

						nicotinamide (535ug), folic acid (46ug), pantothenic acid (904ug), vitamin B12 (0.16ug), vitamin B6 (98ug), vitamin K1 (38ug), vitamin D (516IU), sodium (343mg), potassium (512mg), chlorine (553mg), calcium (710mg), phosphorus (473mg), magnesium (61mg), iron (33mg), zinc (5.9mg), iodine (22ug), copper (284ug), manganese (942ug), selenium (4.5ug)			
Radhakrishn a, 2013	RCT	India	4 months	324	Zinc (and riboflavin) supplementation (Efficacy)	0.5mL of syrup: zinc (5mg) as zinc sulfate, riboflavin (0.5mg)	Daily for 14 months (effective duration 12 months)	Placebo (and riboflavin)	0.5mL of syrup: riboflavin (0.5mg)
Rahman, 1996 Associated refs: Mahalanabis, 1997; Rahman, 1998	RCT	Bangladesh	6-17 weeks	165	Vitamin A supplementation (Efficacy)	15mg	3 doses at DPT/oral polio (OPV) immunizations (baseline, 4 and 8 weeks)	Placebo	
Rahman, 2001 Associated refs: Rahman, 2002a; Rahman, 2002b	RCT	Bangladesh	12-35 months	800	Zinc supplementation and 1 placebo capsule on day 14 (Efficacy)	5mL of syrup: (20mg) elemental zinc	Daily for 14 days	Placebo	
Rim, 2008	RCT	North Korea	6-12 month	234	MNP with iron (to be used for home fortification in rice porridge) (Efficacy)	Elemental iron (10mg)	6 days per week for 6 months	Placebo fortified rice porridge	
Rivera, 2001 Associated refs:	RCT	Mexico	8-14 months	337	MMN supplementation (Efficacy)	25mL of liquid: 1 Recommended Dietary Allowance (RDA) for children age 1-3 y of vitamins D, E, K, niacin, B-1, B-6,	6 days a week for 12 months	Placebo	

Rivera, 2001; Rosado, 1999						folic acid, pantothenic acid, iodine, copper, manganese fluoride and selenium; 1.2 RDA of vitamin A; and 1.5 RDA of ascorbic acid, riboflavin, vitamin B-12, iron and zinc			
Rivera, 2010	cRCT	Mexico	12-30 months	795 (12 clusters)	Iron fortified milk (LSFF – efficacy)	Per unit/400mL reconstituted milk (48g powdered milk in 400mL of water): energy (236.8kcal), protein (12.4g), fat (12.4g), carbohydrates (18.6g), sodium (178mg), iron (5.28mg), zinc (5.28mg) vitamin A (216ug), vitamin D (1.8ug), vitamin C (48.0mg), vitamin B12 (0.44ug), folic acid (32.1ug), riboflavin (0.52mg).	Daily for 12 months	Unfortified whole milk (as milk powder)	
Rosado, 1997 Associated refs: Allen, 2000; Munoz, 2000; Rosado 1999	RCT	Mexico	18-36 months	219	1) Iron supplementation (Efficacy) 2) Zinc supplementation (Efficacy)	1) 20mL of syrup: 20mg 2) 20mL of syrup: 20mg	6 days per week for 12 months	Placebo	
Rosado, 2011	RCT	Mexico	12-24 months	224	LNS (Oportunidades food supplement) (Efficacy and effectiveness)	44g: energy (194kcal), protein (5.8g), fat (6.6g), carbohydrates (27.9g), Na (24.5mg), Fe (10mg), zinc (10mg), vitamin A (400ug), vitamin E (6mg), vitamin C (40mg), vitamin B12 (0.7ug), folic acid (50ug), riboflavin (0.8mg)	Daily for 6 months	Placebo	
Ross, 1995 Associated refs: Binka, 1995 Dollimore, 1997; Kirkwood, 1996	Survival study: cRCT	Ghana	Survival study: 6-90 months	Survival study: 21,906 (185 clusters)	Vitamin A supplementation (Efficacy)	30mg retinol equivalents (RE) for children 6-11 mos, (100,000IU); 60mg RE for children aged 12+ mos. (200,000IU)	Survival study: every 4 months for 2 years	Placebo	

Samuel, 2018	Controlled before-after study	Ethiopia	6-11 months	2356 (9 districts)	MNP (to be used with complementary food) (Efficacy and effectiveness)	1 sachet: vit A (400mcg), vit D (5mcg), vit E (5mg TE), vit B1 (0.5mg), vit B2 (0.5mg), vit B6 (0.5mg), vit B6 (0.5mg), vit C (0.9mcg), niacin (6mg), folate (150mcg), vit C (30mg), iron (6mg), zinc (4.1mg), copper (0.56 mg), selenium (17mcg), iodine (90mcg)	Every other day for 37 weeks	No intervention	
Sazawal, 2006 Associated refs: Olney, 2006; Sazawal, 2007b	RCT	Tanzania	1-35 months	32,155	1) MMN supplementation (Efficacy) 2) IFA supplementation (Efficacy) 3) Zinc supplementation (Efficacy)	1) 1 tablet: iron (12.5mg), folic acid (50ug), and zinc (10mg). months received half a tablet. 2) 1 tablet: iron (12.5mg), folic acid (50ug 3) 1 tablet: zinc (10mg) Children aged 12 months or older received 1 tablet daily while children under 2	Daily until stopping of the trial (max duration of 18 months)	Placebo	
Sazawal, 2007a Associated refs: Sazawal, 2010	RCT	India	1-3 years	663	MMN fortified powdered milk (LSFF – efficacy)	Per 3 servings: energy (1890kJ), protein (20.1g), taurine (48mg), carbohydrates (48.9g), fat (18.9g), vitamin A (330ug), vitamin D3 (3.6ug), vitamin E (8.1mg), vitamin C (48mg), thiamin (0.6mg), riboflavin (1.8mg), niacin (4.5mg), vitamin B6 (0.6mg), pantothenic acid (2.7mg), folate (114ug), vitamin B12 (2.7ug), biotin (24.9ug), choline (114mg), calcium (720mg), phosphorus (600mg), magnesium (84mg), iron (9.6mg), zinc (9.6mg), iodine (36ug), selenium (6.6ug), copper (0.3mg), sodium (360mg), potassium (1260mg), chloride (900mg)	3 sachets daily for 12 months	Unfortified powdered milk	
Sazawal, 2014	cRCT	India	6-24 months	292 (12 clusters)	1) MNP (Efficacy) 2) Rice-based fortified complementary food (Targeted fortification – efficacy)	1) 1 sachet (1.5g) for children >1 year and half a sachet for children <1 year. Per 1.5g sachet: vitamin A (978.26ug), thiamine (0.98mg), riboflavin (1.11mg), niacin (13.04mg), pyridoxine (1.3mg),	Daily for 6 months	No intervention	

						cyanocobalamin (3.91ug), biotin (19.57ug), folic acid (260.87ug), vitamin C (39.13mg), vitamin D (6.52ug), vitamin E (9.78aug), calcium (494.02mg), magnesium (69.13mg), phosphorus (81.52mg), iron (12.5mg), zinc (10mg), copper (1.3mg), manganese (2.58mg), pantothenic acid (6.52mg) 2) 20g sachet for children <1 year and 40g sachet for children >1 year of age, to be reconstituted in water or milk to make 100 or 200ml, in additional to normal diet. Per 20g (100mL mix): energy (80.4kcal), protein (3.0g), fat (1.5g), linoleate (0.18g), vitamin A (1800IU), thiamine (0.51mg), riboflavin (0.58mg), niacin (6.6mg), pyridoxine (0.83mg), cyanocobalamin (0.21mg), biotin (0.11mg), folic acid (0.144mg), vitamin C (23.4mg), vitamin D (145IU), vitamin E (10.5IU), calcium (138.7mg), magnesium (20mg), phosphorus (64mg), iron (7.9mg), zinc (6.5mg), copper (1.0mg), manganese (0.16mg)			
Semba, 2000	RCT	Indonesia	3-6 years	236	Vitamin A supplementation (Efficacy)	60mg RE	1 dose	Placebo	
Sempertegui, 1999	RCT	Ecuador	6-36 months	400	Vitamin A supplementation (Efficacy)	0.2mL of syrup: 10,000 IU of vitamin A (3000ug of retinol)	Weekly for 40 weeks	Placebo	
Shamah- Levy, 2008	RCT	Mexico	12-30 months	486	1) Fortified complementary food based on powdered milk (Nutrisano) with iron as ferrous sulphate	Per portion (44g powder): energy (194kcal), protein (5.8g), carbohydrates (27.9g), fat (6.6g), iron as ferrous sulphate or gluconate (10mg), zinc as zinc oxide (10mg), vitamin A as retinol palmitate	Daily for 6 months	Complementar y food without iron	Per portion (44g powder): energy (194kcal), protein (5.8g), carbohydrates (27.9g), fat (6.6g), zinc as zinc oxide (10mg), vitamin A as retinol palmitate (400ug RE), vitamin E as

					2) fortified complementary food as above, but with iron as ferrous gluconate We combined groups 1 and 2 (Targeted fortification – efficacy)	(400ug RE), vitamin E as tocopherol acetate (6mg), vitamin C as ascorbic acid (49.9mg), riboflavin (0.8mg), vitamin B12 as cyanocobalamin (0.7ug), folic acid (0.05mg)			tocopherol acetate (6mg), vitamin C as ascorbic acid (49.9mg), riboflavin (0.8mg), vitamin B12 as cyanocobalamin (0.7ug), folic acid (0.05mg)
Shankar, 1999	RCT	Papua New Guinea	6-60 months	480	Vitamin A (and vitamin E) supplementation (Efficacy)	1 capsule for children aged 12 months and above and half a capsule for children below 12 months of age. 1 capsule: vitamin A (200,000IU), vitamin E (10ug)	Every 3 months for 13 months	Placebo	
Sharieff, 2006	cRCT	China	3-6 years	415 (16 clusters)	MNP (Efficacy)	1 sachet: iron as encapsulated ferrous fumarate (30mg), zinc gluconate (5mg), vitamin C (50mg), vitamin A (300ug), vitamin D3 (7.5ug) and folic acid (150ug) mixed with semi-solid meal of rice porridge or congee	Daily for 13 weeks	No intervention (children were served congee)	
Sharma, 2011	cRCT	India	6-36 months	158 (5 clusters)	IFA supplementation (Efficacy)	1 tablet: elemental iron (19.8mg)	Daily for 60 days	No intervention	
Siega-Riz, 2014	cRCT	Honduras	6-18 months	300 mother- child pairs (18 clusters)	LNS (Plumpy'Doz) (Efficacy)	46.3g: energy (247kcal), protein (5.9g), fat (16g), vitamin A (400ug), vitamin B12 (0.9ug), iron (9mg), zinc (9mg)	Daily for 12 months	No intervention	
Silva, 2006	RCT	Brazil	12-59 months	60	Zinc supplementation (Efficacy)	5mL of syrup: zinc (10mg) as zinc sulfate	Daily for 4 months	Placebo	
Smuts, 2005	RCT	South Africa	6-12 months	265	1) MMN supplementation (Efficacy) 2) Iron supplementation (Efficacy)	1) 1 tablet: 1recommended daily allowance (RDA): vitamin A (400ug RE), folic acid (150ug), vitamin D3 (5ug), iodine (90ug), Se (17ug), vitamin B12 (0.9ug), niacin (6mg), Fe (10mg), Zn (4.1mg), Cu (0.56mg), thiamin (0.5mg), riboflavin (0.5mg), vitamin C (30mg),	Daily for 6 months	Placebo	

						vitamin B6 (0.5mg), vitamin E (5mg) 2) 1 tablet: iron (10mg)			
Smuts, 2019	RCT	South Africa	6 months	750	LNS (Efficacy)	20g: energy (114kcal), protein (3g), fat (8g), linoleic acid (1.5g), alpha-linolenic acid (265mg), linoleic acid: alpha linolenic acid (5.7g), vitamin A (200ug), vitamin D 92.5ug), vitamin E (2.5mg), vitamin K (7.5ug), thiamine (0.25mg), riboflavin (0.25mg), niacin (3mg), pantothenate (1mg), vitamin B6 (0.25mg), biotin (4ug), folate (80ug), vitamin B12 (0.45ug), vitamin C (23.3mg), calcium (250mg), iodine (45ug), iron (5.8mg), zinc (6.2mg), copper (0.28mg), selenium (8.5ug), choline (2.0mg)	Daily for 6 months	No intervention	
Somasse, 2018	cRCT	Mali	6-23 months	722 (40 clusters)	MNP (Efficacy and effectiveness)	1 sachet: vitamin A (400ug RE), folic acid (150ug), vitamin D3 (5ug), iodine (90ug), Se (17ug), vitamin B12 (0.9ug), niacin (6mg), Fe (10mg), Zn (4.1mg), Cu (0.56mg), thiamin (0.5mg), riboflavin (0.5mg), vitamin C (30mg), vitamin B6 (0.5mg), vitamin E (5mg)	Daily for 3 months	No intervention	
Soofi, 2013 Associated refs: Ariff, 2014	cRCT	Pakistan	<5 months	2746 (256 clusters)	MNP (Efficacy)	1 sachet: iron (12.5mg), vitamin C (50mg), vitamin A (300ug), vitamin D (5ug), and folic acid (150ug) and zinc (10mg)	Daily for 12 months	No intervention	
Stoltzfus, 2001 Associated refs: Stoltzfus, 2004	RCT	Tanzania	5-59 months	684	Iron supplementation (Efficacy)	0.mL of syrup: 10mg iron as ferrous sulphate	Daily for 12 months	Placebo	

Suchdev, 2012	cRCT	Kenya	6-35 months	1063	MNP (Efficacy and effectiveness)	1 sachet: 12.5 mg Fe as microencapsulated ferrous fumarate, 375 ug vitamin A, 5 mg Zn, 150 ug folic acid; 35 mg vitamin C, 5 ug vitamin D3, 6 mg vitamin E, 6 mg niacin; 0.6 mg Cu, 50 ug iodine, 0.5 mg thiamine, riboflavin, and vitamin B-6, and 0.9 mg vitamin B-12	12 months	Placebo	
Surono, 2014	RCT	Indonesia	12-24 months	48	Zinc supplementation (Efficacy)	20mg as zinc sulfate monohydrate= 8mg zinc elemental	Daily for 90 days	Placebo	
Thu, 1999	RCT	Vietnam	6-24 months	168	MMN supplementation (Efficacy)	1mL of syrup: retinol as retinyl acetate (333ug), iron (8mg), zinc (5mg), vitamin C (20mg)	5 days per week for 12 weeks	Placebo	
Tielsch, 2006 Associated refs: Christian, 2011; Katz, 2010; Murray-Kolb, 2012; Surkan, 2012; Surkan, 2013 Tielsch, 2007	cRCT	Nepal	1-35 months	43,124	1) IFA supplementation (Efficacy) 2) MMN supplementation (Efficacy) 3) Zinc supplementation (efficacy)	1) 1 tablet: iron (12.5mg), folic acid (50ug) (half a tablet if <1-year-old) 2) 1 tablet: iron (12.5mg), folic acid (50ug), zinc (10mg) (half a tablet if <1-year-old) 3) 1 tablet: zinc (10mg) tablet (half a tablet if <1-year-old)	Enrollment until 36 months of age	Placebo	
Umeta, 2000 Associated refs: Umeta, 2003	RCT	Ethiopia	6-12 months	200	Zinc supplementation (Efficacy)	3mL of syrup: zinc as zinc sulphate (10mg)	6 days a week for 6 months	Placebo	
Untoro, 2005 Associated refs: Wijaya-Erhardt, 2007	RCT	Indonesia	6-12 months	284	1) MMN supplementation (Efficacy) 2) Iron supplementation (Efficacy)	1) 1 foodlet: 1 RDA: vitamin A as retinyl acetate (375ug RE), vitamin D (5ug), vitamin E (6mg α-tocopherol equivalents), vitamin K (10ug), vitamin C (35mg), thiamine (0.5mg), riboflavin (0.5mg), vitamin B-6 (0.5mg), vitamin B-12 (0.9ug), niacin as niacinamide (6mg),folate	Daily for 23 weeks	Placebo	

						(150ug), iron as ferrous fumarate (10mg), zinc as zinc gluconate (5mg), copper as cupric gluconate (0.6mg), and iodine as potassium iodide (59ug) 2) Iron as ferrous sulfate (10mg)			
Varma, 2007	cRCT	India	36-66 months	684 (30 clusters)	MNP (to be mixed with local khichdi) (Efficacy)	200g of khichdi: ferrous fumarate (14mg), vitamin A retinyl acetate (500IU), folic acid (0.05mg)	6 days a week for 24 weeks	Unfortified khichdi with placebo premix	
Vijay, 2014	cRCT	India	6-36 months	1294	MNP (to be mixed with supplementary baby mix) (Efficacy)	1 sachet: 12mg ferrous fumarate, 300ug vitamin A (retinyl acetate), 5mg zinc oxide, 30mg vitamin C, 50ug folic acid and dextrose	5 days a week for 6 months	Supplementary baby mix	
Villalpando, 2006	RCT	Mexico	10-30 months	130	MMN fortified milk (LSFF – efficacy)	400 mL per day. Per unit/400mL reconstituted milk (48g powdered milk in 400mL of water): energy (992kJ), protein (12.5g), fat (12.5g), carbohydrates (18.7g), iron as ferrous gluconate (5.28mg), zinc as zinc oxide (5.28mg), retinol palmitate (21.6ug), vitamin C as sodium ascorbate (48mg), folic acid (32.1ug)	Daily for 6 months	Unfortified cow's whole milk (as milk powder)	
Wasantwisut, 2006 Associated refs: Pongcharoen, 2011	RCT	Thailand	4-6 months	674	1) Iron supplementation (Efficacy) 2) Zinc supplementation (Efficacy)	1) 2mL of syrup: zinc (10mg) 2) 2mL of syrup: zinc (10mg)	Daily for 6 months	Placebo	
Wessells, 2012	RCT	Burkina Faso	6-23 months	451	1) Zinc (liquid) supplementation 2) Zinc (tablet) supplementation We combined groups 1 and 2 (Efficacy)	1) 5 mL: zinc as zinc sulfate (5mg) 2) 1 tablet: zinc as zinc sulfate (5mg)	Daily for 3 weeks	Placebo	

West, 1995 Associated refs: Bishai, 2005; Katz, 1995	cRCT	Nepal	6-72 months	11918 (261 wards)	Vitamin A (and vitamin E) supplementation (Efficacy)	30000ug RE (100,000IU) for children 6-11 months old and 60000ug RE (200,000IU) for children 12 months or older; vitamin E (40IU) as antioxidant	Every 4 months for 12 months	Placebo	
Wieringa, 2003	RCT	Indonesia	4 months	387	1) Iron supplementation (Efficacy) 2) Zinc supplementation (Efficacy)	1) 2mL of syrup: 10mg iron (ferrous sulfate 2) 12mL of syrup: 10mg zinc (zinc sulfate)	5 days a week for 6 months	Placebo	
Yurdakok, 2004	RCT	Turkey	4 months	79	Iron supplementation (Efficacy)	1 mg/kg iron - adjusted monthly according to infant weight	Daily for 3 months	No intervention	
Zlotkin, 2003	RCT	Ghana	8-20 months	437	MNP (with iron only) (Efficacy)	40mg	Daily for 6 months	Placebo	

Appendix 4 – Additional Forest Plots

Comparison 1: Vitamin A Supplementation vs. Placebo/No Intervention (Efficacy)

All-cause mortality (incidence)

				Rate Ratio		Rate Ratio	
Study or Subgroup	log[Rate Ratio]	SE	Weight	IV, Random, 95% CI		IV, Random, 95% CI	
Anonymous 1998	-0.0408	0.1397	39.2%	0.96 [0.73, 1.26]		_ _	-
Fisker 2013	-0.0943	0.2211	15.7%	0.91 [0.59, 1.40]			
West 1995	0.1044	0.1302	45.1%	1.11 [0.86, 1.43]		-	
Total (95% CI)			100.0%	1.02 [0.86, 1.21]		•	
Heterogeneity: Tau² =			= 0.65); (² = 0%	0.2	0.5 1 2	
Test for overall effect: Z = 0.19 (P = 0.85)						Favours [vitamin A] Favours [control]	-

All-cause mortality (cumulative incidence)

				Risk Ratio	Risk Ratio
Study or Subgroup	log[Risk Ratio]	SE	Weight	IV, Random, 95% CI	IV, Random, 95% CI
Agarwal 1995	-0.1363	0.4988	1.6%	0.87 [0.33, 2.32]	
Awasthi 2013	-0.0408	0.0386	64.9%	0.96 [0.89, 1.04]	
Ayah 2007	-0.5114	0.445	2.0%	0.60 [0.25, 1.43]	
Ross 1995	-0.2107	0.0893	31.6%	0.81 [0.68, 0.96]	-
Total (95% CI)			100.0%	0.90 [0.80, 1.02]	•
Heterogeneity: Tau² = Test for overall effect:			9 = 0.26);	l² = 26%	0.1 0.2 0.5 1 2 5 10 Favours [vitamin A] Favours [control]

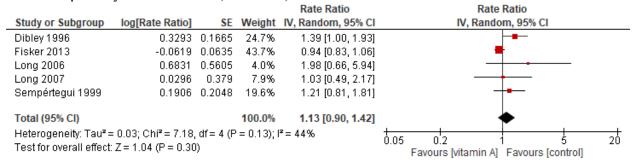
Serum/plasma retinol (µmol/L)

1		\ 1	,						
	Vitamin A supplementation			Control				Mean Difference	Mean Difference
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% CI	IV, Random, 95% CI
Drammeh 2002	0.68	0.0656	43	0.65	0.0632	40	34.0%	0.03 [0.00, 0.06]	•
Semba 2000	1.67	0.46	59	0.77	0.23	58	32.3%	0.90 [0.77, 1.03]	
Shankar 1999	0.76	0.25	125	0.67	0.27	140	33.7%	0.09 [0.03, 0.15]	-
Total (95% CI)			227			238	100.0%	0.33 [0.01, 0.65]	
Heterogeneity: Tau² = Test for overall effect:			: 2 (P < 0.	00001);	I ² = 99%				-1 -0.5 0 0.5 1 Favours [control] Favours [vitamin A]

Diarrhea (incidence)

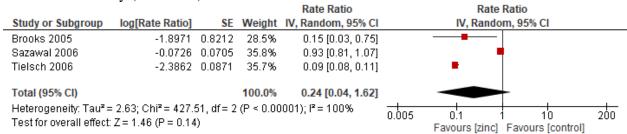
				Rate Ratio		Rate Ratio	
Study or Subgroup	log[Rate Ratio]	SE	Weight	IV, Random, 95% CI		IV, Random, 95% CI	
Chen 2013	-0.6931	0.212	8.3%	0.50 [0.33, 0.76]			
Dibley 1996	0.0583	0.0723	17.6%	1.06 [0.92, 1.22]		+	
Fisker 2013	-0.0202	0.1433	12.3%	0.98 [0.74, 1.30]			
Long 2006	0.239	0.0733	17.5%	1.27 [1.10, 1.47]			
Long 2007	-0.2357	0.1404	12.5%	0.79 [0.60, 1.04]			
Rahman 1996	-0.0202	0.108	14.9%	0.98 [0.79, 1.21]		-	
Sempértegui 1999	0.077	0.0818	16.9%	1.08 [0.92, 1.27]		 • -	
Total (95% CI)			100.0%	0.97 [0.83, 1.14]		•	
Heterogeneity: Tau² = Test for overall effect:)6); I² = 75%	0.2	0.5 1 2 Favours [vitamin A] Favours [control]	5	

Lower respiratory tract infection (incidence)



Comparison 2: Zinc Supplementation vs. Placebo/No Intervention (Efficacy)

All-cause mortality (incidence)



Anemia

	Experim	ental	Conti	rol		Risk Ratio	Risk Ratio
Study or Subgroup	Events	Total	Events	Total	Weight	M-H, Random, 95% CI	M-H, Random, 95% CI
Barffour 2019	324	722	313	726	15.9%	1.04 [0.93, 1.17]	+
Berger 2006	59	191	59	195	2.4%	1.02 [0.76, 1.38]	
Chang 2010	78	85	77	89	19.9%	1.06 [0.96, 1.18]	-
Dijkhuizen 2001	60	97	57	87	4.5%	0.94 [0.76, 1.17]	
Fahmida 2007	140	153	138	150	47.1%	0.99 [0.93, 1.06]	•
Lind 2003	48	134	63	143	2.5%	0.81 [0.61, 1.09]	
Sazawal 2006 (1)	29	44	44	58	3.2%	0.87 [0.67, 1.12]	
Silva 2006	6	28	3	30	0.1%	2.14 [0.59, 7.76]	
Wasantwisut 2006	40	58	40	66	3.2%	1.14 [0.88, 1.48]	+-
Wieringa 2003	24	48	21	43	1.2%	1.02 [0.67, 1.55]	
Total (95% CI)		1560		1587	100.0%	1.01 [0.96, 1.06]	
Total events	808		815				
Heterogeneity: Tau² =	0.00; Chi ²	= 7.23,	df = 9 (P	= 0.61)	; I² = 0%		1 1 1 1 1 1
Test for overall effect:	Z = 0.38 (F	P = 0.70)				0.1 0.2 0.5 1 2 5 10 Favours [experimental] Favours [control]
							i avodio [experimental] Pavodio [control]

<u>Footnotes</u>

(1) hemoglobin concentration <100 g/L

Stunting

	Zinc supplemen	itation	Conti	rol		Risk Ratio		Risk Ratio	
Study or Subgroup	Events	Total	Events	Total	Weight	M-H, Random, 95% CI		M-H, Random, 95% CI	
Barffour 2019	355	739	317	740	43.4%	1.12 [1.00, 1.25]		-	
Berger 2006	39	191	50	195	9.6%	0.80 [0.55, 1.15]			
Dijkhuizen 2001	18	98	22	90	4.6%	0.75 [0.43, 1.31]			
Fahmida 2007	46	189	54	192	11.1%	0.87 [0.62, 1.21]			
Lind 2003	17	162	14	164	3.2%	1.23 [0.63, 2.41]			
Radhakrishna 2013	95	154	91	147	28.1%	1.00 [0.83, 1.19]		+	
Total (95% CI)		1533		1528	100.0%	1.00 [0.89, 1.14]		*	
Total events	570		548						
Heterogeneity: Tau ² =	0.01; Chi ² = 6.72 ,	df = 5 (P	= 0.24); P	² = 26%	5		0.2	0.5 1 2	
Test for overall effect:	Z = 0.07 (P = 0.95))					0.2	Favours [zinc] Favours [contro	[]

Wasting

2	Experim	ental	Conti	rol		Risk Ratio	Risk Ratio	
Study or Subgroup	Events	Total	Events	Total	Weight	M-H, Random, 95% CI	M-H, Random, 95% CI	
Barffour 2019	38	739	35	740	34.8%	1.09 [0.69, 1.70]	-	
Berger 2006	6	191	8	195	6.5%	0.77 [0.27, 2.17]		
Dijkhuizen 2001	1	98	0	90	0.7%	2.76 [0.11, 66.84]		_
Fahmida 2007	19	189	26	192	22.5%	0.74 [0.43, 1.29]		
Lind 2003	18	162	30	164	23.7%	0.61 [0.35, 1.04]		
Radhakrishna 2013	10	154	15	147	11.8%	0.64 [0.30, 1.37]		
Total (95% CI)		1533		1528	100.0%	0.80 [0.62, 1.05]	•	
Total events	92		114					
Heterogeneity: Tau ² =	0.00; Chi²	= 3.79, (df = 5 (P :	= 0.58);	$I^2 = 0\%$		0.01 0.1 1 10	100
Test for overall effect: 2	Z = 1.63 (F	= 0.10)					Favours [experimental] Favours [control]	100

Underweight

	Zinc suppleme	ntation	Conti	rol		Risk Ratio	Risk Ratio
Study or Subgroup	Events	Total	Events	Total	Weight	M-H, Random, 95% CI	M-H, Random, 95% CI
Barffour 2019	217	739	203	740	48.3%	1.07 [0.91, 1.26]	
Fahmida 2007	74	189	80	192	21.3%	0.94 [0.74, 1.20]	
Lind 2003	53	162	65	164	15.0%	0.83 [0.62, 1.10]	
Radhakrishna 2013	59	154	56	147	15.4%	1.01 [0.75, 1.34]	
Total (95% CI)		1244		1243	100.0%	0.99 [0.89, 1.11]	•
Total events	403		404				
Heterogeneity: Tau ² =	0.00; Chi ² = 2.59	df = 3 (P	= 0.46); F	= 0%			
Test for overall effect:	Z = 0.14 (P = 0.89)	3)					0.5 0.7 1 1.5 2 Favours [zinc] Favours [control]

Height (cm)

. , ,	Zinc su	pplement	ation	(Control			Mean Difference	Mean Difference
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% CI	IV, Random, 95% CI
Baqui 2003	70.9	2.8	141	71	2.6	140	4.5%	-0.10 [-0.73, 0.53]	
Barffour 2019	79	4.8	739	79.3	4.9	740	6.2%	-0.30 [-0.79, 0.19]	 +
Becquey 2016	9.6	2.9661	261	9.8	4.0321	641	6.5%	-0.20 [-0.68, 0.28]	
Bentley 1997	6.1	2	45	5.7	2	44	2.9%	0.40 [-0.43, 1.23]	+
Berger 2006	71.15	2.53	191	71.01	2.41	195	6.2%	0.14 [-0.35, 0.63]	
3handari 2002	3.43	1.58	1093	3.55	1.74	1133	14.1%	-0.12 [-0.26, 0.02]	-
Prooks 2005	75.2	3.5	329	74.3	4	309	5.0%	0.90 [0.32, 1.48]	 -
Dijkhuizen 2001	69.4	2.3	98	69.1	2.6	90	3.8%	0.30 [-0.40, 1.00]	+
lamadani 2001	11.5	1.9	138	11.4	2.1	133	6.5%	0.10 [-0.38, 0.58]	+
(ikafunda 1998	108.1	5.5	59	107.95	5.4	54	0.6%	0.15 [-1.86, 2.16]	
ind 2003	72.4	2.8	134	72.4	2.8	143	4.2%	0.00 [-0.66, 0.66]	
fazariegos 2010	68.2	2.6	188	68.7	2.5	196	6.0%	-0.50 [-1.01, 0.01]	
Muller 2001	5	2.2	332	4.9	2.1	329	9.4%	0.10 [-0.23, 0.43]	+
Radhakrishna 2013	77.4	2.82	154	77.5	3.53	147	3.7%	-0.10 [-0.82, 0.62]	
Rahman 2001	4.29	1.54	165	4.25	1.4	160	9.6%	0.04 [-0.28, 0.36]	+
Rosado 1997	9.3	1.4549	48	9.1	1.5082	47	4.9%	0.20 [-0.40, 0.80]	
Jmeta 2000	6.7957	6.4073	92	3.9728	5.8253	92	0.8%	2.82 [1.05, 4.59]	
Wasantwisut 2006	70.6	2.5	151	70.6	2.4	153	5.4%	0.00 [-0.55, 0.55]	_
otal (95% CI)			4358			4746	100.0%	0.04 [-0.12, 0.20]	•
leterogeneity: Tau² =	0.04; Chi²	= 30.33, 0	if = 17 (F	p = 0.02;	l ² = 44%				-4 -2 0 2 4
est for overall effect: :	Z = 0.52 (F	P = 0.60							-4 -2 U 2 4 Favours [control] Favours [zinc]
	,	,							ravours [control] Favours [zinc]

Weight (kg)

	Zinc su	pplement	ation	(Control			Mean Difference	Mean Difference
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% CI	IV, Random, 95% CI
Baqui 2003	8.08	1.07	141	8.16	1.01	140	2.8%	-0.08 [-0.32, 0.16]	
Barffour 2019	9.52	1.25	739	9.63	1.32	740	7.7%	-0.11 [-0.24, 0.02]	
Becquey 2016	2.1	0.8241	261	2.1	0.9305	641	8.3%	0.00 [-0.12, 0.12]	+
Bentley 1997	1.03	0.54	45	0.97	0.51	44	3.4%	0.06 [-0.16, 0.28]	
Berger 2006	8.19	0.92	191	8.05	0.8	195	5.1%	0.14 [-0.03, 0.31]	
3handari 2002	0.67	0.47	1093	0.68	0.49	1133	21.5%	-0.01 [-0.05, 0.03]	+
Brooks 2005	8.7	1.1	329	8.5	1.2	309	4.7%	0.20 [0.02, 0.38]	
Dijkhuizen 2001	8	0.9	98	7.8	1	90	2.3%	0.20 [-0.07, 0.47]	
Hamadani 2001	2.85	0.73	138	2.79	0.72	133	5.0%	0.06 [-0.11, 0.23]	
Kikafunda 1998	18.06	2.1	59	17.95	2.1	54	0.3%	0.11 [-0.67, 0.89]	
_ind 2003	8.48	0.97	134	8.31	0.94	143	3.2%	0.17 [-0.06, 0.40]	+
Mazariegos 2010	8	1	188	8.1	1	196	3.9%	-0.10 [-0.30, 0.10]	+
Auller 2001	1	0.7	332	0.9	0.7	329	10.1%	0.10 [-0.01, 0.21]	 • -
Radhakrishna 2013	8.85	1.005	154	8.79	0.988	147	3.2%	0.06 [-0.17, 0.29]	
Rahman 2001	0.747	0.485	165	0.781	0.461	160	10.5%	-0.03 [-0.14, 0.07]	
Rosado 1997	2.4	0.485	48	2.4	0.4799	47	4.1%	0.00 [-0.19, 0.19]	
Jmeta 2000	1.4541	2.6451	92	0.9858	2.3968	92	0.3%	0.47 [-0.26, 1.20]	
Wasantwisut 2006	8	0.9	151	8.1	1	153	3.5%	-0.10 [-0.31, 0.11]	
Fotal (95% CI)			4358			4746	100.0%	0.02 [-0.02, 0.06]	•
Heterogeneity: Tau² =	0.00: Chi²	= 22.96. 0	df = 17 (F	= 0.15);	I² = 26%				
Test for overall effect:				= / 1					-1 -0.5 0 0.5 1
	(,	2.02/							Favours [control] Favours [zinc]

Head circumference (cm)

i i caa cii caiiii c	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,								
	Zinc supp	plementa	ation	Co	ontro	I		Mean Difference	Mean Difference
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% CI	IV, Random, 95% CI
Bentley 1997	2	2	45	1.9	0.8	44	7.9%	0.10 [-0.53, 0.73]	
Hamadani 2001	5.1	1.1	138	5.2	1.1	133	45.7%	-0.10 [-0.36, 0.16]	
Mazariegos 2010	44.3	1.3	188	44.5	1.3	196	46.4%	-0.20 [-0.46, 0.06]	
Total (95% CI)			371			373	100.0%	-0.13 [-0.31, 0.05]	•
Heterogeneity: Tau² = Test for overall effect:	•		= 2 (P =	0.66);	2 = 0'	%			-1 -0.5 0 0.5 1 Favours [control] Favours [zinc]

Mid-upper arm circumference (cm)

	Zinc su	pplement	ation	(Control			Mean Difference	Mean Difference
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% CI	IV, Random, 95% CI
Adu-Afarwuah 2007	0	0	0	0	0	0		Not estimable	
Baqui 2003	13.62	1.02	141	13.67	1.03	140	9.8%	-0.05 [-0.29, 0.19]	
Barffour 2019	14	0.9	739	14	0.9	740	29.5%	0.00 [-0.09, 0.09]	+
Bentley 1997	0.2	0.8	45	0	1	44	4.6%	0.20 [-0.18, 0.58]	+
Hamadani 2001	2.5	1.1	138	2.6	1	133	9.2%	-0.10 [-0.35, 0.15]	
Kikafunda 1998	16.51	1.26	59	16.56	1.12	54	3.4%	-0.05 [-0.49, 0.39]	 -
Lind 2003	14.8	1.14	162	14.7	1.18	164	9.1%	0.10 [-0.15, 0.35]	 -
Muller 2001	-0.3	1	332	-0.4	1.1	329	17.3%	0.10 [-0.06, 0.26]	 -
Rosado 1997	0.93	0.1371	47	0.67	0.5485	47	17.1%	0.26 [0.10, 0.42]	
Umeta 2000	0.2467	8.4278	92	0.1467	8.4495	92	0.1%	0.10 [-2.34, 2.54]	
Total (95% CI)			1755			1743	100.0%	0.06 [-0.02, 0.15]	•
Heterogeneity: Tau² =	0.00; Chi ²	²= 10.99, c	df = 8 (P	= 0.20); [²= 27%				
Test for overall effect:	Z = 1.48 (F	P = 0.14)							Favours [control] Favours [zinc]

Length-for-age (z-score)

	Zinc su	pplement	ation	C	ontrol			Mean Difference	Mean Difference		
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% CI	IV, Random, 95% CI		
Baqui 2003	-1.6	0.9	49	-1.7	1	45	0.4%	0.10 [-0.29, 0.49]			
Barffour 2019	-1.93	0.97	739	-1.93	1	740	6.4%	0.00 [-0.10, 0.10]	+		
Becquey 2016	-0.4	0.8898	261	-0.32	1.2406	641	3.1%	-0.08 [-0.22, 0.06]	 		
Bentley 1997	-0.74	0.68	45	-0.89	0.74	44	0.7%	0.15 [-0.15, 0.45]	 		
Berger 2006	-0.37	0.39	191	-0.42	0.46	195	8.9%	0.05 [-0.04, 0.14]	+		
Bhandari 2002	-0.14	0.44	1093	-0.12	0.43	1133	49.3%	-0.02 [-0.06, 0.02]	•		
Dijkhuizen 2001	-1.29	0.79	98	-1.3	0.88	90	1.1%	0.01 [-0.23, 0.25]			
Fahmida 2007	-1.39	0.96	189	-1.47	0.94	192	1.8%	0.08 [-0.11, 0.27]	+-		
Hamadani 2001	-2.3	1	97	-2.4	1	101	0.8%	0.10 [-0.18, 0.38]	 		
Kikafunda 1998	-0.5	0.92	59	-0.48	0.95	54	0.5%	-0.02 [-0.37, 0.33]			
Lind 2003	-0.77	0.92	162	-0.81	0.86	164	1.7%	0.04 [-0.15, 0.23]	+-		
Mazariegos 2010	-2.57	1.11	188	-2.52	1.13	196	1.3%	-0.05 [-0.27, 0.17]			
McDonald 2015	-0.93	1.2062	582	-0.93	1.2083	584	3.4%	0.00 [-0.14, 0.14]	+		
Muller 2001	0.06	0.8	332	-0.02	0.8	329	4.3%	0.08 [-0.04, 0.20]	+-		
Rahman 2001	0.1	0.51	165	0.06	0.5	160	5.3%	0.04 [-0.07, 0.15]	+		
Rosado 1997	0.16	0.3464	48	0.13	0.4113	47	2.8%	0.03 [-0.12, 0.18]	+		
Sazawal 2006	-0.43	0.26	44	-0.35	0.26	58	6.2%	-0.08 [-0.18, 0.02]	 		
Silva 2006	-1.7	2.6	28	-1.6	1.6	30	0.1%	-0.10 [-1.22, 1.02]			
Umeta 2000	-0.0235	2.6584	92	-0.9846	3.0805	92	0.1%	0.96 [0.13, 1.79]			
Wasantwisut 2006	-1	0.9	151	-0.99	0.86	153	1.6%	-0.01 [-0.21, 0.19]	+		
Total (95% CI)			4613			5048	100.0%	-0.00 [-0.03, 0.02]	(
Heterogeneity: Tau ² =	0.00; Chi ^a	= 16.31,	df = 19 (F	P = 0.64);1	² =0%				-1 -0.5 0 0.5 1		
Test for overall effect:	Z = 0.15 (F	P = 0.88)	,						-1 -0.5 0 0.5 1 Favours [control] Favours [zinc]		

Weight-for-age (z-score)

weight-101-ag	•	pplement	ation	(Control			Mean Difference	Mean Difference
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% CI	IV, Random, 95% CI
Baqui 2003	-2	1.2	49	-2	1.2	45	4.2%	0.00 [-0.49, 0.49]	
Barffour 2019	-1.51	0.88	739	-1.52	0.9	740	5.7%	0.01 [-0.08, 0.10]	+
Becquey 2016	0.01	0.5932	261	0.08	0.6203	641	5.7%	-0.07 [-0.16, 0.02]	
Bentley 1997	-0.87	0.55	45	-0.96	0.56	44	5.3%	0.09 [-0.14, 0.32]	
Berger 2006	-0.97	0.41	191	-1.13	0.46	195	5.7%	0.16 [0.07, 0.25]	-
Bhandari 2002	-0.04	0.51	1093	-0.06	0.49	1133	5.8%	0.02 [-0.02, 0.06]	†
Dijkhuizen 2001	-1.26	0.85	98	-1.37	0.91	90	5.2%	0.11 [-0.14, 0.36]	
Fahmida 2007	-1.71	0.89	189	-1.86	0.93	192	5.5%	0.15 [-0.03, 0.33]	 • -
Hamadani 2001	-2.4	0.9	97	-2.5	0.9	101	5.2%	0.10 [-0.15, 0.35]	
Kikafunda 1998	-0.27	0.88	59	-0.27	0.7	54	5.1%	0.00 [-0.29, 0.29]	
Lind 2003	-1.46	1.08	162	1.72	1	164	5.3%	-3.18 [-3.41, -2.95] 🖪	
Mazariegos 2010	-1.4	1.12	188	-1.3	1.08	196	5.4%	-0.10 [-0.32, 0.12]	+
McDonald 2015	-0.61	0.965	582	-0.5	0.9666	584	5.7%	-0.11 [-0.22, 0.00]	
Muller 2001	-0.002	0.6	332	-0.08	0.6	329	5.7%	0.08 [-0.01, 0.17]	
Rahman 2001	-0.03	0.37	165	-0.03	0.35	160	5.7%	0.00 [-0.08, 0.08]	+
Rosado 1997	0.26	0.3464	48	0.25	0.3428	47	5.6%	0.01 [-0.13, 0.15]	+
Sazawal 2006	-0.22	0.46	44	-0.15	0.44	58	5.5%	-0.07 [-0.25, 0.11]	
Umeta 2000	0.0177	3.3247	92	-0.372	3.7455	92	2.1%	0.39 [-0.63, 1.41]	
Wasantwisut 2006	-1.3	0.9	151	-1.3	0.9	153	5.4%	0.00 [-0.20, 0.20]	
Total (95% CI)			4585			5018	100.0%	-0.14 [-0.33, 0.04]	•
Heterogeneity: Tau ² =	0.15; Chi	² = 787.64	df = 18	(P < 0.0)	0001); I ² :	= 98%		_	-1 -0.5 0 0.5 1
Test for overall effect:	Z=1.49 (P = 0.14)							-1 -0.5 0 0.5 1 Favours [control] Favours [zinc]

Weight-for-height (z-score)

J	Zinc su	pplementa	ation	(Control			Mean Difference	Mean Difference
Study or Subgroup	Mean	SD	Total		SD	Total	Weight		IV, Random, 95% CI
Baqui 2003	-0.8	0.8	49	-0.7	0.9	45	1.5%	-0.10 [-0.45, 0.25]	
Barffour 2019	-0.72	0.79	739	-0.74	0.82	740	12.4%	0.02 [-0.06, 0.10]	+
Becquey 2016	0.27	0.7514	261	0.3	0.8374	641	9.1%	-0.03 [-0.14, 0.08]	
Bentley 1997	-0.91	0.78	45	-0.84	0.88	44	1.5%	-0.07 [-0.42, 0.28]	
Berger 2006	-0.96	0.51	191	-1.13	0.57	195	9.5%	0.17 [0.06, 0.28]	
3handari 2002	-0.02	0.64	1093	-0.07	0.67	1133	16.3%	0.05 [-0.00, 0.10]	-
Dijkhuizen 2001	-0.36	0.8	98	-0.44	0.82	90	3.1%	0.08 [-0.15, 0.31]	
ahmida 2007	-0.88	0.97	189	-1	0.93	192	4.3%	0.12 [-0.07, 0.31]	+-
Hamadani 2001	-1.2	0.6	97	-1.3	0.8	101	4.1%	0.10 [-0.10, 0.30]	+-
ind 2003	-0.7	1.06	162	-1.01	1.16	164	2.9%	0.31 [0.07, 0.55]	
Mazariegos 2010	0.05	0.91	188	0.1	1.1	196	4.0%	-0.05 [-0.25, 0.15]	
McDonald 2015	-0.57	1.6887	582	-0.35	1.6916	584	4.2%	-0.22 [-0.41, -0.03]	
Auller 2001	-0.09	0.8	332	-0.1	0.7	329	8.9%	0.01 [-0.10, 0.12]	+
Rahman 2001	-0.16	0.59	165	-0.13	0.57	160	7.9%	-0.03 [-0.16, 0.10]	
Rosado 1997	0.25	0.4157	48	0.29	0.4113	47	5.4%	-0.04 [-0.21, 0.13]	
3ilva 2006	0.7	1.5	28	0.6	1.6	30	0.3%	0.10 [-0.70, 0.90]	
Jmeta 2000	-0.3028	3.5423	92	-0.214	3.4029	92	0.2%	-0.09 [-1.09, 0.91]	
Wasantwisut 2006	-1.2	0.6	97	-1.3	0.8	101	4.1%	0.10 [-0.10, 0.30]	 -
Fotal (95% CI)			4456			4884	100.0%	0.03 [-0.01, 0.08]	•
Heterogeneity: Tau ² =	: 0.00; Chi²	²= 24.80, d	df = 17 (F	0 = 0.10	; I ^z = 31%	6			- -
Fest for overall effect:				,					-1 -0.5 0 0.5 1 Favours [control] Favours [zinc]

Hemoglobin (g/L)

	Zinc su	upplementa	ation		Control			Mean Difference	Mean Difference
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% CI	IV, Random, 95% CI
Baqui 2003	-3.9	12.8	64	-1.61	13.9	60	4.6%	-2.29 [-7.00, 2.42]	
Barffour 2019	110.4	0.4	722	110.6	0.4	726	16.9%	-0.20 [-0.24, -0.16]	•
Berger 2006	6.4	20.6	191	9.8	19.3	195	5.8%	-3.40 [-7.38, 0.58]	
Brooks 2005	96	9.1	329	97	9.4	309	13.5%	-1.00 [-2.44, 0.44]	
Chang 2010	0.9	14	85	2	13	89	5.8%	-1.10 [-5.12, 2.92]	
Dijkhuizen 2001	106	11	97	106	11	87	7.6%	0.00 [-3.18, 3.18]	
Fahmida 2007	-6.4	20.1	153	-5	20.8	150	4.8%	-1.40 [-6.01, 3.21]	
Lind 2003	115.7	15.2	134	113.5	16	143	6.5%	2.20 [-1.47, 5.87]	+-
McDonald 2015	96	12.7685	159	96	13.1304	168	8.7%	0.00 [-2.81, 2.81]	
Radhakrishna 2013	84	14.1	34	86.3	15.6	34	2.4%	-2.30 [-9.37, 4.77]	
Rosado 1997	8	12.9	49	8	16.3	50	3.4%	0.00 [-5.78, 5.78]	
Sazawal 2006	3.4	11.5	44	-7.5	11.4	58	5.0%	10.90 [6.41, 15.39]	
Silva 2006	7	8	28	5	9	30	5.1%	2.00 [-2.38, 6.38]	-
Wasantwisut 2006	101.6	13.2	58	106.3	13	66	4.8%	-4.70 [-9.32, -0.08]	
Wieringa 2003	110	10	48	110	11	43	5.2%	0.00 [-4.34, 4.34]	
Total (95% CI)			2195			2208	100.0%	-0.10 [-1.29, 1.09]	+
Heterogeneity: Tau ² =	•		= 14 (P	= 0.001); I²= 60%			_	-10 -5 0 5 10
Test for overall effect: 2	Z = 0.16 (F	P = 0.87)							Favours (control) Favours (zinc)

Plasma/serum ferritin (µg/L)

		\	,								
	Zinc su	upplementa	ation		Control			Mean Difference		Mean Difference	
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% CI		IV, Random, 95% CI	
Baqui 2003	-15.3	22.6	40	-21.7	22.7	37	6.9%	6.40 [-3.73, 16.53]			
Berger 2006	-18.2	56.5	173	-16.9	42.6	176	6.5%	-1.30 [-11.81, 9.21]			
Dijkhuizen 2001	13.07	11.26	97	15.9	12.74	87	36.4%	-2.83 [-6.32, 0.66]			
Fahmida 2007	-21.7	20.64	29	-26.53	32.71	29	3.7%	4.83 [-9.25, 18.91]			_
McDonald 2015	51.5	47.2646	151	47.8	43.5332	151	6.8%	3.70 [-6.55, 13.95]		- •	
Rosado 1997	-2.3	15.6	48	-4.6	41.6	48	4.6%	2.30 [-10.27, 14.87]			
Wasantwisut 2006	28.5	22.15	58	26.73	13.78	66	14.7%	1.77 [-4.83, 8.37]		- -	
Wieringa 2003	11.6	9.99	48	17.17	15.23	43	20.5%	-5.57 [-10.93, -0.21]			
Total (95% CI)			644			637	100.0%	-1.02 [-3.79, 1.76]		•	
Heterogeneity: Tau ² =	2.34; Chi	² = 8.17, df	= 7 (P =	0.32); l²:	= 14%				+		20
Test for overall effect:	Z = 0.72 (P = 0.47	•						-20	-10 0 10 Favours [control] Favours [zinc]	20

Plasma/serum TfR (mg/L)

	Zinc su	pplement	ation		Control			Mean Difference	Mean Difference
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% CI	IV, Random, 95% CI
Baqui 2003	-0.47	2.71	42	-1.69	3.22	38	18.9%	1.22 [-0.09, 2.53]	-
Chang 2010	-0.4	3.3	85	-1	3.7	89	25.1%	0.60 [-0.44, 1.64]	- •
McDonald 2015	1.8	0.6219	151	1.8	0.6219	151	56.0%	0.00 [-0.14, 0.14]	†
Total (95% CI)			278			278	100.0%	0.38 [-0.31, 1.08]	
Heterogeneity: Tau² = Test for overall effect:			f= 2 (P=	0.11);	l² = 55%			-	-2 -1 0 1 2 Favours [control] Favours [zinc]

Plasma/serum retinol (µmol/L)

	Zinc su	pplement	ation	(Control			Mean Difference	Mean Difference
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% CI	IV, Random, 95% CI
Fahmida 2007	0.03	0.22	26	0.05	0.22	37	25.7%	-0.02 [-0.13, 0.09]	
Rahman 2001	0.07	0.3133	84	0.06	0.3226	84	33.8%	0.01 [-0.09, 0.11]	
Rosado 1997	0.08	0.4	37	-0.05	0.3	38	12.2%	0.13 [-0.03, 0.29]	
Umeta 2000	0.7972	0.2633	69	0.8384	0.2954	0		Not estimable	
Wieringa 2003	0.71	0.25	48	0.74	0.26	43	28.3%	-0.03 [-0.14, 0.08]	
Total (95% CI)			264			202	100.0%	0.01 [-0.05, 0.06]	•
Heterogeneity: Tau ² =	0.00; Chi	² = 2.97, d	f= 3 (P =	0.40); [2	= 0%			_	-0.2 -0.1 0 0.1 0.2
Test for overall effect:	Z= 0.19 (P = 0.85)							Favours [control] Favours [zinc]

Plasma/serum zinc (µmol/L)

	,			Mean Difference	Mean Difference
Study or Subgroup	Mean Difference	SE	Weight	IV, Random, 95% CI	IV, Random, 95% CI
Baqui 2003	0.68	0.5247	5.4%	0.68 [-0.35, 1.71]	 -
Becquey 2016	0.78	0.2441	5.5%	0.78 [0.30, 1.26]	-
Berger 2006	8.7	0.7217	5.3%	8.70 [7.29, 10.11]	-
Bhandari 2002	10.44	0.4872	5.4%	10.44 [9.49, 11.39]	+
Brooks 2005	1.1	0.1668	5.6%	1.10 [0.77, 1.43]	•
Chang 2010	0.25	0.1592	5.6%	0.25 [-0.06, 0.56]	<u>†</u>
Dijkhuizen 2001	3.6	0.6347	5.3%	3.60 [2.36, 4.84]	-
Mazariegos 2010	2.5	1.4509	4.5%	2.50 [-0.34, 5.34]	 • -
Muller 2001	2.9	1.3295	4.7%	2.90 [0.29, 5.51]	
Radhakrishna 2013	0.5	0.6024	5.4%	0.50 [-0.68, 1.68]	+
Rahman 2001	1.7	0.3927	5.5%	1.70 [0.93, 2.47]	-
Rosado 1997	3.45	0.8122	5.2%	3.45 [1.86, 5.04]	-
Silva 2006	5.31	0.1152	5.6%	5.31 [5.08, 5.54]	•
Surono 2014	1.23	0.8619	5.2%	1.23 [-0.46, 2.92]	+-
Tielsch 2006	0.8	0.3674	5.5%	0.80 [0.08, 1.52]	-
Umeta 2000	4.1	0.7366	5.3%	4.10 [2.66, 5.54]	-
Wasantwisut 2006	6.9	0.7217	5.3%	6.90 [5.49, 8.31]	-
Wessells 2012	16.5527	1.2163	4.8%	16.55 [14.17, 18.94]	
Wieringa 2003	3.07	0.9296	5.1%	3.07 [1.25, 4.89]	-
Total (95% CI)			100.0%	3.85 [2.48, 5.23]	•
Heterogeneity: Tau² =	8.83; Chi² = 1451.40), df = 18	(P < 0.00	0001); I² = 99%	
Test for overall effect: 2			,		-10 -5 0 5 10 Favours [control] Favours [zinc]

Iron deficiency (serum/plasma ferritin <12µg/L)

-	Zinc suppleme	ntation	Cont	rol	,	Risk Ratio	Risk Ratio
Study or Subgroup	Events	Total	Events	Total	Weight	M-H, Random, 95% CI	M-H, Random, 95% CI
Barffour 2019	16	145	40	140	15.3%	0.39 [0.23, 0.66]	
Berger 2006	56	173	59	176	21.6%	0.97 [0.72, 1.30]	
Lind 2003	47	134	54	143	21.2%	0.93 [0.68, 1.27]	
McDonald 2015	23	151	13	151	12.7%	1.77 [0.93, 3.36]	
Sazawal 2006 (1)	26	35	35	43	23.1%	0.91 [0.72, 1.16]	
Wasantwisut 2006	9	58	4	66	6.1%	2.56 [0.83, 7.88]	
Total (95% CI)		696		719	100.0%	0.94 [0.69, 1.29]	•
Total events	177		205				
Heterogeneity: Tau ² =	= 0.10; Chi ² = 17.5	i4, df = 5 (P = 0.004	(i); l² = 7	'1%		01 02 05 1 2 5 10
Test for overall effect	Z = 0.37 (P = 0.7)	1)					0.1 0.2 0.5 1 2 5 10 Favours [zinc] Favours [control]

Footnotes

(1) Zinc protoporphyrin >/=90umol/mol heme

Zinc deficiency (serum/plasma zinc <10.7µmol/L)

	Zinc supplement	ntation	Contr	ol		Risk Ratio	Risk Ratio
Study or Subgroup	Events	Total	Events	Total	Weight	M-H, Random, 95% CI	M-H, Random, 95% CI
Barffour 2019 (1)	74	145	111	140	12.8%	0.64 [0.54, 0.77]	+
Berger 2006 (2)	0	161	1	155	2.2%	0.32 [0.01, 7.82]	
Bhandari 2002 (3)	21	450	256	499	11.9%	0.09 [0.06, 0.14]	
Dijkhuizen 2001	9	97	21	87	10.3%	0.38 [0.19, 0.79]	
Lind 2003	63	134	111	143	12.7%	0.61 [0.50, 0.74]	•
Radhakrishna 2013 (4)	9	34	15	34	10.6%	0.60 [0.31, 1.18]	
Tielsch 2006	47	124	57	119	12.4%	0.79 [0.59, 1.06]	
Umeta 2000	0	38	8	40	2.6%	0.06 [0.00, 1.04]	· · · · · · · · · · · · · · · · · · ·
Wasantwisut 2006	1	58	44	66	4.5%	0.03 [0.00, 0.18]	
Wessells 2012 (5)	36	279	59	146	12.2%	0.32 [0.22, 0.46]	
Wieringa 2003	5	48	5	43	7.8%	0.90 [0.28, 2.88]	
Total (95% CI)		1568		1472	100.0%	0.37 [0.22, 0.62]	◆
Total events	265		688				
Heterogeneity: Tau ² = 0.5	3; Chi² = 141.51, (df = 10 (P	< 0.0000	11); I² =	93%		
Test for overall effect: Z=	3.81 (P = 0.0001)	,					0.005 0.1 1 10 200 Favours [zinc] Favours [control]

<u>Footnotes</u>

- (1) Plasma zinc <9.94umol/L
- (2) Serum zinc <9.9umol/L
- (3) Plasma zinc <9.17umol/L
- (4) Serum zinc <9.17umol/L (5) Plasma zinc <9.94umol/L

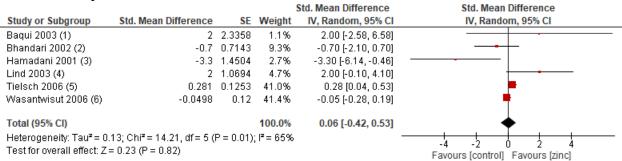
Diarrhea (incidence)

				Rate Ratio	Rate Ratio
Study or Subgroup	log[Rate Ratio]	SE	Weight	IV, Random, 95% CI	IV, Random, 95% CI
Baqui 2003	-0.0202	0.0607	10.1%	0.98 [0.87, 1.10]	+
Bhandari 2002	-0.1071	0.026	12.0%	0.90 [0.85, 0.95]	*
Brooks 2005	-0.0619	0.0337	11.7%	0.94 [0.88, 1.00]	*
Chang 2010	-0.0187	0.0934	8.0%	0.98 [0.82, 1.18]	
Gupta 2003	-0.8916	0.2732	2.1%	0.41 [0.24, 0.70]	
Gupta 2007	-0.3011	0.0741	9.3%	0.74 [0.64, 0.86]	
Hamadani 2001	0.1222	0.0939	8.0%	1.13 [0.94, 1.36]	+-
Long 2006	0.1222	0.0727	9.4%	1.13 [0.98, 1.30]	 •
Malik 2013	-0.4943	0.0717	9.4%	0.61 [0.53, 0.70]	
McDonald 2015	-0.1863	0.0943	8.0%	0.83 [0.69, 1.00]	
Tielsch 2006	-0.0408	0.0273	12.0%	0.96 [0.91, 1.01]	*
Total (95% CI)			100.0%	0.89 [0.82, 0.97]	•
Heterogeneity: Tau² =			(P ≤ 0.00)001); I²= 86%	0.5 0.7 1 1.5 2
Test for overall effect:	Z = 2.64 (P = 0.00)	18)			Favours [zinc] Favours [control]

Lower respiratory tract infection (incidence)

				Rate Ratio		Rate Ratio	
Study or Subgroup	log[Rate Ratio]	SE	Weight	IV, Random, 95% CI		IV, Random, 95% CI	
Baqui 2003	-0.0513	0.1072	18.6%	0.95 [0.77, 1.17]		-	
Bhandari 2002	-0.0041	0.0583	19.1%	1.00 [0.89, 1.12]		+	
Hamadani 2001	-0.0101	0.1696	17.6%	0.99 [0.71, 1.38]		-	
Long 2006	-0.2231	0.7611	6.5%	0.80 [0.18, 3.56]		•	
Malik 2013	-1.204	0.073	19.0%	0.30 [0.26, 0.35]		+	
Tielsch 2006	0.01	0.0476	19.2%	1.01 [0.92, 1.11]		†	
Total (95% CI)			100.0%	0.78 [0.49, 1.24]		•	
Heterogeneity: Tau² = Test for overall effect:		•	(P < 0.00	0001); I²= 98%	0.05	0.2 1 5 Favours [zinc] Favours [control]	20

Mental development



Footnotes

- (1) Mental Development Index (Bayley Scales of Infant Development)
- (2) Mental Development Index (Bayley Scales of Infant Development)
- (3) Mental Development Index (Bayley Scales of Infant Development)
- (4) Mental Development Index (Bayley Scales of Infant Development)
- (5) Universal Test of Nonverbal Intelligence
- (6) Full IQ (Wechsler Intelligence Scale for Children 3rd edition)

Mental development (Mental Development Index of Bayley Scales of Infant Development)

				Mean Difference		Mean Difference	
Study or Subgroup	Mean Difference	SE	Weight	IV, Random, 95% CI		IV, Random, 95% CI	
Baqui 2003	2	2.3358	14.7%	2.00 [-2.58, 6.58]			
Bhandari 2002	-0.7	0.7143	33.2%	-0.70 [-2.10, 0.70]			
Hamadani 2001	-3.3	1.4504	23.6%	-3.30 [-6.14, -0.46]			
Lind 2003	2	1.0694	28.6%	2.00 [-0.10, 4.10]			
Total (95% CI)			100.0%	-0.15 [-2.38, 2.09]		-	
Heterogeneity: Tau² = Test for overall effect:		df=3 (P	= 0.02); f	²= 71%	-10	-5 0 5 10 Favours [control] Favours [zinc]	<u> </u>

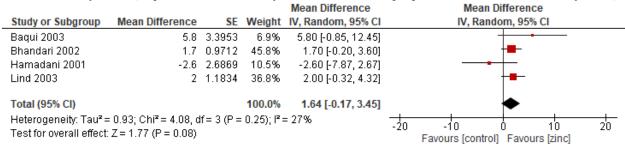
Motor development

				Std. Mean Difference	Std. Mean Difference
Study or Subgroup	Std. Mean Difference	SE	Weight	IV, Random, 95% CI	IV, Random, 95% CI
Baqui 2003 (1)	5.8	3.3953	5.6%	5.80 [-0.85, 12.45]	+
Bhandari 2002 (2)	1.7	0.9712	25.9%	1.70 [-0.20, 3.60]	 • -
Hamadani 2001 (3)	-2.6	2.6869	8.3%	-2.60 [-7.87, 2.67]	
Lind 2003 (4)	2	1.1834	22.4%	2.00 [-0.32, 4.32]	 •
Tielsch 2006 (5)	-0.312	0.1254	37.8%	-0.31 [-0.56, -0.07]	•
Total (95% CI)			100.0%	0.88 [-0.83, 2.59]	*
Heterogeneity: Tau² = 2 Test for overall effect: 2	2.00; Chi² = 11.83, df = 4 Z = 1.01 (P = 0.31)	4 (P = 0.0	12); I² = 66	6%	-20 -10 0 10 20 Favours [control] Favours [zinc]

Footnotes

- (1) Psychomotor Development Index (Bayley Scales of Infant Development)
- (2) Psychomotor Development Index (Bayley Scales of Infant Development)
- (3) Psychomotor Development Index (Bayley Scales of Infant Development)
- (4) Psychomotor Development Index (Bayley Scales of Infant Development)
- (5) Movement Assessment Battery for Children

Motor development (Psychomotor Development Index of Bayley Scales of Infant Development)



Comparison 3: Iron Supplementation vs. Placebo/No Intervention (Efficacy)

Stunting

C	Iron suppleme	ntation	Cont	rol		Risk Ratio		Risk Ratio	
Study or Subgroup	Events	Total	Events	Total	Weight	M-H, Random, 95% CI		M-H, Random, 95% CI	
Berger 2006	52	197	50	195	40.8%	1.03 [0.74, 1.44]			
Dijkhuizen 2001	18	94	22	90	15.0%	0.78 [0.45, 1.36]			
Lind 2003	12	163	14	164	8.3%	0.86 [0.41, 1.81]			
Stoltzfus 2001	39	116	41	119	35.9%	0.98 [0.68, 1.39]			
Total (95% CI)		570		568	100.0%	0.96 [0.77, 1.18]		•	
Total events	121		127						
Heterogeneity: Tau² =	: 0.00; Chi² = 0.78	3, df = 3 (F	9 = 0.85;	$I^2 = 0\%$)		+	1, 1	Ť
Test for overall effect:	Z = 0.42 (P = 0.6	7)					0.2	0.5 1 2 Favours [iron] Favours [control]	0

Wasting

· ·	Iron supplemen	ntation	Conti	rol		Risk Ratio		Risk	Ratio	
Study or Subgroup	Events	Total	Events	Total	Weight	M-H, Random, 95% CI		M-H, Rando	om, 95% CI	
Berger 2006	11	197	8	195	19.5%	1.36 [0.56, 3.31]			-	
Dijkhuizen 2001	0	94	0	90		Not estimable			_	
Lind 2003	35	163	30	164	80.5%	1.17 [0.76, 1.82]			_	
Total (95% CI)		454		449	100.0%	1.21 [0.82, 1.79]		-	•	
Total events	46		38							
Heterogeneity: Tau ² = Test for overall effect:			P = 0.77);	² = 0%			0.2	0.5 1 Favours [iron]	2 Favours [control]	- -

	Iron su	pplementa	ation	(Control			Mean Difference	Mean Difference
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% CI	IV, Random, 95% CI
Baqui 2003	70.9	2.7	150	71	2.6	140	6.1%	-0.10 [-0.71, 0.51]	
Berger 2006	70.99	2.51	197	71.01	2.41	195	8.8%	-0.02 [-0.51, 0.47]	
Dijkhuizen 2001	69.5	2.5	94	69.1	2.7	90	4.2%	0.40 [-0.35, 1.15]	
Domellof 2001	6.52	1.1384	40	6.83	1.1665	42	8.5%	-0.31 [-0.81, 0.19]	+
Dossa 2001	1.9	0.6	36	2.1	0.9	32	13.1%	-0.20 [-0.57, 0.17]	 +
Lind 2003	72.5	3	136	72.4	2.8	143	5.0%	0.10 [-0.58, 0.78]	
Lopez 2005	6.67	1.7	74	7.08	1.3	72	8.7%	-0.41 [-0.90, 0.08]	
Lozoff 2016	6.67	1.7	74	7.08	1.3	72	8.7%	-0.41 [-0.90, 0.08]	
Nagpal 2004	3.08	1.52	19	3.26	1.54	24	2.9%	-0.18 [-1.10, 0.74]	
Palupi 1997	1.4	1	96	1.2	1	98	18.1%	0.20 [-0.08, 0.48]	+-
Rosado 1997	9	1.3435	50	9.1	1.5082	47	6.8%	-0.10 [-0.67, 0.47]	
Smuts 2005	77.9	3	49	76.6	3.3	50	1.7%	1.30 [0.06, 2.54]	
Wasantwisut 2006	70.6	2.5	153	70.6	2.4	153	7.3%	0.00 [-0.55, 0.55]	
Total (95% CI)			1168			1158	100.0%	-0.06 [-0.23, 0.10]	•

Weight (kg)

11 018110 (118)									
	Iron su	pplement	ation		Control			Mean Difference	Mean Difference
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% CI	IV, Random, 95% CI
Baqui 2003	8.09	1.09	150	8.16	1.01	140	6.4%	-0.07 [-0.31, 0.17]	
Berger 2006	7.98	0.9	197	8.05	0.8	195	11.7%	-0.07 [-0.24, 0.10]	
Dijkhuizen 2001	8.1	1	94	7.8	1	90	4.7%	0.30 [0.01, 0.59]	
Domellof 2001	1.548	0.5439	40	1.515	0.5444	42	6.7%	0.03 [-0.20, 0.27]	
Dossa 2001	0.3	0.4	36	0.5	0.6	32	6.3%	-0.20 [-0.45, 0.05]	
Ermis 2002	9	1	28	9.1	1	23	1.4%	-0.10 [-0.65, 0.45]	
Lind 2003	8.33	1.02	136	8.31	0.94	143	7.0%	0.02 [-0.21, 0.25]	
Lopez 2005	1.24	0.6	74	1.32	0.6	72	9.3%	-0.08 [-0.27, 0.11]	
Lozoff 2016	6.161	1.111	321	6.27	1.1132	312	11.2%	-0.11 [-0.28, 0.06]	
Nagpal 2004	0.778	0.532	19	0.703	0.341	24	5.1%	0.08 [-0.20, 0.35]	- •
Palupi 1997	0.45	0.58	96	0.34	0.63	98	11.5%	0.11 [-0.06, 0.28]	 -
Rosado 1997	2.4	0.495	50	2.4	0.4799	47	9.3%	0.00 [-0.19, 0.19]	
Smuts 2005	11	1.3	49	10.6	1.3	50	1.6%	0.40 [-0.11, 0.91]	+
Wasantwisut 2006	8.2	0.9	153	8.1	1	153	8.0%	0.10 [-0.11, 0.31]	+-
Total (95% CI)			1443			1421	100.0%	0.00 [-0.06, 0.07]	•
Heterogeneity: Tau ² =	0.00; Chi	² = 15.15.	df= 13 (P = 0.30)); I ² = 14 ⁴	%			
Test for overall effect:									-1 -0.5 0 0.5 1
									Favours [control] Favours [iron]

Length-for-age (z-score)

	Iron su	pplement	ation		Control			Mean Difference	Mean Difference
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% CI	IV, Random, 95% CI
Baqui 2003	-1.6	0.9	49	-1.7	1	45	1.4%	0.10 [-0.29, 0.49]	
Berger 2006	-0.38	0.39	197	-0.42	0.46	195	16.4%	0.04 [-0.04, 0.12]	 -
Dijkhuizen 2001	-1.24	0.87	94	-1.3	0.88	90	3.1%	0.06 [-0.19, 0.31]	
Domellof 2001	-1.2	1.02	40	-1.28	0.99	42	1.1%	0.08 [-0.36, 0.52]	
Dossa 2001	-0.02	0.14	36	0.02	0.22	32	15.5%	-0.04 [-0.13, 0.05]	
Le 2005	-0.43	0.433	75	-0.49	0.4272	73	8.6%	0.06 [-0.08, 0.20]	+-
Lind 2003	-0.66	0.91	163	-0.81	0.86	164	5.0%	0.15 [-0.04, 0.34]	+
Lopez 2005	-0.27	0.5	74	-0.09	0.5	72	6.7%	-0.18 [-0.34, -0.02]	
Lozoff 2016	0.24	1.0017	321	0.33	1.0773	312	6.7%	-0.09 [-0.25, 0.07]	
Palupi 1997	0.07	0.27	96	0.03	0.26	98	18.6%	0.04 [-0.03, 0.11]	
Rosado 1997	0.02	0.4243	50	0.13	0.4113	47	6.4%	-0.11 [-0.28, 0.06]	+
Smuts 2005	-0.34	0.63	49	-0.3	0.65	50	3.1%	-0.04 [-0.29, 0.21]	
Untoro 2005	-1.51	0.87	69	-1.77	0.96	65	2.1%	0.26 [-0.05, 0.57]	+
Wasantwisut 2006	-1	0.8	153	-0.99	0.86	153	5.3%	-0.01 [-0.20, 0.18]	
Total (95% CI)			1466			1438	100.0%	0.00 [-0.04, 0.05]	•
Heterogeneity: Tau ² =	0.00; Chi	² =16.70,	df= 13 (l	P = 0.21); I ² = 22 ⁴	%			+ + + + + + + + + + + + + + + + + + + +
Test for overall effect:									-1 -0.5 0 0.5 1
									Favours [control] Favours [iron]

Weight-for-age (z-score)

	Iron su	ron supplementation Con						Mean Difference	Mean Difference
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% CI	IV, Random, 95% CI
Baqui 2003	-2.2	1	49	-2	1.2	45	1.1%	-0.20 [-0.65, 0.25]	
Berger 2006	-1.13	0.4	197	-1.13	0.46	195	29.1%	0.00 [-0.09, 0.09]	+
Dijkhuizen 2001	-1.19	0.95	94	-1.37	0.91	90	2.9%	0.18 [-0.09, 0.45]	
Domellof 2001	-0.79	1.1	40	-0.9	0.86	42	1.2%	0.11 [-0.32, 0.54]	
Le 2005	-0.64	0.433	75	-0.66	0.4272	73	11.0%	0.02 [-0.12, 0.16]	
Lind 2003	-1.65	1.08	163	-1.72	1	164	4.2%	0.07 [-0.16, 0.30]	
Lopez 2005	-0.49	0.6	74	-0.33	0.6	72	5.6%	-0.16 [-0.35, 0.03]	
Lozoff 2016	0.8	1.0017	321	0.89	1.0773	312	8.1%	-0.09 [-0.25, 0.07]	+
Palupi 1997	0.14	0.36	96	0.06	0.41	98	18.0%	0.08 [-0.03, 0.19]	 • -
Rosado 1997	0.28	0.4243	50	0.25	0.3428	47	9.0%	0.03 [-0.12, 0.18]	
Smuts 2005	-0.61	0.66	49	-0.5	0.91	50	2.2%	-0.11 [-0.42, 0.20]	
Untoro 2005	-1.49	0.8	69	-1.54	0.93	65	2.4%	0.05 [-0.24, 0.34]	
Wasantwisut 2006	-1.2	0.9	153	-1.3	0.9	153	5.2%	0.10 [-0.10, 0.30]	+-
Total (95% CI)			1430			1406	100.0%	0.01 [-0.03, 0.06]	•
Heterogeneity: Tau ² =	0.00; Chi	² = 10.35,	df=12 (P = 0.59	3); I ² = 0%	5			
Test for overall effect:	Z = 0.62 (P = 0.54)							-1 -0.5 0 0.5 1 Favours [control] Favours [iron]
									ravouis (control) ravouis (11011)

Weight-for-height (z-score)

	Iron su	pplement	ation	(Control			Mean Difference	Mean Difference
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% CI	IV, Random, 95% CI
Baqui 2003	-0.9	0.9	49	-0.7	0.9	45	2.6%	-0.20 [-0.56, 0.16]	
Berger 2006	-1.18	0.51	197	-1.13	0.57	195	17.5%	-0.05 [-0.16, 0.06]	
Dijkhuizen 2001	-0.3	0.81	94	-0.44	0.82	90	5.6%	0.14 [-0.10, 0.38]	+
Dossa 2001	-0.05	0.37	36	0.06	0.51	32	6.6%	-0.11 [-0.32, 0.10]	+
Le 2005	-0.63	0.5196	75	-0.63	0.5126	73	9.8%	0.00 [-0.17, 0.17]	
Lind 2003	-1.07	1.23	163	-1.01	1.16	164	4.7%	-0.06 [-0.32, 0.20]	
Lopez 2005	-0.62	0.8	74	-0.53	0.8	72	4.7%	-0.09 [-0.35, 0.17]	
Lozoff 2016	0.96	1.0928	321	1.02	1.0773	312	9.6%	-0.06 [-0.23, 0.11]	
Palupi 1997	0.12	0.49	96	0.03	0.56	98	11.6%	0.09 [-0.06, 0.24]	+
Rosado 1997	0.36	0.4243	50	0.29	0.4113	47	9.8%	0.07 [-0.10, 0.24]	 -
Smuts 2005	-0.62	0.88	49	-0.55	1.05	50	2.3%	-0.07 [-0.45, 0.31]	
Untoro 2005	-0.72	0.79	69	-0.57	0.83	65	4.3%	-0.15 [-0.42, 0.12]	
Wasantwisut 2006	-0.5	0.7	153	-0.7	0.7	153	10.7%	0.20 [0.04, 0.36]	
Total (95% CI)			1426			1396	100.0%	0.00 [-0.06, 0.06]	+
Heterogeneity: Tau ² =	0.00; Chi	²= 15.09,	df = 12 (l	P = 0.24); l ^z = 20	%			1 05
Test for overall effect:	Z = 0.15 (P = 0.88)							-1 -0.5 0 0.5 Favours (control) Favours (iron)

Mid-upper arm circumference (cm)

	Iron su	pplementa	ation	(Control			Mean Difference	Mean Difference
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% CI	IV, Random, 95% CI
Baqui 2003	13.71	1.1	150	13.67	1.03	140	27.0%	0.04 [-0.21, 0.29]	
Dossa 2001	-0.2	0.6	36	0	0.8	32	14.1%	-0.20 [-0.54, 0.14]	
Lind 2003	14.7	1.12	163	14.7	1.18	164	26.1%	0.00 [-0.25, 0.25]	-+-
Rosado 1997	0.73	0.5426	46	0.67	0.5426	46	32.9%	0.06 [-0.16, 0.28]	
Total (95% CI)			395			382	100.0%	0.00 [-0.12, 0.13]	*
Heterogeneity: Tau² = Test for overall effect:			f= 3 (P=	: 0.63); I	l² = 0%				-1 -0.5 0 0.5 1 Favours [control] Favours [iron]

Hemoglobin (g/L)

2	Iron su	pplementa	tion		Control			Mean Difference	Mean Difference
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% CI	IV, Random, 95% CI
Baqui 2003	1.6	12.8	68	-1.61	13.9	60	3.8%	3.21 [-1.44, 7.86]	+
Berger 2000	105.4	12	68	105.3	13	60	3.9%	0.10 [-4.25, 4.45]	 -
Berger 2006	22.6	19.4	197	9.8	19.3	195	4.1%	12.80 [8.97, 16.63]	
Chen 2013	125.1	12.7	98	114.9	13.7	104	4.2%	10.20 [6.56, 13.84]	 -
Dijkhuizen 2001	115	10	90	106	11	87	4.4%	9.00 [5.90, 12.10]	_
Domellof 2001	115.9	10.9	30	108.7	8.8	35	3.7%	7.20 [2.33, 12.07]	
Dossa 2001	7	14	34	4	10	32	3.2%	3.00 [-2.84, 8.84]	
Ermis 2002	11.6491	0.3018	55	11.3	0.4	23	5.1%	0.35 [0.17, 0.53]	<u> </u>
Gokcay 2012	114	9	51	112	8	54	4.3%	2.00 [-1.26, 5.26]	+
Le 2005	12.9	16.6458	55	8.6	13.4428	56	3.3%	4.30 [-1.33, 9.93]	+
Lind 2003	119.4	15.3	136	113.5	16	143	4.2%	5.90 [2.23, 9.57]	
Lopez 2005	16	4	74	4	3	72	5.0%	12.00 [10.86, 13.14]	-
Lozoff 2016	113	8.9626	311	111	8.875	305	5.0%	2.00 [0.59, 3.41]	
Monteiro 2001	10	13.6938	293	4.5	18.6011	346	4.6%	5.50 [2.99, 8.01]	
Nagpal 2004	3	13	19	-3	4	24	3.2%	6.00 [-0.06, 12.06]	
Nguyen 2002	21.6	12.3	37	8	11.1	36	3.4%	13.60 [8.23, 18.97]	
Northrop-Clewes 1996	8.67	13.33	95	-1.93	10.22	96	4.3%	10.60 [7.23, 13.97]	
Palupi 1997	6.4	10.6	96	1.9	8	98	4.6%	4.50 [1.85, 7.15]	
Rosado 1997	14	14	52	8	16.3	50	3.2%	6.00 [0.09, 11.91]	
Smuts 2005	2.47	1.49	49	-0.56	1.81	50	5.1%	3.03 [2.38, 3.68]	-
Untoro 2005	5.6	2.6	58	1.5	1.8	65	5.1%	4.10 [3.30, 4.90]	-
Wasantwisut 2006	118	12.2	65	106.3	13	66	3.9%	11.70 [7.38, 16.02]	
Wieringa 2003	118	10	49	110	11	43	3.9%	8.00 [3.68, 12.32]	_
Yurdakök 2004	114	5	18	112	3	16	4.5%	2.00 [-0.74, 4.74]	+
Total (95% CI)			2098			2116	100.0%	6.02 [4.28, 7.76]	•
Heterogeneity: Tau² = 15	.38; Chi²=	710.67, df=	= 23 (P <	0.0000	1); I² = 979	%			-20 -10 0 10 20
Test for overall effect: Z=	6.78 (P < 0	0.00001)							Favours [control] Favours [iron]
									r avours (control) i ravours (nort)

Plasma/serum ferritin (µg/L)

	Iron su	pplementa	tion	0	Control			Mean Difference	Mean Difference
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% CI	IV, Random, 95% CI
Baqui 2003	-18	26.8	38	-21.7	27.7	37	6.1%	3.70 [-8.64, 16.04]	
Berger 2000	126.2	52.6	84	75.4	59.9	79	5.2%	50.80 [33.45, 68.15]	
Berger 2006	36	47.1	195	-16.9	42.6	176	6.7%	52.90 [43.77, 62.03]	
Chen 2013	41.3	12.4	98	33.1	10.9	104	7.4%	8.20 [4.97, 11.43]	
Dijkhuizen 2001	39.03	31.39	90	15.9	12.74	87	7.0%	23.13 [16.11, 30.15]	-
Ermis 2002	45.3236	10.4401	55	17.2	4.6	23	7.4%	28.12 [24.78, 31.46]	-
Gokcay 2012	31.2	24.9	37	20.6	16.8	43	6.6%	10.60 [1.14, 20.06]	
Lopez 2005	22.71	22.99	74	10.33	7.35	72	7.2%	12.38 [6.87, 17.89]	-
Nagpal 2004	0.33	3.71	19	-1.89	3.47	24	7.5%	2.22 [0.05, 4.39]	-
Northrop-Clewes 1996	6.07	14	95	-2.67	10.27	96	7.4%	8.74 [5.25, 12.23]	-
Rosado 1997	16	38.7	49	-4.6	41.6	48	5.4%	20.60 [4.60, 36.60]	
Smuts 2005	46.53	62.96	38	22.07	20.2	35	4.5%	24.46 [3.35, 45.57]	
Untoro 2005	35.68	75.63	65	38	69.88	60	3.8%	-2.32 [-27.83, 23.19]	
Wasantwisut 2006	77.37	50.59	65	26.8	13.78	66	6.1%	50.57 [37.83, 63.31]	
Wieringa 2003	41.43	38.22	49	17.17	15.23	43	6.3%	24.26 [12.63, 35.89]	
Yurdakök 2004	55.7	26.4	18	43.9	23.7	16	5.3%	11.80 [-5.04, 28.64]	 •
Total (95% CI)			1069			1009	100.0%	20.48 [13.41, 27.55]	•
Heterogeneity: Tau ² = 17	2.43; Chi ² =	= 327.20, df	= 15 (P	< 0.000	01); l ² =	95%			-50 -25 0 25 50
Test for overall effect: Z=	5.68 (P < 0	0.00001)							-50 -25 0 25 50 Favours [control] Favours [iron]

Plasma/serum ferritin (geometric means) (µg/L)

	Iron su	ıpplementa	ition		Control			Mean Difference		Mean Difference
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% CI		IV, Random, 95% CI
Domellof 2001	42.9	38.94	30	15.8	17.72	35	18.6%	27.10 [11.98, 42.22]		
Le 2005	48.2	34.4667	49	14	10.1964	44	19.8%	34.20 [24.09, 44.31]		
Lind 2003	46.5	2	136	12.9	3.7	143	20.9%	33.60 [32.91, 34.29]		•
Lozoff 2016	12.2	9.8588	311	11.2	9.7625	305	20.8%	1.00 [-0.55, 2.55]		+
Menendez 1997	65.6	54.5	166	35.1	36	164	19.8%	30.50 [20.55, 40.45]		_ -
Total (95% CI)			692			691	100.0%	25.10 [5.07, 45.13]		
Heterogeneity: Tau ² = Test for overall effect:			.32, df=	4 (P < 0).00001); P	²= 100'	%		-50	-25 0 25
restroi overali ellect.	2-2.40 ((- 0.01)								Favours [control] Favours [iron]

Plasma/serum retinol (μ mol/L)

	Iron su	pplement	ation		Control			Mean Difference	Mean Difference
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% CI	IV, Random, 95% CI
Chen 2013	1.15	0.24	98	1.12	0.22	104	11.1%	0.03 [-0.03, 0.09]	
Le 2005	0.28	0.4178	49	0.15	0.3947	44	2.6%	0.13 [-0.04, 0.30]	+
Lopez 2005	-0.05	0.07	74	-0.03	0.06	72	22.4%	-0.02 [-0.04, 0.00]	-
Northrop-Clewes 1996	0.12	0.33	95	0.12	0.27	96	7.6%	0.00 [-0.09, 0.09]	
Rosado 1997	0.27	0.5	43	-0.05	0.3	38	2.3%	0.32 [0.14, 0.50]	
Smuts 2005	-0.05	0.05	38	-0.02	0.05	35	21.9%	-0.03 [-0.05, -0.01]	=
Untoro 2005	0.09	0.03	64	0.09	0.02	57	25.0%	0.00 [-0.01, 0.01]	•
Wieringa 2003	0.62	0.17	49	0.74	0.26	43	7.0%	-0.12 [-0.21, -0.03]	
Total (95% CI)			510			489	100.0%	-0.01 [-0.03, 0.02]	•
Heterogeneity: Tau² = 0.0	0 ; $Chi^2 = 3$	30.43, df=	7 (P < 0	(1000.	l²= 77%			+	0.5 -0.25 0 0.25 0.5
Test for overall effect: Z=	0.37 (P =	0.71)							Favours [control] Favours [iron]

Plasma/serum zinc (µmol/L)

	Iron su	pplement	ation	Control Mean Difference				Mean Difference	Mean Difference
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% CI	IV, Random, 95% CI
Baqui 2003	0.74	2	42	0.59	1.54	38	11.4%	0.15 [-0.63, 0.93]	-
Berger 2006	1.2	3	135	1.6	4	155	11.2%	-0.40 [-1.21, 0.41]	
Dijkhuizen 2001	13.4	2.89	90	13	3.41	87	10.3%	0.40 [-0.53, 1.33]	
Le 2005	-0.6	3.1333	49	-1	4.1717	42	6.6%	0.40 [-1.14, 1.94]	
Lopez 2005	-0.1	0.8	74	0.5	0.7	72	14.9%	-0.60 [-0.84, -0.36]	+
Rosado 1997	0.28	3.4	45	0.18	3.2	54	7.8%	0.10 [-1.21, 1.41]	
Smuts 2005	0.08	0.33	38	-0.31	0.43	35	15.1%	0.39 [0.21, 0.57]	•
Untoro 2005	-8.2	9.15	65	-5.03	6.78	60	2.8%	-3.17 [-5.98, -0.36]	
Wasantwisut 2006	11.5	2.5	65	9.8	1.9	66	11.6%	1.70 [0.94, 2.46]	_ -
Wieringa 2003	13.33	2.82	49	14	3.06	43	8.4%	-0.67 [-1.88, 0.54]	
Total (95% CI)			652			652	100.0%	0.07 [-0.45, 0.59]	+
Heterogeneity: Tau² = Test for overall effect:			df= 9 (P	< 0.000	(01); I ² = 3	37%			-4 -2 0 2 4 Favours [control] Favours [iron]

Iron deficiency (serum/plasma ferritin <12µg/L)

	Iron supplemer	itation	Conti	rol		Risk Ratio		Risk Ratio	
Study or Subgroup	Events	Total	Events	Total	Weight	M-H, Random, 95% CI	М-Н, І	Random, 95% CI	
Berger 2000	9	84	40	79	11.2%	0.21 [0.11, 0.41]	-	-	
Berger 2006	2	195	59	176	7.7%	0.03 [0.01, 0.12]			
Chen 2013	10	98	31	104	11.2%	0.34 [0.18, 0.66]	-	-	
Le 2005	0	49	22	44	3.5%	0.02 [0.00, 0.32]		-	
Lind 2003	7	136	54	143	10.8%	0.14 [0.06, 0.29]	-	-	
Lopez 2005 (1)	51	74	63	72	12.8%	0.79 [0.66, 0.94]		-	
Lozoff 1996	5	27	16	27	10.3%	0.31 [0.13, 0.73]	_		
Lozoff 2016	188	311	208	305	12.9%	0.89 [0.79, 1.00]		•	
Menendez 1997	2	170	20	166	7.5%	0.10 [0.02, 0.41]		-	
Untoro 2005	3	65	34	60	8.9%	0.08 [0.03, 0.25]		•	
Wasantwisut 2006	0	65	4	66	3.3%	0.11 [0.01, 2.05]	-	$\overline{}$	
Total (95% CI)		1274		1242	100.0%	0.21 [0.12, 0.39]	•	.	
Total events	277		551						
Heterogeneity: Tau ² =	0.74; Chi ² = 178.	57, df = 1	0 (P < 0.1	00001);	2= 94%				
Test for overall effect:	Z = 5.01 (P < 0.00	0001)					0.002 0.1 Favours (1 10 iron] Favours [control]	500 I
								and the factor of	4

Footnotes (1) Plasma ferritin <20ug/L

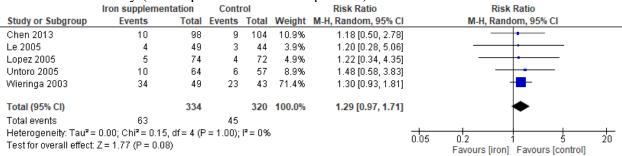
Zinc deficiency (serum/plasma retinol <10.7µmol/L)

•	Iron supplementation Contro		rol	-	Risk Ratio	Risk Ratio	
Study or Subgroup	Events	Total	Events	Total	Weight	M-H, Random, 95% CI	M-H, Random, 95% CI
Berger 2006 (1)	4	135	1	155	1.4%	4.59 [0.52, 40.59]	-
Dijkhuizen 2001	15	90	21	87	11.6%	0.69 [0.38, 1.25]	
Le 2005	13	49	13	42	10.5%	0.86 [0.45, 1.64]	
Lind 2003	118	136	111	143	26.2%	1.12 [1.00, 1.25]	•
Lopez 2005	29	74	24	72	15.9%	1.18 [0.76, 1.81]	-
Untoro 2005	21	65	9	60	9.5%	2.15 [1.07, 4.33]	
Wasantwisut 2006	29	65	44	66	19.7%	0.67 [0.49, 0.92]	
Wieringa 2003	7	49	5	43	5.1%	1.23 [0.42, 3.59]	
Total (95% CI)		663		668	100.0%	1.02 [0.78, 1.33]	+
Total events	236		228				
Heterogeneity: Tau ² :	= 0.07; Chi ² = 17.4	46, df = 7 ((P = 0.01)	$ \mathbf{r} = 60$	0%		
Test for overall effect	Z = 0.16 (P = 0.8)	7)					0.05 0.2 1 5 20 Favours [iron] Favours [control]

<u>Footnotes</u>

(1) Serum zinc <9.9umol/L

Vitamin A deficiency (serum/plasma retinol <0.7µmol/L)



Iron-deficiency anemia

	Iron suppleme	ntation	Conti	rol		Risk Ratio	Risk Ratio
Study or Subgroup	Events	Total	Events	Total	Weight	M-H, Random, 95% CI	M-H, Random, 95% CI
Berger 2006	1	195	29	176	14.5%	0.03 [0.00, 0.23]	
Dijkhuizen 2001	3	90	26	87	18.4%	0.11 [0.04, 0.36]	
Lind 2003	3	136	30	143	18.3%	0.11 [0.03, 0.34]	
Lozoff 2016	87	311	117	305	21.2%	0.73 [0.58, 0.92]	-
Wasantwisut 2006	0	65	4	66	10.6%	0.11 [0.01, 2.05]	
Wieringa 2003	2	49	12	43	17.1%	0.15 [0.03, 0.62]	
Total (95% CI)		846		820	100.0%	0.14 [0.04, 0.54]	•
Total events	96		218				
Heterogeneity: Tau ² =	: 2.15; Chi ² = 41.0	03, df = 5 i	(P < 0.00)	001); <mark>P</mark>	= 88%		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Test for overall effect:	Z = 2.87 (P = 0.0	04)					0.001 0.1 1 10 1000 Favours [iron] Favours [control]

Diarrhea (cumulative incidence)

`	Iron suppleme	ntation	Conti	ol		Risk Ratio		Risk Ratio	
Study or Subgroup	Events	Total	Events	Total	Weight	M-H, Random, 95% CI		M-H, Random, 95% CI	
Berger 2006	46	200	51	197	47.5%	0.89 [0.63, 1.26]		-	
Domellof 2001	23	40	25	42	42.8%	0.97 [0.67, 1.39]		-	
Nagpal 2004	1	19	2	24	1.1%	0.63 [0.06, 6.45]			
Smuts 2005	9	49	10	50	8.7%	0.92 [0.41, 2.06]			
Total (95% CI)		308		313	100.0%	0.92 [0.72, 1.17]		•	
Total events	79		88						
Heterogeneity: Tau² =	0.00; Chi ² = 0.22	, df = 3 (F	9 = 0.97;	l ² = 0%)		0.01	01 1 10	100
Test for overall effect:	Z= 0.68 (P = 0.4	9)					0.01	Favours [iron] Favours [control]	

Mental development

•	Iron su	pplementa	ation		Control			Std. Mean Difference	Std. Mean Difference
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% CI	IV, Random, 95% CI
Baqui 2003 (1)	104.3	9.5	49	102.7	13.5	45	10.9%	0.14 [-0.27, 0.54]	
Lind 2003 (2)	101	9.7	163	99	10	164	36.6%	0.20 [-0.01, 0.42]	
Stoltzfus 2001 (3)	14	3.9059	94	13.1	1.8545	85	20.3%	0.29 [-0.01, 0.58]	-
Wasantwisut 2006 (4)	93.3	9.5	147	93.5	11.7	139	32.3%	-0.02 [-0.25, 0.21]	
Total (95% CI)			453			433	100.0%	0.14 [0.01, 0.28]	•
Heterogeneity: Tau² = 0.1 Test for overall effect: Z =			3 (P = 0.	.38); I²=	3%				-1 -0.5 0 0.5 1 Favours [control] Favours [iron]

- Footnotes
 (1) Mental Development Index (Bayley Scales of Infant Development)
 (2) Mental Development Index (Bayley Scales of Infant Development)
- (3) Language (Griffiths and McCarthy scales of mental development)
- (4) Full IQ (Wechsler Intelligence Scale for Children 3rd edition)

Motor development

	Iron sup	plementa	ation		Control			Std. Mean Difference	Std. Mean Difference
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% CI	IV, Random, 95% CI
Baqui 2003 (1)	99.5	16.6	49	95.4	16.3	45	9.3%	0.25 [-0.16, 0.65]	+-
Lind 2003 (2)	106	11	163	103	10.8	165	32.3%	0.27 [0.06, 0.49]	
Lozoff 2016 (3)	90	8.875	305	87.5	8.6221	288	58.4%	0.29 [0.12, 0.45]	-
Total (95% CI)			517			498	100.0%	0.28 [0.15, 0.40]	•
Heterogeneity: Tau² = Test for overall effect:				: 0.98);	l² = 0%				-2 -1 0 Favours [control] Favours [iron]

- (1) Psychomotor Development Index (Bayley Scales of Infant Development)
- (2) Psychomotor Development Index (Bayley Scales of Infant Development)
- (3) Gross motor score (Peabody Developmental Motor Scale 2nd Edition)

Comparison 3: Subgroup Analyses for Iron Supplementation vs. Placebo/No Intervention (Efficacy)

Anemia: WHO region

	Iron supplemen	ntation	Contr	ol		Risk Ratio	Risk Ratio
Study or Subgroup	Events				Weight	M-H, Random, 95% CI	M-H, Random, 95% CI
3.1.1 Africa	LYCHIA	rotar	LYCHIA	rotui	Troigitt	m-n, nunuoni, 53/0 Cl	m-n, nandom, 55% of
Berger 2000	46	84	50	79	10.9%	0.87 [0.67, 1.12]	
Massaga 2003	12	74	26	72	6.8%	0.45 [0.25, 0.82]	
Subtotal (95% CI)	12	158	20	151	17.7%	0.66 [0.34, 1.28]	
otal events	58	100	76		*****	0.00 [0.04, 1.20]	
Heterogeneity: Tau² =		df = 1 /P		IZ - 779	ν.		
est for overall effect: I			- 0.04),		70		
3.1.2 Americas							
opez 2005	17	74	32	72	8.0%	0.52 [0.32, 0.84]	
Subtotal (95% CI)		74	- -	72	8.0%	0.52 [0.32, 0.84]	-
otal events	17		32				
leterogeneity: Not ap			- -				
est for overall effect:		08)					
3.1.3 South-east Asi	a						
ijkhuizen 2001	25	90	57	87	9.6%	0.42 [0.29, 0.61]	
ind 2003	34	136	63	143	9.8%	0.57 [0.40, 0.80]	
alupi 1997	17	96	26	98	7.4%	0.67 [0.39, 1.15]	
Intoro 2005	21	58	34	65	9.0%	0.69 [0.46, 1.05]	
Vasantwisut 2006	11	65	40	66	7.1%	0.28 [0.16, 0.50]	
Vieringa 2003	10	49	21	43	6.5%	0.42 [0.22, 0.79]	
Subtotal (95% CI)		494		502	49.3%	0.50 [0.39, 0.64]	•
otal events	118		241				
leterogeneity: Tau² =			= 0.11);	l ² = 459	%		
est for overall effect: 2	Z= 5.40 (P < 0.0)	0001)					
3.1.4 Western Pacifi	ic						
lerger 2006	16	197	59	195	7.7%	0.27 [0.16, 0.45]	
hen 2013	9	98	27	104	5.8%	0.35 [0.18, 0.71]	
.ozoff 2016	108	311	138	305	11.6%	0.77 [0.63, 0.93]	-
Subtotal (95% CI)		606		604	25.1%	0.43 [0.20, 0.95]	
otal events	133		224				
leterogeneity: Tau²=			P = 0.001	01);	89%		
est for overall effect: 2	Z = 2.09 (P = 0.0	4)					
otal (95% CI)		1332		1329	100.0%	0.52 [0.41, 0.65]	•
otal events	326		573				
Heterogeneity: Tau² =	0.11; Chi ² = 40.6	8, df = 11	$(P \le 0.00$	001); l²	= 73%		0.2 0.5 1 2 5
Tarak Kabupaten Managarah T	Z = 5.65 (P < 0.0)	00043					
est for overall effect.	2 - 3.03 (1 - 0.0)	00017					Favours [iron] Favours [control]

Anemia: mean age at baseline

Iron supplementation		ntation	Conti	rol		Risk Ratio	Risk Ratio			
Study or Subgroup	Events	Total	Events	Total	Weight	M-H, Random, 95% CI	M-H, Random, 95% CI			
13.2.1 1-5 months										
Berger 2006	16	197	59	195	8.6%	0.27 [0.16, 0.45]				
Chen 2013	9	98	27	104	6.3%	0.35 [0.18, 0.71]				
Dijkhuizen 2001	25	90	57	87	10.8%	0.42 [0.29, 0.61]				
Lozoff 2016	108	311	138	305	13.4%	0.77 [0.63, 0.93]				
Massaga 2003	12	74	26	72	7.5%	0.45 [0.25, 0.82]				
Wasantwisut 2006	11	65	40	66	7.8%	0.28 [0.16, 0.50]				
Wieringa 2003 Subtotal (95% CI)	10	49 884	21	43 872	7.1% 61.5%	0.42 [0.22, 0.79] 0.41 [0.28, 0.60]	•			
Total events	191		368							
Heterogeneity: Tau ² = 0	.20; Chi ² = 29.5	1, df = 6 (P < 0.00	01); l²=	80%					
Test for overall effect: Z	= 4.55 (P < 0.0)	0001)	•							
13.2.2 6-11 months										
Lind 2003	34	136	63	143	11.2%	0.57 [0.40, 0.80]				
_opez 2005	17	74	32	72	8.9%	0.52 [0.32, 0.84]				
Jntoro 2005 Subtotal (95% CI)	21	58 268	34	65 280	10.1% 30.2%	0.69 [0.46, 1.05] 0.59 [0.47, 0.75]	•			
Total events	72		129							
Heterogeneity: Tau ^z = 0.	.00; Chi ² = 0.91	df = 2 (P)	= 0.63);	l ² = 0%						
Test for overall effect: Z	= 4.41 (P < 0.0)	001)								
13.2.3 24-59 months										
Palupi 1997 Subtotal (95% CI)	17	96 96	26	98 98	8.2% 8.2%	0.67 [0.39, 1.15] 0.67 [0.39, 1.15]				
Total events	17		26							
Heterogeneity: Not appl	icable									
Test for overall effect: Z	= 1.46 (P = 0.1	4)								
Total (95% CI)		1248		1250	100.0%	0.49 [0.38, 0.61]	•			
Total events	280		523							
Heterogeneity: Tau ^z = 0.	.10; Chi² = 30.8	6, df = 10	(P = 0.0)	006); l²	= 68%		0.2 0.5 1 2 5			
est for overall effect: Z	= 6.05 (P < 0.0)	0001)					0.2 0.5 1 2 5 Favours [iron] Favours [control]			
Fest for subaroup differ	ences: Chi² = 3	106 df=3	2/P = 0.2	2) 2=	34.7%		Favours [IIOII] Favours [COIIIIOI]			

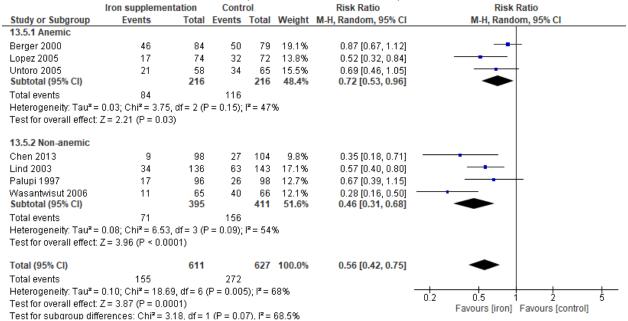
Anemia: intervention duration

	Iron supplemen	tation	Conti	rol		Risk Ratio	Risk Ratio
Study or Subgroup	Events	Total	Events	Total	Weight	M-H, Random, 95% CI	M-H, Random, 95% CI
13.3.1 3-5 months							
Berger 2000	46	84	50	79	10.9%	0.87 [0.67, 1.12]	
Berger 2006	16	197	59	195	7.7%	0.27 [0.16, 0.45]	
Chen 2013	9	98	27	104	5.8%	0.35 [0.18, 0.71]	
Dijkhuizen 2001	25	90	57	87	9.6%	0.42 [0.29, 0.61]	
Lind 2003	34	136	63	143	9.8%	0.57 [0.40, 0.80]	
Lopez 2005	17	74	32	72	8.0%	0.52 [0.32, 0.84]	
Massaga 2003	12	74	26	72	6.8%	0.45 [0.25, 0.82]	
Palupi 1997	17	96	26	98	7.4%	0.67 [0.39, 1.15]	
Untoro 2005	21	58	34	65	9.0%	0.69 [0.46, 1.05]	
Wasantwisut 2006	11	65	40	66	7.1%	0.28 [0.16, 0.50]	
Wieringa 2003	10	49	21	43	6.5%	0.42 [0.22, 0.79]	
Subtotal (95% CI)		1021		1024	88.4%	0.49 [0.38, 0.63]	•
Total events	218		435				
Heterogeneity: Tau² =			P = 0.01	003); l²	= 70%		
Test for overall effect:	Z= 5.58 (P < 0.00	1001)					
13.3.2 6-12 months							
Lozoff 2016	108	311	138	305	11.6%	0.77 [0.63, 0.93]	
Subtotal (95% CI)		311		305	11.6%	0.77 [0.63, 0.93]	•
Total events	108		138				
Heterogeneity: Not ap	plicable						
Test for overall effect:	Z = 2.64 (P = 0.00	18)					
Total (95% CI)		1332		1329	100.0%	0.52 [0.41, 0.65]	•
Total events	326		573				
Heterogeneity: Tau ² =	0.11; Chi ² = 40.68	B, df = 11	(P < 0.0	001); l²	= 73%		
Test for overall effect:		•		,,,			0.2 0.5 1 2 5
Test for subgroup diffe	erences: Chi² = 7.	70, df=1	1 (P = 0.0	06), i ² =	87.0%		Favours [iron] Favours [control]

Anemia: intervention frequency

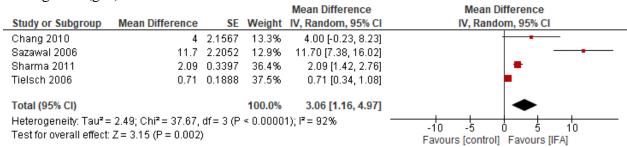
Anemia. mierve	muon meq	uenc y					
	Iron suppleme	ntation	Contr	ol		Risk Ratio	Risk Ratio
Study or Subgroup	Events	Total	Events	Total	Weight	M-H, Random, 95% CI	M-H, Random, 95% CI
13.4.1 Daily							
Berger 2000	46	84	50	79	10.9%	0.87 [0.67, 1.12]	
Berger 2006	16	197	59	195	7.7%	0.27 [0.16, 0.45]	
Chen 2013	9	98	27	104	5.8%	0.35 [0.18, 0.71]	
Dijkhuizen 2001	25	90	57	87	9.6%	0.42 [0.29, 0.61]	
Lind 2003	34	136	63	143	9.8%	0.57 [0.40, 0.80]	
Lopez 2005	17	74	32	72	8.0%	0.52 [0.32, 0.84]	
Lozoff 2016	108	311	138	305	11.6%	0.77 [0.63, 0.93]	
Massaga 2003	12	74	26	72	6.8%	0.45 [0.25, 0.82]	
Untoro 2005	21	58	34	65	9.0%	0.69 [0.46, 1.05]	
Wasantwisut 2006	11	65	40	66	7.1%	0.28 [0.16, 0.50]	
Wieringa 2003	10	49	21	43	6.5%	0.42 [0.22, 0.79]	
Subtotal (95% CI)		1236		1231	92.6%	0.50 [0.39, 0.64]	•
Total events	309		547				
Heterogeneity: Tau² = 0	0.12; Chi ² = 40.7	'3, df = 10	(P < 0.00)	001); l²	= 75%		
Test for overall effect: Z	= 5.46 (P < 0.0	0001)					
13.4.2 Intermittent							
Palupi 1997	17	96	26	98	7.4%	0.67 [0.39, 1.15]	
Subtotal (95% CI)		96		98	7.4%	0.67 [0.39, 1.15]	
Total events	17		26				
Heterogeneity: Not app	licable						
Test for overall effect: Z	= 1.46 (P = 0.1	4)					
Total (95% CI)		1332		1329	100.0%	0.52 [0.41, 0.65]	•
Total events	326		573				
Heterogeneity: Tau ² = 0	0.11; Chi ² = 40.8	i8, df = 11	(P < 0.0)	001); l²	= 73%		
Test for overall effect: Z		•					0.2 0.5 1 2 5
Test for subgroup differ	rences: Chi² = C	l.86, df = 1	I(P = 0.3)	5), l²=	0%		Favours [iron] Favours [control]

Anemia: nutritional status at baseline (anemic vs. non-anemic)



Comparison 4: Iron-folic Acid Supplementation vs. Placebo/No intervention (Efficacy)

Hemoglobin (g/L)

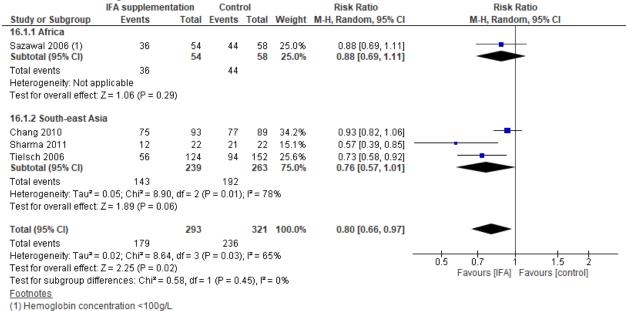


Diarrhea (incidence)

				Rate Ratio		Rate Ratio	
Study or Subgroup	log[Rate Ratio]	SE	Weight	IV, Random, 95% CI		IV, Random, 95% CI	
Chang 2010	-0.0117	0.0386	66.0%	0.99 [0.92, 1.07]		-	
Sazawal 2006	-0.0834	0.1542	4.1%	0.92 [0.68, 1.24]			
Tielsch 2006	-0.0619	0.0574	29.9%	0.94 [0.84, 1.05]		 +	
Total (95% CI)			100.0%	0.97 [0.91, 1.03]		•	
Heterogeneity: Tau² = Test for overall effect:			= 0.72); I	² = 0%	0.5	0.7 1 1.5 2 Favours [IFA] Favours [control]	

Comparison 4: Subgroup Analyses for Iron-folic Acid Supplementation vs. Placebo/No Intervention (Efficacy)

Anemia: WHO region



Anemia: intervention frequency

(1) Hemoglobin concentration <100g/L

	IFA supplement	tation	Conti	rol		Risk Ratio	Risk Ratio
Study or Subgroup	Events	Total	Events	Total	Weight	M-H, Random, 95% CI	M-H, Random, 95% CI
16.2.1 Daily							
Chang 2010	75	93	77	89	25.6%	0.93 [0.82, 1.06]	- ■+
Sazawal 2006 (1)	36	54	44	58	21.9%	0.88 [0.69, 1.11]	+
Sharma 2011	12	22	21	22	16.1%	0.57 [0.39, 0.85]	
Tielsch 2006 Subtotal (95% CI)	56	124 293	94	152 321	22.1% 85.7%	0.73 [0.58, 0.92] 0.80 [0.66, 0.97]	-
Total events Heterogeneity: Tau²=	179 = 0.02: Chi² = 8.64		236 P = 0.03)			5100 [5100] 5101]	
Test for overall effect:	•		, - 0.00,	,1 - 00	, ,0		
16.2.2 Intermittent							
Sharma 2011 Subtotal (95% CI)	12	30 30	29	31 31	14.3% 14.3%	0.43 [0.27, 0.67] 0.43 [0.27, 0.67]	
Total events Heterogeneity: Not ap	12 oplicable		29				
Test for overall effect	•	002)					
Total (95% CI)		323		352	100.0%	0.72 [0.56, 0.92]	•
Total events	191		265				
Heterogeneity: Tau² =	= 0.06; Chi² = 18.6	4, df = 4	(P = 0.00	009); l²	= 79%		0.5 0.7 1 1.5 2
Test for overall effect:	Z = 2.63 (P = 0.0)	09)					Favours [IFA] Favours [control]
Test for subgroup dif	ferences: Chi² = 6	.37, df=	1 (P = 0.	01), l² =	84.3%		r around fir ry T around [control]
<u>Footnotes</u>							

Comparison 5: MMN Supplementation vs. Placebo/No Intervention (Efficacy)

Height (cm)

	MMN su	pplementa	ation	C	ontrol			Mean Difference		Mea	n Differen	ce	
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% CI		IV, Ra	ndom, 95	% CI	
Lopez 2005	88.6	10.3	409	88.1	11	407	5.7%	0.50 [-0.96, 1.96]		_	-		
Rivera 2001	10.7565	2.4157	161	10.3272	2.2166	158	47.0%	0.43 [-0.08, 0.94]			+		
Smuts 2005	76.7	3.5	49	76.6	3.3	50	6.8%	0.10 [-1.24, 1.44]		_	+	_	
Thu 1999	5.4	1.3	55	5.1	1.6	54	40.5%	0.30 [-0.25, 0.85]			+		
Total (95% CI)			674			669	100.0%	0.36 [0.01, 0.71]			•		
Heterogeneity: Tau²: Test for overall effect		•	= 3 (P = 0	0.96); I² = 0	1%				-4	-2 Favours [cont	0 rol] Favo	2 urs [MMN]	4

Weight (kg)

C \ C/	MMN su	ipplement	0	Control			Mean Difference	Mean Difference	
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% CI	IV, Random, 95% CI
Lopez 2005	13.6	3.1	409	13.5	3.2	407	12.1%	0.10 [-0.33, 0.53]	- •
Rivera 2001	2.0313	0.8017	161	2.1354	0.8066	158	72.9%	-0.10 [-0.28, 0.07]	■ +
Smuts 2005	10.6	1.5	49	10.6	1.3	50	7.4%	0.00 [-0.55, 0.55]	
Thu 1999	5.4	1.3	55	5.1	1.6	54	7.6%	0.30 [-0.25, 0.85]	
Total (95% CI)			674			669	100.0%	-0.04 [-0.19, 0.11]	•
Heterogeneity: Tau² = Test for overall effect:			= 3 (P = I	0.49); l²=	: 0%			-	-1 -0.5 0 0.5 1 Favours [control] Favours [MMN]

Length-for-age (z-score)

	MMN supplementation			C	ontrol			Mean Difference	Mean Difference
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% CI	IV, Random, 95% CI
Adu-Afarwuah 2007	-0.44	1	101	-0.4	1	81	6.2%	-0.04 [-0.33, 0.25]	
Baqui 2003	-1.7	0.8	35	-1.7	1	45	3.9%	0.00 [-0.39, 0.39]	
Fahmida 2007	-1.48	0.94	194	-1.47	0.94	192	11.1%	-0.01 [-0.20, 0.18]	
Le 2005	-0.32	0.4359	76	-0.49	0.4272	73	14.9%	0.17 [0.03, 0.31]	
Lopez 2005	-0.18	0.5	63	-0.09	0.5	72	12.4%	-0.09 [-0.26, 0.08]	
McDonald 2015	-0.79	1.2093	585	-0.93	1.2083	584	14.9%	0.14 [0.00, 0.28]	
Rivera 2001	0.023	0.6338	161	-0.2504	0.7155	158	14.0%	0.27 [0.12, 0.42]	_
Smuts 2005	-0.3	0.65	49	-0.3	0.65	50	7.5%	0.00 [-0.26, 0.26]	 -
Thu 1999	-0.12	0.63	55	-0.15	0.53	54	9.3%	0.03 [-0.19, 0.25]	
Untoro 2005	-1.51	0.85	67	-1.77	0.96	65	5.7%	0.26 [-0.05, 0.57]	
Total (95% CI)			1386			1374	100.0%	0.09 [0.00, 0.17]	•
Heterogeneity: Tau² = Test for overall effect:			f=9(P=	0.07); 2=	: 43%				-1 -0.5 0 0.5 1 Favours [control] Favours [MMN]

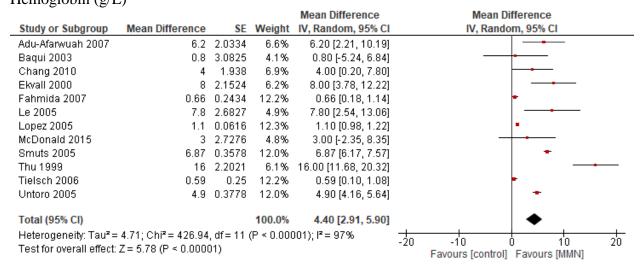
Weight-for-age (z-score)

	MMN su	ipplement	ation	C	ontrol			Mean Difference	Mean Difference
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% CI	IV, Random, 95% CI
Adu-Afarwuah 2007	-0.88	1.1	101	-0.74	1.1	81	3.5%	-0.14 [-0.46, 0.18]	
Baqui 2003	-2.1	1	35	-2	1.2	45	1.6%	-0.10 [-0.58, 0.38]	
Fahmida 2007	-1.86	0.85	194	-1.86	0.93	192	11.4%	0.00 [-0.18, 0.18]	
Le 2005	-0.58	0.4359	76	-0.66	0.4272	73	18.4%	0.08 [-0.06, 0.22]	+•
Lopez 2005	-0.35	0.6	63	-0.33	0.6	72	8.8%	-0.02 [-0.22, 0.18]	
McDonald 2015	-0.36	0.9675	585	-0.5	0.9666	584	28.1%	0.14 [0.03, 0.25]	
Rivera 2001	-0.1226	0.658	161	-0.0684	0.7247	158	15.4%	-0.05 [-0.21, 0.10]	
3muts 2005	-0.25	0.84	49	-0.5	0.91	50	3.1%	0.25 [-0.09, 0.59]	 -
Γhu 1999	0.06	0.74	55	-0.04	0.54	54	6.2%	0.10 [-0.14, 0.34]	- •
Untoro 2005	-1.34	0.95	67	-1.54	0.93	65	3.6%	0.20 [-0.12, 0.52]	
Total (95% CI)			1386			1374	100.0%	0.06 [-0.00, 0.12]	•
Heterogeneity: Tau ^z =	0.00; Chi²	= 9.19, df=	= 9 (P = 0	0.42); 2=	2%			-	
Test for overall effect:	Z = 1.89 (F	r = 0.06)	•					-	1 -0.5 0 0.5 Favours [control] Favours [MMN]

Weight-for-height (z-score)

_	MMN su	ipplement	C	ontrol			Mean Difference	Mean Difference	
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% CI	IV, Random, 95% CI
Adu-Afarwuah 2007	-0.89	1.1	101	-0.74	1.1	81	5.2%	-0.15 [-0.47, 0.17]	
Baqui 2003	-0.8	0.8	35	-0.7	0.9	45	3.9%	-0.10 [-0.47, 0.27]	
Fahmida 2007	-0.98	0.93	194	-1	0.93	192	15.8%	0.02 [-0.17, 0.21]	
Le 2005	-0.66	0.5231	76	-0.63	0.5126	73	19.6%	-0.03 [-0.20, 0.14]	
Lopez 2005	-0.45	0.8	63	-0.53	0.8	72	7.4%	0.08 [-0.19, 0.35]	
McDonald 2015	-0.31	1.6931	585	-0.35	1.6916	584	14.4%	0.04 [-0.15, 0.23]	
Rivera 2001	-0.4152	0.7294	161	-0.2392	0.8015	158	19.2%	-0.18 [-0.34, -0.01]	
Smuts 2005	-0.23	1.16	49	-0.55	1.05	50	2.9%	0.32 [-0.12, 0.76]	
Thu 1999	0.09	0.9	55	-0.01	0.72	54	5.8%	0.10 [-0.21, 0.41]	- •
Untoro 2005	-0.51	0.96	67	-0.57	0.83	65	5.8%	0.06 [-0.25, 0.37]	-
Total (95% CI)			1386			1374	100.0%	-0.02 [-0.09, 0.06]	•
Heterogeneity: Tau² = Test for overall effect:			= 9 (P = 0		-1 -0.5 0 0.5 1				
restror overall ellect.	2 - 0.40 (1	- 0.03)							Favours [control] Favours [MMN]

Hemoglobin (g/L)



Plasma/serum ferritin (µg/L)

	MMN supplementation				Control			Mean Difference	Mean Difference
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% CI	IV, Random, 95% CI
Baqui 2003	18.9	18.2	32	14.6	14.3	37	23.9%	4.30 [-3.51, 12.11]	-
Fahmida 2007	-15.9	56.24	37	-26.53	32.71	29	10.3%	10.63 [-11.05, 32.31]	 •
Lopez 2005	39.66	54.51	63	10.33	7.35	72	17.1%	29.33 [15.76, 42.90]	_ -
McDonald 2015	51.3	43.7094	144	47.8	43.5332	151	21.3%	3.50 [-6.46, 13.46]	-
Smuts 2005	35.69	28.38	44	22.07	20.2	35	20.3%	13.62 [2.89, 24.35]	
Untoro 2005	-30.7	87.95	62	-57.38	69.88	60	7.1%	26.68 [-1.46, 54.82]	-
Total (95% CI)			382			384	100.0%	12.55 [3.93, 21.17]	•
Heterogeneity: Tau ^z = Test for overall effect:			df = 5 (P	= 0.02);	l² = 62%				-100 -50 0 50 100 Favours [control] Favours [MMN]

Plasma/serum retinol (µmol/L)

	MMN supple			(Control			Mean Difference	Mean Difference
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% CI	IV, Random, 95% CI
Fahmida 2007	0.11	0.35	42	0.05	0.22	37	7.4%	0.06 [-0.07, 0.19]	
Le 2005	0.33	0.4993	45	0.15	0.3947	44	4.1%	0.18 [-0.01, 0.37]	
Lopez 2005	0.07	0.1	63	-0.03	0.06	72	22.9%	0.10 [0.07, 0.13]	-
Smuts 2005	0.06	0.04	44	-0.02	0.05	35	24.2%	0.08 [0.06, 0.10]	+
Thu 1999	0.25	0.18	53	-0.01	0.13	53	16.7%	0.26 [0.20, 0.32]	
Untoro 2005	0.16	0.06	61	0.09	0.02	57	24.7%	0.07 [0.05, 0.09]	•
Total (95% CI)			308			298	100.0%	0.11 [0.07, 0.16]	•
Heterogeneity: Tau² = Test for overall effect:				-0	.5 -0.25 0 0.25 0.5 Favours [control] Favours [MMN]				

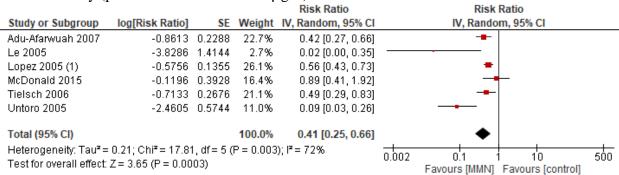
Plasma/serum zinc (µmol/L)

	MMN su	pplementa	C	Control			Mean Difference		Mean Difference		
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% CI		IV, Random, 95% CI	
Baqui 2003	11.17	1.68	32	10.55	1.22	38	16.2%	0.62 [-0.08, 1.32]		-	
Chang 2010	0.1	1	91	0.05	1.1	89	18.5%	0.05 [-0.26, 0.36]		+	
Fahmida 2007	1.53	2.39	35	-0.13	2.63	34	12.6%	1.66 [0.47, 2.85]			
Lopez 2005	0.6	1.1	63	0.5	0.7	72	18.5%	0.10 [-0.22, 0.42]		<u>†</u>	
Smuts 2005	1.04	0.33	44	-0.31	0.43	35	18.9%	1.35 [1.18, 1.52]		•	
Thu 1999	3.42	3.69	53	-0.09	3.29	53	11.6%	3.51 [2.18, 4.84]		_ -	
Untoro 2005	-6.28	11.38	62	-5.03	6.78	60	3.8%	-1.25 [-4.56, 2.06]			
Total (95% CI)			380			381	100.0%	0.95 [0.23, 1.67]		•	
Heterogeneity: Tau² =			f=6 (P <	< 0.0000	01); l² =	94%			-10	-5 0 5 10	
Test for overall effect:	Z = 2.59 (P	= 0.010)								Favours [control] Favours [MMN]	

Plasma/serum TfR (log) (mg/L)

	MMN supplementation Control					Mean Difference Mean Difference			
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% CI	IV, Random, 95% CI
Adu-Afarwuah 2007	2.04	0.4297	90	2.36	0.4551	82	25.1%	-0.32 [-0.45, -0.19]	
Chang 2010	1.54	0.43	91	1.67	0.49	89	24.8%	-0.13 [-0.26, 0.00]	
McDonald 2015	1.8	1.2141	144	1.8	0.6219	151	14.4%	0.00 [-0.22, 0.22]	
Untoro 2005	2.17	0.1614	65	2.4	0.2421	65	35.8%	-0.23 [-0.30, -0.16]	
Total (95% CI)			390			387	100.0%	-0.19 [-0.30, -0.09]	•
Heterogeneity: Tau² = 1 Test for overall effect: 2			0.05); l²:	= 61%				-0.5 -0.25 0 0.25 0.5 Favours [control] Favours [MMN]	

Iron deficiency (plasma/serum ferritin <12µg/L)



<u>Footnotes</u>

(1) Plasma ferritin <20 ug/L

Vitamin A deficiency (plasma/serum retinol <0.7µmol/L)

	MMN supplemen	ntation	Cont	rol		Risk Ratio		Risk Ratio	
Study or Subgroup	Events	Total	Events	Total	Weight	M-H, Random, 95% CI		M-H, Random, 95% CI	
Le 2005	2	45	3	44	18.5%	0.65 [0.11, 3.71]			
Lopez 2005	6	63	4	72	37.7%	1.71 [0.51, 5.80]			
Untoro 2005	5	61	6	57	43.8%	0.78 [0.25, 2.41]		-	
Total (95% CI)		169		173	100.0%	1.01 [0.48, 2.14]		•	
Total events	13		13						
Heterogeneity: Tau ² =	= 0.00; Chi ² = 1.17,	df = 2 (P	= 0.56); f	= 0%			0.01	01 1 10	100
Test for overall effect	Z = 0.04 (P = 0.97))					0.01	Favours [MMN] Favours [control]	100

Zinc deficiency (plasma zinc $<10.7\mu mol/L$)

_	MMN supplemen	Contr	rol		Risk Ratio	Risk Ratio	
Study or Subgroup	Events	Total	Events	Total	Weight	M-H, Random, 95% CI	M-H, Random, 95% CI
Adu-Afarwuah 2007 (1)	41	62	47	69	39.8%	0.97 [0.76, 1.23]	+
Le 2005	8	44	13	42	24.0%	0.59 [0.27, 1.27]	
Lopez 2005	13	63	24	72	29.6%	0.62 [0.35, 1.11]	
Untoro 2005	1	62	9	60	6.6%	0.11 [0.01, 0.82]	
Total (95% CI)		231		243	100.0%	0.65 [0.37, 1.15]	•
Total events	63		93				
Heterogeneity: Tau² = 0.2	!0; Chi² = 9.15, df =		0.005 0.1 1 10 200				
Test for overall effect: Z=	1.48 (P = 0.14)	Favours [MMN] Favours [control]					

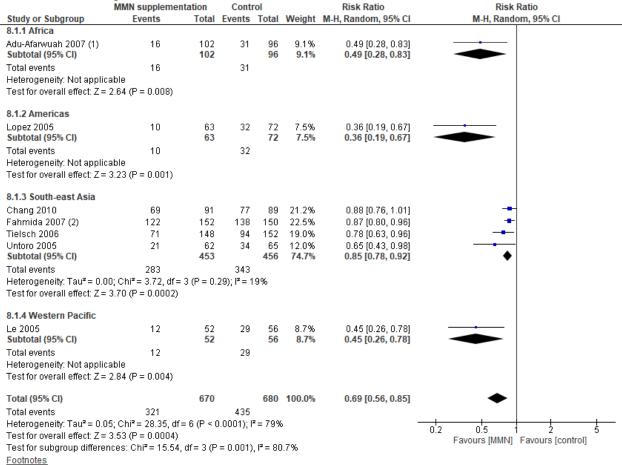
Footnotes (1) plasma zinc <9.9umol/L

Diarrhea (incidence)

				Rate Ratio	Rate Ratio
Study or Subgroup	log[Rate Ratio]	SE	Weight	IV, Random, 95% CI	IV, Random, 95% CI
Baqui 2003	0.1398	0.0612	25.4%	1.15 [1.02, 1.30]	
Chang 2010	-0.1382	0.0961	18.1%	0.87 [0.72, 1.05]	
McDonald 2015	-0.0513	0.0877	19.7%	0.95 [0.80, 1.13]	
Sazawal 2006	-0.0408	0.1468	11.0%	0.96 [0.72, 1.28]	
Tielsch 2006	-0.0943	0.0594	25.8%	0.91 [0.81, 1.02]	
Total (95% CI)			100.0%	0.97 [0.87, 1.09]	-
Heterogeneity: Tau² =	: 0.01; Chi² = 10.00	0.7 0.85 1 1.2 1.5			
Test for overall effect:	Z = 0.48 (P = 0.63))			0.7 0.85 1 1.2 1.5 Favours [MMN] Favours [control]

Comparison 5: Subgroup Analyses for MMN Supplementation vs. Placebo/No Intervention (Efficacy)

Anemia: WHO region



⁽¹⁾ Hemoglobin concentration <100g/L

⁽²⁾ Hemoglobin concentration <100g/L

Anemia: mean age at baseline

	MMN supplementa	ation	Contr	rol		Risk Ratio	Risk Ratio
Study or Subgroup	Events	Total	Events	Total	Weight	M-H, Random, 95% CI	M-H, Random, 95% CI
8.2.1 1-5 months of age							
Fahmida 2007 (1)	122	152	138	150	22.5%	0.87 [0.80, 0.96]	*
Subtotal (95% CI)		152		150	22.5%	0.87 [0.80, 0.96]	♦
Total events	122		138				
Heterogeneity: Not applica	able						
Test for overall effect: Z=	2.91 (P = 0.004)						
8.2.2 6-11 months of age							
Adu-Afarwuah 2007 (2)	16	102	31	96	9.1%	0.49 [0.28, 0.83]	
Chang 2010	69	91	77	89	21.2%	0.88 [0.76, 1.01]	
Le 2005	12	52	29	56	8.7%	0.45 [0.26, 0.78]	
Lopez 2005	10	63	32	72	7.5%	0.36 [0.19, 0.67]	
Tielsch 2006	71	148	94	152	19.0%	0.78 [0.63, 0.96]	-
Untoro 2005	21	62	34	65	12.0%	0.65 [0.43, 0.98]	
Subtotal (95% CI)		518		530	77.5%	0.62 [0.47, 0.82]	•
Total events	199		297				
Heterogeneity: Tau ² = 0.03	8; Chi² = 21.35, df =	5(P = 0)	0.0007); P	² = 77%	5		
Test for overall effect: Z=	3.31 (P = 0.0009)						
Total (95% CI)		670		680	100.0%	0.69 [0.56, 0.85]	•
Total events	321		435				
Heterogeneity: Tau ^z = 0.0:	5; Chi² = 28.35, df =	6 (P < 0	0.0001); F	= 79%	5	-	0.2 0.5 1 2 5
Test for overall effect: Z =	3.53 (P = 0.0004)	•					
Test for subgroup differer		= 1 (P =	= 0.03), l ²	= 80.1	%		Favours [MMN] Favours [control]
Footpotoo	•	,					

- Footnotes
 (1) Hemoglobin concentration <100g/L
 (2) Hemoglobin concentration <100g/L

Anemia: intervention duration

	MMN supplemen	Contr	rol		Risk Ratio		Risk Ratio		
Study or Subgroup	Events	Total	Events	Total	Weight	M-H, Random, 95% CI		M-H, Random, 95% CI	
8.3.1 3-5 months									
Untoro 2005	21	62	34	65	15.7%	0.65 [0.43, 0.98]		•	
Subtotal (95% CI)		62		65	15.7%	0.65 [0.43, 0.98]		•	
Total events	21		34						
Heterogeneity: Not applic	cable								
Test for overall effect: Z=	2.04 (P = 0.04)								
8.3.2 6-12 months									
Adu-Afarwuah 2007 (1)	16	102	31	96	12.6%	0.49 [0.28, 0.83]			
Chang 2010	69	91	77	89	24.0%	0.88 [0.76, 1.01]			
Fahmida 2007 (2)	122	152	138	150	25.0%	0.87 [0.80, 0.96]		-	
Le 2005	12	52	29	56	12.1%	0.45 [0.26, 0.78]			
Lopez 2005	10	63	32	72	10.6%	0.36 [0.19, 0.67]			
Subtotal (95% CI)		460		463	84.3%	0.65 [0.48, 0.87]		•	
Total events	229		307						
Heterogeneity: Tau² = 0.0	07; Chi ^z = 27.63, df:	= 4 (P < 0	0.0001); F	= 86%	6				
Test for overall effect: Z=	2.91 (P = 0.004)								
Total (95% CI)		522		528	100.0%	0.65 [0.50, 0.85]		•	
Total events	250		341						
Heterogeneity: Tau² = 0.0	= 5 (P < 0	0.0001); F	² = 83%	6		0.05	0.2 1 5	20	
Test for overall effect: Z=					0.05	Favours [MMN] Favours [control			
Test for subgroup differe	nces: Chi² = 0.00, c	lf=1 (P=	= 1.00), l ²	= 0%				Tavours [mmily] Tavours [control	1

Footnotes

- (1) Hemoglobin concentration <100g/L (2) Hemoglobin concentration <100g/L

Anemia: intervention frequency

	MMN supplemen	ntation	Cont	rol		Risk Ratio	Risk Ratio
Study or Subgroup	Events	Total	Events	Total	Weight	M-H, Random, 95% CI	M-H, Random, 95% CI
8.4.1 Daily							
Adu-Afarwuah 2007 (1)	16	102	31	96	7.9%	0.49 [0.28, 0.83]	
Fahmida 2007 (2)	122	152	138	150	20.7%	0.87 [0.80, 0.96]	-
Le 2005	12	52	29	56	7.5%	0.45 [0.26, 0.78]	
Lopez 2005	10	63	32	72	6.4%	0.36 [0.19, 0.67]	
Tielsch 2006	71	148	94	152	17.2%	0.78 [0.63, 0.96]	-
Untoro 2005	21	62	34	65	10.5%	0.65 [0.43, 0.98]	
Subtotal (95% CI)		579		591	70.2%	0.62 [0.46, 0.83]	•
Total events	252		358				
Heterogeneity: Tau ² = 0.1	10; Chi² = 28.51, df	= 5 (P < 0	0.0001); I	z = 82%	6		
Test for overall effect: Z=	3.16 (P = 0.002)						
8.4.2 Intermittent							
Chang 2010	69	91	77	89	19.3%	0.88 [0.76, 1.01]	-
Le 2005	21	55	29	56	10.5%	0.74 [0.48, 1.12]	
Subtotal (95% CI)		146		145	29.8%	0.86 [0.75, 0.99]	◆
Total events	90		106				
Heterogeneity: Tau ² = 0.0	00; Chi² = 0.73, df =	1 (P = 0.	39); $I^2 = 0$	0%			
Test for overall effect: Z=	2.18 (P = 0.03)						
Total (95% CI)		725		736	100.0%	0.70 [0.58, 0.84]	•
Total events	342		464				
Heterogeneity: Tau ² = 0.0	04; Chi ^z = 28.44, df	= 7 (P = 0)	0.0002); (² = 75%	6		0.1 0.2 0.5 1 2 5 10
Test for overall effect: Z=	3.73 (P = 0.0002)	•					
Test for subgroup differe		df = 1 (P =	= 0.05), l ²	= 74.8	%		Favours [MMN] Favours [control]
Enotrotes	·	`					

Footnotes
(1) Hemoglobin concentration <100g/L
(2) Hemoglobin concentration <100g/L

Comparison 6: Micronutrient powders vs. Placebo/No Intervention (Efficacy)

Stunting

	MNF)	Conti	rol		Risk Ratio	Risk Ratio
Study or Subgroup	Events	Total	Events	Total	Weight	M-H, Random, 95% CI	M-H, Random, 95% CI
Barffour 2019	337	701	317	740	25.6%	1.12 [1.00, 1.26]	-
Dewey 2017	378	877	336	800	26.0%	1.03 [0.92, 1.15]	-
Jack 2012	26	145	27	143	2.9%	0.95 [0.58, 1.54]	-
Kemmer 2012	53	114	50	85	8.4%	0.79 [0.61, 1.03]	
Osei 2015	27	50	24	50	4.4%	1.13 [0.77, 1.65]	- •
Soofi 2013	254	458	264	473	25.3%	0.99 [0.89, 1.11]	-
Vijay 2014	72	119	33	71	7.3%	1.30 [0.98, 1.74]	
Total (95% CI)		2464		2362	100.0%	1.04 [0.95, 1.13]	*
Total events	1147		1051				
Heterogeneity: Tau² =	0.00; Ch	i² = 9.13	3, df = 6 (P = 0.1	7); $I^2 = 34$	·% -	0.5 0.7 1 1.5 2
Test for overall effect:	Z = 0.87	(P = 0.3)	18)				Favours [MNP] Favours [control]

Underweight

Chack working								
_	MNF	MNP Control				Risk Ratio		Risk Ratio
Study or Subgroup	Events	Total	Events	Total	Weight	M-H, Random, 95% CI		M-H, Random, 95% CI
Barffour 2019	197	701	203	740	18.8%	1.02 [0.87, 1.21]		+
Dewey 2017	367	877	344	800	41.8%	0.97 [0.87, 1.09]		+
Jack 2012	24	145	23	143	1.9%	1.03 [0.61, 1.74]		
Kemmer 2012	17	114	8	85	0.8%	1.58 [0.72, 3.50]		- ·
Osei 2015	16	50	17	51	1.7%	0.96 [0.55, 1.68]		
Soofi 2013	230	490	216	502	27.4%	1.09 [0.95, 1.25]		 -
Vijay 2014	65	119	40	71	7.6%	0.97 [0.75, 1.26]		
Total (95% CI)		2496		2392	100.0%	1.02 [0.95, 1.09]		•
Total events	916		851					
Heterogeneity: Tau ² =				P = 0.8	1); l² = 09	6	0.2	0.5 1 2 5
Test for overall effect:	∠= 0.50	(P = 0.6	12)					Favours [MNP] Favours [control]

Wasting

_	MNF	MNP Control				Risk Ratio		Risk Ratio	
Study or Subgroup	Events	Total	Events	Total	Weight	M-H, Random, 95% CI		M-H, Random, 95% CI	
Barffour 2019	39	701	35	740	5.4%	1.18 [0.75, 1.83]			
Dewey 2017	340	877	303	800	72.3%	1.02 [0.91, 1.16]			
Jack 2012	10	145	11	143	1.6%	0.90 [0.39, 2.05]			
Kemmer 2012	0	114	1	85	0.1%	0.25 [0.01, 6.04]			
Osei 2015	3	50	6	50	0.6%	0.50 [0.13, 1.89]			
Soofi 2013	80	458	77	473	13.1%	1.07 [0.81, 1.43]		+	
Vijay 2014	44	119	25	71	6.9%	1.05 [0.71, 1.56]		+	
Total (95% CI)		2464		2362	100.0%	1.03 [0.93, 1.14]		•	
Total events	516		458						
Heterogeneity: Tau² =			6	0.01	0.1 1 10 100				
Test for overall effect:	Z = 0.59	(P = 0.5)	i6)				0.01	Favours [MNP] Favours [control]	

Weight (kg)

2 , 2 ,		MNP		(Control			Mean Difference	Mean Difference
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% CI	IV, Random, 95% CI
Attanasio 2014	14.19	1.8	199	14.04	1.9	205	5.4%	0.15 [-0.21, 0.51]	
Barffour 2019	9.58	1.32	701	9.63	1.32	740	37.6%	-0.05 [-0.19, 0.09]	-
Esamai 2014	8.17	1.0119	10	8.37	1.08	9	0.8%	-0.20 [-1.14, 0.74]	
Ogunlade 2011	0.22	0.4368	63	0.34	0.4544	68	30.0%	-0.12 [-0.27, 0.03]	-=
Somasse 2018	0.76	0.75	221	0.74	0.94	183	24.7%	0.02 [-0.15, 0.19]	+
Vijay 2014	9.9869	2.7761	119	9.8402	1.8138	71	1.6%	0.15 [-0.51, 0.80]	-
Total (95% CI)			1313			1276	100.0%	-0.04 [-0.12, 0.04]	•
Heterogeneity: Tau ² = Test for overall effect:	•	-2 -1 0 1 2 Favours [control] Favours [MNP]							

Height (cm)

		MNP		C	ontrol			Mean Difference	Mean Difference
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% CI	IV, Random, 95% CI
Attanasio 2014	93.24	4.37	199	92.79	4.2	205	13.7%	0.45 [-0.39, 1.29]	
Barffour 2019	79.2	4.8	701	79.3	4.9	740	23.1%	-0.10 [-0.60, 0.40]	†
Esamai 2014	67.9	3.7947	10	69.5	6	9	0.7%	-1.60 [-6.17, 2.97]	
Ogunlade 2011	1.6	0.5162	63	1.65	0.5784	68	34.5%	-0.05 [-0.24, 0.14]	•
Somasse 2018	2.83	1.85	221	2.1	2.59	183	25.1%	0.73 [0.28, 1.18]	-
Vijay 2014	82.9706	7.3037	119	82.2764	7.5138	71	2.9%	0.69 [-1.49, 2.88]	
Total (95% CI)			1313			1276	100.0%	0.21 [-0.18, 0.60]	•
Heterogeneity: Tau² : Test for overall effect			_	-10 -5 0 5 10 Favours [control] Favours [MNP]					

Length-for-age (z-score)

Length for age		<i>(</i> 010)							
		MNP		(Control			Mean Difference	Mean Difference
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% CI	IV, Random, 95% CI
Aboud 2011	-1.89	1.1	85	-1.99	1.1	73	1.0%	0.10 [-0.24, 0.44]	+
Adu-Afarwuah 2007	-0.4	1	96	-0.4	1	81	1.3%	0.00 [-0.30, 0.30]	+
Barffour 2019	-1.94	1	701	-1.93	1	740	11.0%	-0.01 [-0.11, 0.09]	+
Cardoso 2016	-0.02	2.7942	462	-0.27	2.7391	521	1.0%	0.25 [-0.10, 0.60]	
Dewey 2017	-1.85	0.95	877	-1.8	0.94	800	14.4%	-0.05 [-0.14, 0.04]	+
Esamai 2014	-1.16	1.2333	10	-0.21	2.49	9	0.0%	-0.95 [-2.75, 0.85]	
Ghosh 2019	-1.177	0.383	163	-1.233	0.3771	158	17.0%	0.06 [-0.03, 0.14]	<u>†</u>
Giovannini 2006	-1.56	0.7668	65	-1.48	0.7482	62	1.7%	-0.08 [-0.34, 0.18]	+
Kounnavong 2011	-1	1.49	110	-0.89	1.56	110	0.7%	-0.11 [-0.51, 0.29]	-+
Larson 2018	-1.36	1.2	1009	-1.38	1.2	1015	10.8%	0.02 [-0.08, 0.12]	†
Ogunlade 2011	0.08	0.1588	63	0.11	0.1653	68	38.2%	-0.03 [-0.09, 0.03]	•
Osei 2015	-2.03	1.194	50	-2.01	1	50	0.6%	-0.02 [-0.45, 0.41]	
Sazawal 2014	-0.22	0.46	29	-0.21	0.47	31	2.1%	-0.01 [-0.25, 0.23]	+
Total (95% CI)			3720			3718	100.0%	-0.01 [-0.04, 0.03]	
Heterogeneity: Tau² =	0.00; Ch	i² = 8.08,	df = 12	P = 0.7	'8); I ² = 0°	%			
Test for overall effect:	Z = 0.43	(P = 0.67))						Favours [control] Favours [MNP]
									r avours [control] T avours [mivi]

Weight-for-age (z-score)

		MNP Control					Mean Difference	Mean Difference	
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% CI	I IV, Random, 95% CI
Aboud 2011	-1.87	1	85	-2.03	1	73	1.9%	0.16 [-0.15, 0.47]	1 +
Adu-Afarwuah 2007	-0.53	1.1	96	-0.74	1.1	81	1.8%	0.21 [-0.12, 0.54]	1 +
Barffour 2019	-1.51	0.93	701	-1.52	0.9	740	16.9%	0.01 [-0.08, 0.10]	1 +
Dewey 2017	-1.77	0.94	877	-1.75	0.93	800	18.4%	-0.02 [-0.11, 0.07]	1 +
Esamai 2014	-0.36	1.0119	10	-0.38	1.23	9	0.2%	0.02 [-1.00, 1.04]	
Ghosh 2019	-0.899	0.3192	163	-0.994	0.5154	158	17.0%	0.09 [0.00, 0.19]] -
Giovannini 2006	-1.25	0.6457	65	-1.08	0.6694	62	3.5%	-0.17 [-0.40, 0.06]]
Kounnavong 2011	-1.23	0.93	110	-1.27	1.08	110	2.6%	0.04 [-0.23, 0.31]] —
Larson 2018	-1.32	1.1	1009	-1.4	1.1	1015	16.5%	0.08 [-0.02, 0.18]] -
Ogunlade 2011	-0.14	0.26	63	-0.09	0.26	68	18.5%	-0.05 [-0.14, 0.04]] -
Osei 2015	-1.6	0.995	50	-1.57	0.9045	51	1.4%	-0.03 [-0.40, 0.34]] ——
Sazawal 2014	0.65	0.79	29	0.52	0.67	31	1.4%	0.13 [-0.24, 0.50]	1 -
Total (95% CI)			3258			3198	100.0%	0.02 [-0.02, 0.07]	ı •
Heterogeneity: Tau² =	•		-5 -1 1 5						
Test for overall effect:	Z = 0.96	(P = 0.34))						Favours [control] Favours [MNP]

Weight-for-height (z-score)

$\boldsymbol{\mathcal{C}}$	<i>-</i>		,								
		MNP		(Control			Mean Difference		Mean Difference	
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% CI		IV, Random, 95% CI	
Adu-Afarwuah 2007	-0.45	1.1	96	-0.74	1.1	81	2.1%	0.29 [-0.04, 0.62]		 	
Barffour 2019	-0.72	0.85	701	-0.74	0.82	740	26.1%	0.02 [-0.07, 0.11]		+	
Dewey 2017	-1.11	0.89	877	-1.11	0.89	800	26.7%	0.00 [-0.09, 0.09]		+	
Ghosh 2019	-0.434	0.3192	163	-0.532	0.817	158	11.4%	0.10 [-0.04, 0.23]		 -	
Giovannini 2006	-0.46	0.8071	65	-0.26	0.8269	62	2.8%	-0.20 [-0.48, 0.08]			
Kounnavong 2011	-1.09	1.08	110	-1.15	1.04	110	2.8%	0.06 [-0.22, 0.34]			
Larson 2018	-0.83	1	1009	-0.91	1	1015	25.7%	0.08 [-0.01, 0.17]		 -	
Osei 2015	-0.73	0.995	50	-0.71	1.1	50	1.3%	-0.02 [-0.43, 0.39]			
Sazawal 2014	0.91	0.99	29	0.66	0.81	31	1.1%	0.25 [-0.21, 0.71]		 	
Total (95% CI)			3100			3047	100.0%	0.04 [-0.01, 0.09]		,	
Heterogeneity: Tau²				(P = 0.39)	3); I² = 5%)			+	-1 1	
Test for overall effect	:: Z = 1.72	(P = 0.09)	1)						_	Favours [control] Favours [MNP]	_

Hemoglobin (g/L)

		MNP		0	Control			Mean Difference	Mean Difference
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% CI	IV, Random, 95% CI
Adu-Afarwuah 2007	110.1	14.3	98	105.8	14.3	96	1.9%	4.30 [0.28, 8.32]	
Arcanjo 2019	119	9	41	122	9.2	39	2.0%	-3.00 [-6.99, 0.99]	
Attanasio 2014	120.45	11.87	204	120.94	12.07	207	4.4%	-0.49 [-2.80, 1.82]	-
Barffour 2019	111.6	0.4	689	110.6	0.4	726	11.3%	1.00 [0.96, 1.04]	•
Begin 2008 (1)	-0.06	1	37	-0.26	0.88	39	10.7%	0.20 [-0.22, 0.62]	†
Cardoso 2016	120.8	32.2413	462	117.6	34.2381	521	1.8%	3.20 [-0.96, 7.36]	
Chen 2008 (2)	9.93	9.26	94	10.3	7.67	61	3.6%	-0.37 [-3.05, 2.31]	
Dewey 2017	115.2	9.6652	252	112.4	13.4033	229	4.9%	2.80 [0.69, 4.91]	
Esamai 2014	120	12.65	10	128	14.14	8	0.2%	-8.00 [-20.55, 4.55]	
Ghosh 2019	107.012	33.6797	163	108.664	10.2193	158	1.2%	-1.65 [-7.06, 3.76]	
Giovannini 2006	107.6	11	65	99.7	10.3	60	2.2%	7.90 [4.17, 11.63]	
Jack 2012	105.8	8.8	127	100	10	139	4.5%	5.80 [3.54, 8.06]	
Larson 2018	104	14	1009	104	14	1015	7.8%	0.00 [-1.22, 1.22]	+
Lundeen 2010	7	13.5	243	-1.7	12.7	237	4.3%	8.70 [6.36, 11.04]	
Macharia-Mutie 2012	117	9	93	115	11	93	3.2%	2.00 [-0.89, 4.89]	+
Menon 2007 (3)	104.4	10.1509	72	100.5	17.5311	113	2.0%	3.90 [-0.09, 7.89]	
Ogunlade 2011	3.8	9.53	63	5.7	9.089	68	2.8%	-1.90 [-5.09, 1.29]	+
Osei 2015	18.4	16.9148	50	17.9	19	50	0.7%	0.50 [-6.55, 7.55]	
Rim 2008 (4)	118	11.7	107	110	11.1	104	3.0%	8.00 [4.92, 11.08]	
Sazawal 2014	3.7	11	36	2.3	13	28	1.0%	1.40 [-4.61, 7.41]	
Sharieff 2006	128	10	109	128	9	108	3.9%	0.00 [-2.53, 2.53]	+
Somasse 2018	0.5	1.22	158	0.09	1.21	152	11.0%	0.41 [0.14, 0.68]	<u> </u>
Soofi 2013	101	14.7018	161	92	22.1057	162	1.9%	9.00 [4.91, 13.09]	_
Suchdev 2012	112	21.026	285	108	20.525	271	2.5%	4.00 [0.55, 7.45]	
Varma 2007	128	11	122	124	14	135	3.0%	4.00 [0.94, 7.06]	
Zlotkin 2003 (5)	112.5088	9.1256	159	112.8	8.5	80	4.3%	-0.29 [-2.63, 2.05]	+
Total (95% CI)			4909			4899	100.0%	1.85 [1.24, 2.47]	•
Heterogeneity: Tau ^z = 0 Test for overall effect: 2			= 25 (P	< 0.00001); I² = 85%	•		-	-20 -10 0 10 20 Favours [control] Favours [MNP]

- Footnotes

 (1) Both groups received whey protein concentrate.

 (2) MMN (with vitamin A) versus vitamin A-fortified seasoning powder

 (3) Both groups received iron-fortified wheat-soy blend.

 (4) MNP contains iron only
- (5) MNP contains iron alone or iron + vitamin A

Serum/plasma ferritin $(\mu g/L)$

		MNP	,		Control			Mean Difference	Mean Difference
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Fixed, 95% CI	IV, Fixed, 95% CI
Adu-Afarwuah 2007	20.8	26.6482	67	7.9	11.0644	72	0.5%	12.90 [6.03, 19.77]	
Begin 2008 (1)	-19.4	32.9	36	-33.9	44.7	33	0.1%	14.50 [-4.16, 33.16]	+
Cardoso 2016	22.9	15.78	462	22.03	15.41	521	6.5%	0.87 [-1.08, 2.82]	†
Chen 2008	-9.83	12	94	-3.02	7.51	61	2.6%	-6.81 [-9.88, -3.74]	
Dewey 2017	33.4	20.2091	299	22.8	14.241	272	3.0%	10.60 [7.75, 13.45]	-
Esamai 2014	49.9	35.921	8	23.7	33.3	9	0.0%	26.20 [-6.86, 59.26]	+
Ghosh 2019	45.457	44.9404	163	39.705	35.3714	158	0.3%	5.75 [-3.08, 14.58]	+
Giovannini 2006	41.6	30.7	65	14.4	13.5	60	0.4%	27.20 [18.99, 35.41]	
Jack 2012	29	21.2	142	19.1	17.3	155	1.3%	9.90 [5.48, 14.32]	
Macharia-Mutie 2012	36	32.047	93	25.5	25.2491	93	0.4%	10.50 [2.21, 18.79]	
Rim 2008 (2)	40.7	24	96	26.8	21.4	91	0.6%	13.90 [7.39, 20.41]	
Sharieff 2006	115.25	44.17	115	110.48	53.35	111	0.2%	4.77 [-8.02, 17.56]	
Soofi 2013	16	14.6369	121	9.6	8.6779	101	2.6%	6.40 [3.29, 9.51]	- <u>-</u>
Varma 2007	35.5	2.1	122	22.9	2.4	135	81.6%	12.60 [12.05, 13.15]	
Zlotkin 2003 (3)	53.2	56.25	83	72.7	59.5	80	0.1%	-19.50 [-37.29, -1.71]	
Total (95% CI)			1966			1952	100.0%	11.08 [10.58, 11.58]	
Heterogeneity: Chi ² = 3	03.92, df								
Test for overall effect: Z				,,					-50 -25 Ó 25 50 Favours [control] Favours [MNP]

- (1) Both groups received whey protein concentrate.
 (2) MNP fortified with iron only (intervention)
 (3) MNP fortified with iron and vitamin A only

Plasma/serum TfR (mg/L)

	,	/							
		MNP			Control			Mean Difference	Mean Difference
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% CI	IV, Random, 95% CI
Adu-Afarwuah 2007	8.3	3.3989	93	10.6	4.5512	82	11.5%	-2.30 [-3.50, -1.10]	
Cardoso 2016	3.04	3.1	462	4.27	5.24	521	18.2%	-1.23 [-1.76, -0.70]	
Dewey 2017	8.5	2.636	299	9.4	3.3508	272	18.6%	-0.90 [-1.40, -0.40]	
Esamai 2014	2.8	0.9487	10	4	1.1314	8	13.6%	-1.20 [-2.18, -0.22]	
Kemmer 2012	7.19	1.64	114	7.02	1.18	85	19.5%	0.17 [-0.22, 0.56]	 -
Macharia-Mutie 2012	4.4	1.4567	93	4.8	1.9422	93	18.6%	-0.40 [-0.89, 0.09]	
Total (95% CI)			1071			1061	100.0%	-0.86 [-1.46, -0.26]	•
Heterogeneity: Tau ² = (0.44; Chi	r= 31.30							
Test for overall effect: 2	Z= 2.80 (P = 0.00		-4 -2 U 2 4 Favours [control] Favours [MNP]					

Serum/plasma zinc (µg/dL)

•		MNP			Control			Mean Difference	Mean Difference
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% CI	IV, Random, 95% CI
Adu-Afarwuah 2007	60.8	16.345	56	62.11	16.345	69	10.4%	-1.31 [-7.07, 4.45]	
Begin 2008 (1)	-0.6	20.1	29	-2	24.2	26	2.5%	1.40 [-10.43, 13.23]	
Esamai 2014	70.2	15.8392	8	69.8	16.2	9	1.5%	0.40 [-14.85, 15.65]	
Ghosh 2019	57.7	8.5913	61	58.2	7.8102	61	40.8%	-0.50 [-3.41, 2.41]	+
Jack 2012	66	15.7	142	62.7	11.1	155	35.7%	3.30 [0.18, 6.42]	 ■ -
Soofi 2013	67.1	28.9035	156	69.4	26.4678	153	9.1%	-2.30 [-8.48, 3.88]	
Total (95% CI)			452			473	100.0%	0.67 [-1.19, 2.53]	•
Heterogeneity: Tau² =				P = 0.45	i); I²= 0%			-50 -25 0 25 50	
Test for overall effect:	Z = 0.70	(P = 0.48)							Favours [control] Favours [MNP]

(1) Both groups received whey protein concentrate.

Serum retinol ($\mu g/dL$)

		MNP			Control			Mean Difference	Mean Difference
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% CI	IV, Random, 95% CI
Begin 2008 (1)	5.8	8.1	29	6.4	11.1	25	18.1%	-0.60 [-5.86, 4.66]	
Cardoso 2016	45.85	51.5155	399	40.11	56.9407	395	13.1%	5.74 [-1.82, 13.30]	
Chen 2008	5.92	11.88	94	1.05	7.42	61	23.7%	4.87 [1.83, 7.91]	_ -
Soofi 2013	27.22	18.0285	146	31.81	16.3269	151	21.5%	-4.59 [-8.51, -0.67]	
Varma 2007	39.2	11.2	122	39.2	14	135	23.6%	0.00 [-3.09, 3.09]	+
Total (95% CI)			790			767	100.0%	0.81 [-2.94, 4.56]	•
Heterogeneity: Tau² : Test for overall effect			•	4 (P = 0	1.003); l = =	75%			-20 -10 0 10 20 Favours [control] Favours [MNP]

 $\frac{Footnotes}{\mbox{(1) Both groups received whey protein concentrate.}}$

Iron deficiency

	MNF)	Contr	ol		Risk Ratio	Risk Ratio
Study or Subgroup	Events	Total	Events	Total	Weight	M-H, Random, 95% CI	M-H, Random, 95% CI
Adu-Afarwuah 2007	24	87	39	72	9.5%	0.51 [0.34, 0.76]	
Barffour 2019	16	138	40	140	7.8%	0.41 [0.24, 0.69]	
Begin 2008 (1)	10	36	17	33	6.8%	0.54 [0.29, 1.00]	
Cardoso 2016	128	462	188	521	12.1%	0.77 [0.64, 0.93]	
Dewey 2017	144	299	149	272	12.4%	0.88 [0.75, 1.03]	
Giovannini 2006	9	65	31	60	6.5%	0.27 [0.14, 0.52]	
Jack 2012	13	70	34	79	7.6%	0.43 [0.25, 0.75]	
Macharia-Mutie 2012	5	93	16	93	4.1%	0.31 [0.12, 0.82]	
Rim 2008 (2)	6	96	26	91	4.8%	0.22 [0.09, 0.51]	
Soofi 2013	42	121	65	101	11.0%	0.54 [0.41, 0.72]	
Suchdev 2012	38	169	63	164	10.3%	0.59 [0.42, 0.82]	
Varma 2007	13	122	41	135	7.3%	0.35 [0.20, 0.62]	
Total (95% CI)		1758		1761	100.0%	0.50 [0.40, 0.63]	•
Total events	448		709				
Heterogeneity: Tau² = 0 Test for overall effect: Z				(P < 0.1	00001); I²	= 77%	0.05 0.2 1 5 20
	2.30 (3.00	,				Favours [MNP] Favours [control]

- (1) Both groups received whey protein concentrate.
 (2) MNP contains iron only

Iron-deficiency anemia

•	MNF)	Contr	ol		Risk Ratio		Risk	Ratio	
Study or Subgroup	Events	Total	Events	Total	Weight	M-H, Random, 95% CI		M-H, Rando	om, 95% CI	
Adu-Afarwuah 2007	15	94	25	82	16.1%	0.52 [0.30, 0.92]		-		
Cardoso 2016	21	462	52	521	19.8%	0.46 [0.28, 0.74]		-		
Dewey 2017	19	117	31	106	19.0%	0.56 [0.33, 0.92]				
Macharia-Mutie 2012	4	93	11	93	5.2%	0.36 [0.12, 1.10]			-	
Rim 2008	3	96	20	91	4.6%	0.14 [0.04, 0.46]				
Soofi 2013	38	142	71	126	33.7%	0.47 [0.35, 0.65]		-		
Varma 2007	1	122	13	135	1.6%	0.09 [0.01, 0.64]				
Total (95% CI)		1126		1154	100.0%	0.45 [0.34, 0.58]		•		
Total events	101		223							
Heterogeneity: Tau² = 0	.03; Chi ² :	= 7.79,	df = 6 (P	= 0.25)); I ^z = 23%	,	0.005	01 1	40	200
Test for overall effect: Z	= 6.01 (P	< 0.00	001)				0.005	·	10 Favours [control]	200

Zinc deficiency

Zine deficiency								
	MNF	0	Conti	rol		Risk Ratio	Risk Ratio	
Study or Subgroup	Events	Total	Events	Total	Weight	M-H, Random, 95% CI	M-H, Random, 95% CI	
Adu-Afarwuah 2007	43	56	47	69	23.3%	1.13 [0.91, 1.40]	+-	
Barffour 2019	81	138	111	140	26.4%	0.74 [0.63, 0.87]		
Begin 2008 (1)	11	29	12	26	7.8%	0.82 [0.44, 1.53]		
Jack 2012	54	98	68	110	22.4%	0.89 [0.71, 1.12]		
Soofi 2013	67	156	58	153	20.1%	1.13 [0.86, 1.49]	 -	
Total (95% CI)		477		498	100.0%	0.93 [0.77, 1.14]	•	
Total events	256		296					
Heterogeneity: Tau² = Test for overall effect: 2				(P = 0.1	01); I² = 68	8% 0.2	0.5 1 2 Favours [MNP] Favours [control]	5

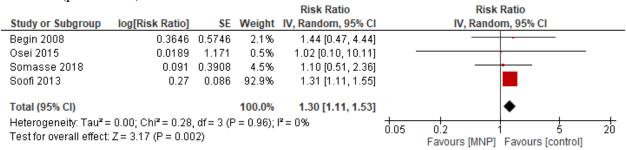
Footnotes

(1) Both groups received whey protein concentrate.

Vitamin A deficiency

				Risk Ratio		Risk Ratio	
Study or Subgroup	log[Risk Ratio]	SE	Weight	IV, Random, 95% CI		IV, Random, 95% CI	
Barffour 2019	0.5534	0.4602	14.6%	1.74 [0.71, 4.29]		+-	
Begin 2008	0.7679	0.7909	8.7%	2.16 [0.46, 10.16]		- •	
Cardoso 2016	-0.8377	0.1945	20.4%	0.43 [0.30, 0.63]		- 	
Jack 2012	-0.2614	1.6915	2.7%	0.77 [0.03, 21.20]			
Soofi 2013	0.4746	0.1903	20.4%	1.61 [1.11, 2.33]			
Suchdev 2012	-0.4115	0.2919	18.4%	0.66 [0.37, 1.17]		 +	
Varma 2007	0.2601	0.4494	14.8%	1.30 [0.54, 3.13]			
Total (95% CI)			100.0%	1.03 [0.57, 1.85]		*	
Heterogeneity: Tau² =	0.40; Chi ² = 28.5	0, df = 6 ((P < 0.000	01); I²= 79%	0.005	0.1 1 10	200
Test for overall effect:	Z = 0.10 (P = 0.92)	2)			0.005	Favours [MMN] Favours [control]	200

Diarrhea (prevalence)

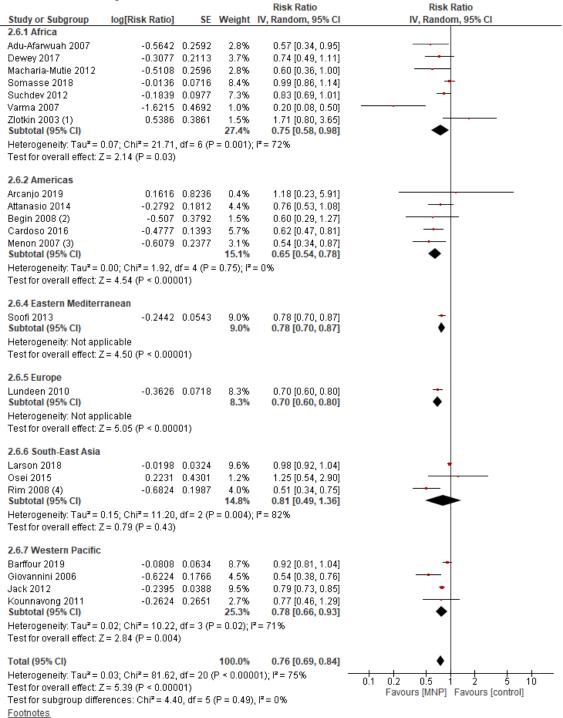


Cognitive function

				Odds Ratio	Odds Ratio
Study or Subgroup	log[Odds Ratio]	SE	Weight	IV, Random, 95% CI	IV, Random, 95% CI
Attanasio 2014	0.196	0.3113	70.8%	1.22 [0.66, 2.24]	-
Luo 2017	0.828	1.5375	14.4%	2.29 [0.11, 46.59]	-
Ogunlade 2011	2.73	1.5204	14.7%	15.33 [0.78, 301.85]	-
Total (95% CI)			100.0%	1.94 [0.55, 6.80]	-
Heterogeneity: Tau ^z = Test for overall effect:			= 0.25); [*	²= 28%	0.002

Comparison 6: Subgroup Analyses for Micronutrient Powders vs. Placebo/No Intervention (Efficacy)

Anemia: WHO region



(1) MNP contains iron & vitamin A only

- (2) Both groups received why protein concentrate
- (3) Both groups received iron fortified wheat soy blend
- (4) MNP contains iron only

Anemia: mean age at baseline

Anemia: mean ag	e at baseline				
				Risk Ratio	Risk Ratio
Study or Subgroup	log[Risk Ratio]	SE	Weight	IV, Random, 95% CI	IV, Random, 95% CI
2.7.1 6-11 months					
Adu-Afarwuah 2007	-0.5642	0.2592	2.8%	0.57 [0.34, 0.95]	
Begin 2008 (1)	-0.507	0.3792	1.5%	0.60 [0.29, 1.27]	
Cardoso 2016	-0.4777	0.1393	6.2%	0.62 [0.47, 0.81]	
Dewey 2017	-0.3077	0.2113	3.8%	0.74 [0.49, 1.11]	
Giovannini 2006	-0.6224	0.1766	4.8%	0.54 [0.38, 0.76]	
Jack 2012	-0.2395	0.0388	11.3%	0.79 [0.73, 0.85]	*
Osei 2015	0.2231	0.4301	1.2%	1.25 [0.54, 2.90]	- •
Rim 2008 (2)	-0.6824	0.1987	4.1%	0.51 [0.34, 0.75]	
Soofi 2013	-0.2442	0.0543	10.6%	0.78 [0.70, 0.87]	<u>.*</u>
Subtotal (95% CI)			46.2%	0.71 [0.63, 0.79]	♦
Heterogeneity: Tau² = I	0.01; Chi² = 14.33,	df = 8 (P	= 0.07);1	² = 44%	
Test for overall effect: 2	Z = 5.99 (P < 0.000	01)			
2.7.2 12-23 months					
Arcanjo 2019	0.1616	0.8236	0.3%	1.18 [0.23, 5.91]	
Attanasio 2014	-0.2792	0.1812	4.6%	0.76 [0.53, 1.08]	
Barffour 2019	-0.0808	0.0634	10.1%	0.92 [0.81, 1.04]	
Lundeen 2010	-0.3626	0.0718	9.7%	0.70 [0.60, 0.80]	+
Menon 2007 (3)	-0.6079	0.2377	3.2%	0.54 [0.34, 0.87]	
Somasse 2018	-0.0136	0.0716	9.7%	0.99 [0.86, 1.14]	+
Suchdev 2012	-0.1839	0.0977	8.2%	0.83 [0.69, 1.01]	
Zlotkin 2003 (4)	0.5386	0.3861	1.4%	1.71 [0.80, 3.65]	
Subtotal (95% CI)			47.3%	0.84 [0.72, 0.97]	•
Heterogeneity: Tau² = I	0.02; Chi ² = 21.17,	df = 7 (P	= 0.004);	; I² = 67%	
Test for overall effect: 2	Z = 2.35 (P = 0.02)				
2.7.3 24-59 months					
Kounnavong 2011	-0.2624	0.2651	2.7%	0.77 [0.46, 1.29]	
Macharia-Mutie 2012	-0.5108	0.2596	2.8%	0.60 [0.36, 1.00]	
Varma 2007	-1.6215	0.4692	1.0%	0.20 [0.08, 0.50]	
Subtotal (95% CI)			6.5%	0.50 [0.26, 0.95]	•
Heterogeneity: Tau² = I	0.22; Chi ² = 6.41 , d	lf= 2 (P=	0.04); l²	= 69%	
Test for overall effect: 2					
Total (95% CI)			100.0%	0.75 [0.68, 0.82]	•
Heterogeneity: Tau ^z = I	0.02; Chi² = 51.89.	df = 19 (i	P < 0.000	11); I² = 63%	0.05 0.2 1 5 20
Test for overall effect: 2		,			
Test for subgroup diffe	,		(P = 0.09)), I²= 57.5%	Favours [MNP] Favours [control]
		,			

- Footnotes
 (1) Both groups received why protein concentrate
- (2) MNP contains iron only
- (3) Both groups received iron fortified wheat soy blend
- (4) MNP contains iron & vitamin A only

Anemia: intervention duration

7 mema: merven	tion duration			Diek Datio	Diak Datio
Study or Subgroup	log[Risk Ratio]	ee.	Woight	Risk Ratio IV, Random, 95% CI	Risk Ratio IV, Random, 95% CI
2.8.1 Less than 3 mor		3E	weigiit	IV, Kalluolli, 95% CI	IV, Ralidolli, 95% CI
Barffour 2019	-0.0808	0.0824	8.7%	0.92 [0.81, 1.04]	_
Cardoso 2016	-0.4777		5.7%	0.62 [0.47, 0.81]	
Lundeen 2010	-0.3626		8.3%	0.70 [0.60, 0.80]	-
				0.54 [0.34, 0.87]	
Menon 2007 (1)	-0.6079		3.1%		
Osei 2015 Subtotal (95% CI)	0.2231	0.4301	1.2% 27.1%	1.25 [0.54, 2.90] 0.74 [0.59, 0.92]	•
Heterogeneity: Tau ² =	0.04; Chi² = 15.69,	df = 4 (P	= 0.003);	I²= 75%	
Test for overall effect: 2					
2.8.2 3-5 months					
Arcanjo 2019	0.1616	0.8236	0.4%	1.18 [0.23, 5.91]	
Macharia-Mutie 2012	-0.5108	0.2596	2.8%	0.60 [0.36, 1.00]	
Somasse 2018	-0.0136	0.0716	8.4%	0.99 [0.86, 1.14]	
Subtotal (95% CI)			11.5%	0.86 [0.59, 1.24]	→
Heterogeneity: Tau² =		lf= 2 (P=	: 0.18); l² :	= 42%	
Test for overall effect: 2	Z = 0.83 (P = 0.41)				
2.8.3 6-11 months					
	0.5040	0.0500	0.000	0.57.0004.0051	
Adu-Afarwuah 2007	-0.5642		2.8%	0.57 [0.34, 0.95]	
Begin 2008 (2)		0.3792	1.5%	0.60 [0.29, 1.27]	
Jack 2012	-0.2395		9.5%	0.79 [0.73, 0.85]	•
Kounnavong 2011	-0.2624		2.7%	0.77 [0.46, 1.29]	
Rim 2008 (3)	-0.6824		4.0%	0.51 [0.34, 0.75]	
Varma 2007	-1.6215		1.0%	0.20 [0.08, 0.50]	
Zlotkin 2003 (4)	0.5386	0.3861	1.5%	1.71 [0.80, 3.65]	
Subtotal (95% CI)			22.9%	0.65 [0.48, 0.89]	•
Heterogeneity: Tau ² =			= 0.004);	I ² = 69%	
Test for overall effect: 2	Z = 2.73 (P = 0.006)			
2.8.4 12-17 months					
Giovannini 2006	-0.6224	0.1766	4.5%	0.54 [0.38, 0.76]	<u> </u>
Soofi 2013	-0.2442		9.0%	0.78 [0.70, 0.87]	-
Suchdev 2012	-0.1839		7.3%	0.83 [0.69, 1.01]	-
Subtotal (95% CI)	0.1000	0.0011	20.8%	0.75 [0.63, 0.89]	•
Heterogeneity: Tau ² =	0.01: Chi ² = 4.90. c	lf = 2 (P =	: 0.09): I ² :		•
Test for overall effect: 2		•	,,		
	,				
2.8.5 18 months and a	above				
Attanasio 2014	-0.2792	0.1812	4.4%	0.76 [0.53, 1.08]	
Dewey 2017	-0.3077	0.2113	3.7%	0.74 [0.49, 1.11]	
Larson 2018	-0.0198	0.0324	9.6%	0.98 [0.92, 1.04]	
Subtotal (95% CI)			17.7%	0.88 [0.72, 1.08]	•
Heterogeneity: Tau² =		lf= 2 (P=	: 0.16); l² :	= 46%	
Test for overall effect: 2	Z = 1.22 (P = 0.22)				
Total (95% CI)			100.0%	0.76 [0.69, 0.84]	A
	0 00: 06 2 = 04 00	df = 20 4			
Heterogeneity: Tau ² =			- < 0.000	01), 1= 75%	0.05 0.2 1 5 20
Test for overall effect: 2			n – e sec	12 - 000	Favours [MNP] Favours [control]
Test for subgroup diffe	erences: Oni*= 3.3	o, at = 4 (r = 0.50),	, ⊩= 0%	

- Footnotes
- (1) Both groups received iron fortified wheat soy blend
- (2) Both groups received why protein concentrate
- (3) MNP contains iron only
- (4) MNP contains iron & vitamin A only

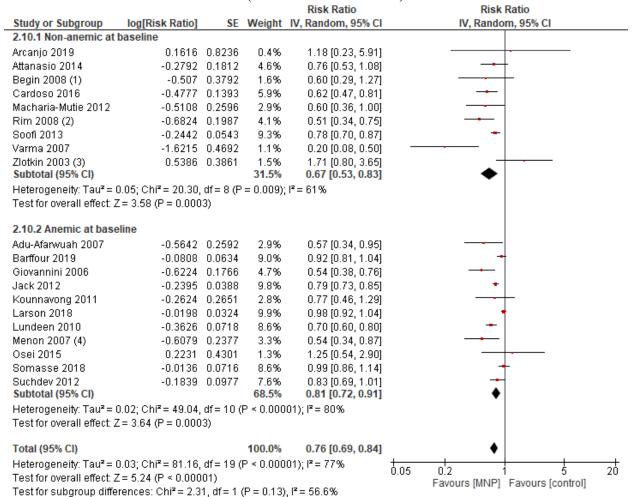
Anemia: intervention frequency

Anemia: interventi	on frequency	y			
				Risk Ratio	Risk Ratio
Study or Subgroup	log[Risk Ratio]	SE	Weight	IV, Random, 95% CI	IV, Random, 95% CI
2.9.1 Daily					
Adu-Afarwuah 2007	-0.5642	0.2592	2.8%	0.57 [0.34, 0.95]	
Arcanjo 2019	0.1616	0.8236	0.4%	1.18 [0.23, 5.91]	
Attanasio 2014	-0.2792	0.1812	4.4%	0.76 [0.53, 1.08]	
Barffour 2019	-0.0808	0.0634	8.7%	0.92 [0.81, 1.04]	-
Begin 2008 (1)	-0.507	0.3792	1.5%	0.60 [0.29, 1.27]	
Dewey 2017	-0.3077	0.2113	3.7%	0.74 [0.49, 1.11]	
Giovannini 2006	-0.6224	0.1766	4.5%	0.54 [0.38, 0.76]	
Jack 2012	-0.2395	0.0388	9.5%	0.79 [0.73, 0.85]	•
Larson 2018	-0.0198	0.0324	9.6%	0.98 [0.92, 1.04]	+
Lundeen 2010	-0.3626	0.0718	8.3%	0.70 [0.60, 0.80]	-
Macharia-Mutie 2012	-0.5108	0.2596	2.8%	0.60 [0.36, 1.00]	
Menon 2007 (2)	-0.6079	0.2377	3.1%	0.54 [0.34, 0.87]	
Rim 2008 (3)	-0.6824	0.1987	4.0%	0.51 [0.34, 0.75]	
Somasse 2018	-0.0136	0.0716	8.4%	0.99 [0.86, 1.14]	+
Soofi 2013	-0.2442	0.0543	9.0%	0.78 [0.70, 0.87]	+
Varma 2007	-1.6215	0.4692	1.0%	0.20 [0.08, 0.50]	
Zlotkin 2003 (4)	0.5386	0.3861	1.5%	1.71 [0.80, 3.65]	
Subtotal (95% CI)			83.1%	0.76 [0.68, 0.85]	♦
Heterogeneity: Tau ^z = 0.	.03; Chi ² = 75.49,	df = 16 (P < 0.000	01); I²= 79%	
Test for overall effect: Z	= 4.89 (P < 0.000	01)			
2.9.2 Intermittent					
Cardoso 2016	-0.4777	N 1393	5.7%	0.62 [0.47, 0.81]	
Kounnavong 2011	-0.2624		2.7%	0.77 [0.46, 1.29]	
Osei 2015	0.2231		1.2%	1.25 [0.54, 2.90]	
Suchdev 2012	-0.1839		7.3%	0.83 [0.69, 1.01]	-
Subtotal (95% CI)	0.1033	0.0311	16.9%	0.76 [0.62, 0.94]	◆
Heterogeneity: Tau ^z = 0.	.01; Chi ² = 4.31, d	lf = 3 (P =	: 0.23); l ² :	= 30%	
Test for overall effect: Z	= 2.57 (P = 0.01)	•			
Total (95% CI)			100.0%	0.76 [0.69, 0.84]	•
Heterogeneity: Tau ^z = 0.	.03; Chi² = 81.62,	df = 20 (1)	P < 0.000	01); I² = 75%	0.05 0.2 1 5 20
Test for overall effect: Z:				• •	0.05 0.2 1 5 20 Favours [MNP] Favours [control]
Test for subgroup differ	,		(P = 0.95)	, I² = 0%	ravours (whire Favours (control)
				•	

Footnotes

- (1) Both groups received why protein concentrate
- (2) Both groups received iron fortified wheat soy blend
- (3) MNP contains iron only
- (4) MNP contains iron & vitamin A only

Anemia: nutritional status at baseline (anemic vs. non-anemic)



- Footnotes
 (1) Both groups received why protein concentrate
- (2) MNP contains iron only
- (3) MNP contains iron & vitamin A only
- (4) Both groups received iron fortified wheat soy blend

<u>Comparison 7: Lipid-based Nutrient Supplementation vs. Placebo/No Intervention (Efficacy)</u>

Wasting

	LNS supplement	LNS supplementation Co				Risk Ratio	Risk Ratio
Study or Subgroup	Events	Total	Events	Total	Weight	M-H, Random, 95% CI	M-H, Random, 95% CI
Adu-Afarwuah 2016	22	347	31	337	2.8%	0.69 [0.41, 1.17]	
Ashorn 2015	7	214	8	220	0.8%	0.90 [0.33, 2.44]	· · · · · · · · · · · · · · · · · · ·
Christian 2015 (1)	123	896	138	843	11.7%	0.84 [0.67, 1.05]	
Hess 2015 (2)	72	811	60	523	6.6%	0.77 [0.56, 1.07]	
Luby 2018	567	699	1104	1302	38.5%	0.96 [0.92, 1.00]	•
Null 2018	695	811	1536	1864	39.6%	1.04 [1.00, 1.08]	<u> </u>
Total (95% CI)		3778		5089	100.0%	0.95 [0.87, 1.04]	•
Total events	1486		2877				
Heterogeneity: Tau² =	0.01; Chi ² = 18.7	_	0.5 0.7 1 1.5 2				
Test for overall effect:	Z= 1.09 (P = 0.28	3)					Favours [LNS] Favours [control]

<u>Footnotes</u>

- (1) Plumpy'doz group only
- (2) LNS (Zn 5mg) and LNS (Zn 10mg) groups were combined into one group

Underweight

	LNS supplemen	ementation Control			Risk Ratio		Risk Ratio
Study or Subgroup	Events	Total	Events	Total	Weight	M-H, Random, 95% CI	M-H, Random, 95% CI
Adu-Afarwuah 2016	37	347	55	337	6.3%	0.65 [0.44, 0.96]	
Ashorn 2015	28	214	22	220	3.8%	1.31 [0.77, 2.21]	- •
Christian 2015 (1)	292	896	330	843	20.7%	0.83 [0.73, 0.94]	
Hess 2015 (2)	154	811	137	523	14.5%	0.72 [0.59, 0.89]	
Luby 2018	573	699	1121	1302	27.2%	0.95 [0.91, 0.99]	-
Null 2018	698	811	1548	1864	27.5%	1.04 [1.00, 1.07]	-
Total (95% CI)		3778		5089	100.0%	0.90 [0.81, 1.01]	•
Total events	1782		3213				
Heterogeneity: Tau ² =	0.01; Chi ² = 41.2 9	3, df = 5 (P < 0.000	001); P	= 88%	_	05 07 1 15 2
Test for overall effect:	Z = 1.85 (P = 0.06	0.5 0.7 1 1.5 2 Favours [LNS] Favours [control]					

Footnotes

- (1) Plumpy'doz group only
- (2) LNS (Zn 5mg) and LNS (Zn 10mg) groups were combined into one group

Height (cm)

			Mean Difference	Mean Difference
Study or Subgroup	Mean Difference	SE Weight	IV, Random, 95% CI	IV, Random, 95% CI
Adu-Afarwuah 2016	0.8 0.2	173 14.0%	0.80 [0.37, 1.23]	
Ashorn 2015	-0.2 0.3	288 11.0%	-0.20 [-0.76, 0.36]	
Christian 2015 (1)	0.3 0.09	999 19.4%	0.30 [0.10, 0.50]	-
Hess 2015 (2)	0.7 0.13	832 15.6%	0.70 [0.34, 1.06]	-
Maleta 2015 (3)	0.1 0.13	885 15.3%	0.10 [-0.27, 0.47]	
Mangani 2014 (4)	0.2 0.1	917 15.2%	0.20 [-0.18, 0.58]	 -
Smuts 2019 (5)	-0.5 0.33	266 9.6%	-0.50 [-1.14, 0.14]	
Total (95% CI)		100.0%	0.25 [-0.01, 0.52]	•
Heterogeneity: Tau ² =	: 0.08; Chi² = 20.47, df = 6			
Test for overall effect:	Z= 1.87 (P = 0.06)	•		-2 -1 0 1 2 Favours [control] Favours [LNS]

Footnotes

- (1) Plumpy'doz group only
- (2) LNS (Zn 5mg) and LNS (Zn 10mg) groups were combined into one group
- (3) 20g LNS group only
- (4) LNS (with milk) group only
- (5) SQ LNS group only

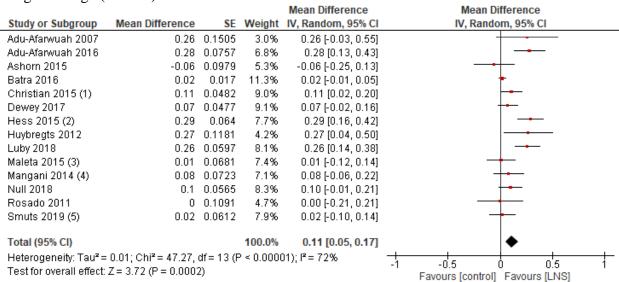
Weight (kg)

	LNS su	pplement	ation	C	ontrol			Mean Difference	Mean Difference
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% CI	IV, Random, 95% CI
Adu-Afarwuah 2016	9.87	1.23	348	9.58	1.17	340	18.4%	0.29 [0.11, 0.47]	_
Ashorn 2015	9.6	1.1	214	9.7	1.2	220	16.7%	-0.10 [-0.32, 0.12]	
Hess 2015 (1)	9.295	1.0995	811	9.02	1.18	523	20.9%	0.28 [0.15, 0.40]	
Maleta 2015 (2)	2.4	0.8	233	2.5	2.8	240	10.5%	-0.10 [-0.47, 0.27]	
Mangani 2014 (3)	2.53	0.78	191	2.42	0.77	185	19.5%	0.11 [-0.05, 0.27]	+
Smuts 2019 (4)	8.7	1.3	151	8.9	1.3	201	14.1%	-0.20 [-0.47, 0.07]	
Total (95% CI)			1948			1709	100.0%	0.08 [-0.08, 0.24]	•
Heterogeneity: Tau ² =	0.03; Chi ²	+ + + + + + + + + + + + + + + + + + + 							
Test for overall effect:	Z = 0.94 (I	P = 0.35)	•						-1 -0.5 0 0.5 1 Favours [control] Favours [LNS]

Footnotes

- (1) LNS (Zn 5mg) and LNS (Zn 10mg) groups were combined into one group
- (2) 20g LNS group only
- (3) LNS (with milk) group only
- (4) SQ LNS group only

Length-for-age (z-score)



<u>Footnotes</u>

- (1) Plumpy'doz group only
- (2) LNS (Zn 5mg) and LNS (Zn 10mg) groups were combined into one group
- (3) 20g LNS group only
- (4) LNS (with milk) group only
- (5) SQ LNS group only

Weight-for-age (z-score)

110151111101 450 (2 50010)				
				Mean Difference	Mean Difference
Study or Subgroup	Mean Difference	SE	Weight	IV, Random, 95% CI	IV, Random, 95% CI
Adu-Afarwuah 2007	0.34	0.1656	2.8%	0.34 [0.02, 0.66]	
Adu-Afarwuah 2016	0.24	0.0795	7.5%	0.24 [0.08, 0.40]	
Ashorn 2015	-0.12	0.0946	6.2%	-0.12 [-0.31, 0.07]	
Batra 2016	0.11	0.017	14.3%	0.11 [0.08, 0.14]	-
Dewey 2017	0.1	0.0469	11.1%	0.10 [0.01, 0.19]	-
Hess 2015 (1)	0.27	0.0607	9.5%	0.27 [0.15, 0.39]	
Luby 2018	0.25	0.0599	9.6%	0.25 [0.13, 0.37]	
Maleta 2015 (2)	-0.12	0.133	4.0%	-0.12 [-0.38, 0.14]	
Mangani 2014 (3)	0.09	0.0769	7.8%	0.09 [-0.06, 0.24]	+-
Null 2018	0.07	0.0502	10.7%	0.07 [-0.03, 0.17]	+-
Rosado 2011	-0.1	0.0922	6.4%	-0.10 [-0.28, 0.08]	
Smuts 2019 (4)	0.02	0.0561	10.0%	0.02 [-0.09, 0.13]	+
Total (95% CI)			100.0%	0.10 [0.04, 0.16]	•
Heterogeneity: Tau ² =	0.01; Chi ² = 34.42, (df= 11 (F	9 = 0.0000	3); I² = 68%	
Test for overall effect:				••	-0.5 -0.25 0 0.25 0.5
	•	•			Favours [control] Favours [LNS]

Footnotes

- (1) LNS (Zn 5mg) and LNS (Zn 10mg) groups were combined into one group
- (2) 20g LNS group only
- (3) LNS (with milk) group only
- (4) SQ LNS group only

Weight-for-height (z-score)

	LNS su	pplement	ation	C	ontrol			Mean Difference	Mean Difference
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% CI	IV, Random, 95% CI
Adu-Afarwuah 2007	-0.43	1.1	97	-0.74	1.1	81	2.3%	0.31 [-0.01, 0.63]	
Adu-Afarwuah 2016	-0.49	1.02	347	-0.64	1.02	337	7.2%	0.15 [-0.00, 0.30]	
Ashorn 2015	-0.21	0.99	214	-0.08	1	220	5.5%	-0.13 [-0.32, 0.06]	
Batra 2016	-0.16	0.1	82	-0.31	0.1	54	17.5%	0.15 [0.12, 0.18]	+
Dewey 2017	-1.03	0.87	772	-1.11	0.89	802	12.4%	0.08 [-0.01, 0.17]	 • -
Hess 2015 (1)	-0.7549	0.9699	811	-0.93	1.01	523	10.3%	0.18 [0.07, 0.28]	
Huybregts 2012	-1.05	0.93	341	-1.09	0.95	251	7.2%	0.04 [-0.11, 0.19]	
Luby 2018	-0.71	1	457	-0.88	0.93	890	10.3%	0.17 [0.06, 0.28]	
Maleta 2015 (2)	-0.62	1.07	233	-0.61	0.92	240	5.8%	-0.01 [-0.19, 0.17]	
Mangani 2014 (3)	-0.57	1.02	191	-0.66	0.93	185	5.1%	0.09 [-0.11, 0.29]	
Null 2018	0.14	0.92	560	0.11	0.94	1239	11.9%	0.03 [-0.06, 0.12]	
Rosado 2011	0	0.6	57	0.1	0.6	62	4.5%	-0.10 [-0.32, 0.12]	
Total (95% CI)			4162			4884	100.0%	0.09 [0.04, 0.14]	•
Heterogeneity: Tau ² =	0.00; Chi²	= 24.59, d	lf= 11 (F	P = 0.01);	5%		_	15 015 0 015 015
Test for overall effect:	Z = 3.31 (F	P = 0.0009)						-0.5 -0.25 0 0.25 0.5 Favours [control] Favours [LNS]
									Favours (control) Favours (LINS)

- $\frac{Footnotes}{(1)\,\text{LNS (Zn 5mg)}}\,\text{and LNS (Zn 10mg)}\,\text{groups were combined into one group}\\ (2)\,20g\,\text{LNS group only}$
- (3) LNS (with milk) group only

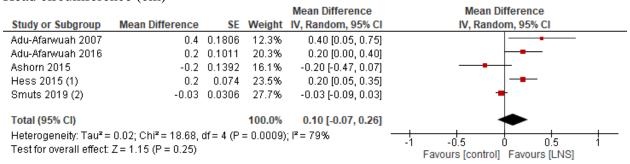
Hemoglobin (g/L)

,	LNS su	pplementa	ition	(Control			Mean Difference	Mean Difference	
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% CI	IV, Rando	m, 95% CI
Adu-Afarwuah 2007	114.3	14.4	98	105.8	14.3	96	11.5%	8.50 [4.46, 12.54]		
Batra 2016	-5	2	85	0.03	1	58	13.2%	-5.03 [-5.53, -4.53]	•	
Dewey 2017	115.6	9.1702	151	112.4	10.0835	160	12.7%	3.20 [1.06, 5.34]		
Hess 2015 (1)	97.4954	15.0007	987	88	16	664	12.9%	9.50 [7.96, 11.03]		
Huybregts 2012	105.8	14.3	326	102.5	15.2	233	12.5%	3.30 [0.81, 5.79]		
Rosado 2011	6	11	55	4	11	61	11.6%	2.00 [-2.01, 6.01]	_	
Siega-Riz 2014	108.7	1.1	116	105.7	1.1	94	13.2%	3.00 [2.70, 3.30]		•
Smuts 2019 (2)	118.67	11.85	151	115.33	14.07	201	12.4%	3.34 [0.63, 6.05]		
Total (95% CI)			1969			1567	100.0%	3.41 [-0.48, 7.29]		•
Heterogeneity: Tau ² =	29.79; Chi	²= 875.99,	df = 7 (F	o.0000	01); i² = 99	1%		_	10 1	10
Test for overall effect:	Z = 1.72 (P	'= 0.09)							-10 -5 0) 5 10
	– 😯	-,							Favours [control]	Favours [LINS]

Footnotes

 $\overline{\text{(1)}}$ LNS $\overline{\text{(Zn 5mg)}}$ and LNS $\overline{\text{(Zn 10mg)}}$ groups were combined into one group (2) SQ LNS group only

Head circumference (cm)



Footnotes

- (1) LNS (Zn 5mg) and LNS (Zn 10mg) groups were combined into one group
- (2) SQ LNS group only

Mid-upper arm circumference (cm)

				Mean Difference	Mean Difference
Study or Subgroup	Mean Difference	SE	Weight	IV, Random, 95% CI	IV, Random, 95% CI
Adu-Afarwuah 2016	0.2	0.0801	19.5%	0.20 [0.04, 0.36]	
Ashorn 2015	-0.1	0.1062	16.8%	-0.10 [-0.31, 0.11]	
Hess 2015 (1)	0.3	0.0606	21.4%	0.30 [0.18, 0.42]	
Maleta 2015 (2)	0.1	0.0876	18.7%	0.10 [-0.07, 0.27]	 • -
Smuts 2019 (3)	-0.02	0.0357	23.5%	-0.02 [-0.09, 0.05]	+
Total (95% CI)			100.0%	0.10 [-0.05, 0.25]	•
Heterogeneity: Tau² =	0.02; Chi ² = 26.07, c	-1 -0.5 0 0.5 1			
Test for overall effect:	Z = 1.30 (P = 0.19)	Favours [control] Favours [LNS]			

Footnotes

- (1) LNS (Zn 5mg) and LNS (Zn 10mg) groups were combined into one group
- (2) 20g LNS group only
- (3) SQ LNS group only

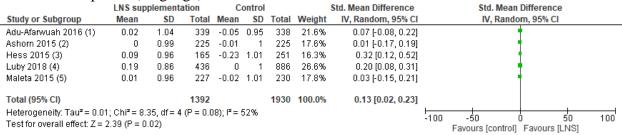
Plasma/serum zinc (log) (µg/dL)

	LNS su	pplementa	ation	C	ontrol			Mean Difference	Mean Difference
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% CI	IV, Random, 95% CI
Adu-Afarwuah 2007	4.07	0.27	55	4.1	0.26	69	7.5%	-0.03 [-0.12, 0.06]	
Hess 2015 (1)	4.17	0.0199	153	4.17	0.02	93	46.4%	0.00 [-0.01, 0.01]	•
Siega-Riz 2014	4.18	0.02	99	4.15	0.02	77	46.1%	0.03 [0.02, 0.04]	•
Total (95% CI)			307			239	100.0%	0.01 [-0.02, 0.04]	•
Heterogeneity: Tau² = 1 Test for overall effect: 2			-0.2 -0.1 0 0.1 0.2 Favours [control] Favours [LNS]						

Footnotes

(1) LNS (Zn 5mg) and LNS (Zn 10mg) groups were combined into one group

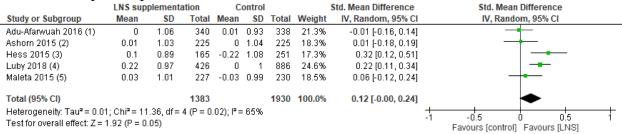
Mental development (language)



<u>Footnotes</u>

- (1) Language (100-word vocabulary checklist based on the MacArthur-Bates Communicative Development Inventory)
- (2) Language (100-word vocabulary checklist based on the MacArthur-Bates Communicative Development Inventory)
- (3) Language (Developmental Milestones Checklist II)
- (4) Extended Ages and Stages Questionnaire after 2 years of intervention
- (5) Language (100-word vocabulary checklist based on the MacArthur-Bates Communicative Development Inventory)

Mental development (personal-social/socioemotional)



Footnotes

- (1) Socioemotional (Profile of Social and Emotional Development)
- (2) Socioemotional (Profile of Social and Emotional Development)
- (3) Personal-social (Developmental Milestones Checklist II)
- (4) Extended Ages and Stages Questionnaire after 2 years of intervention
- (5) Socioemotional (Profile of Social and Emotional Development)

Mental development (executive function)

	LNS supplementation Control						Mean Difference	Mean Difference	
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% CI	IV, Random, 95% CI
Adu-Afarwuah 2016 (1)	0.01	0.96	293	-0.01	1.03	287	45.7%	0.02 [-0.14, 0.18]	
Ashorn 2015 (2)	-0.05	1	189	0.03	1	195	30.0%	-0.08 [-0.28, 0.12]	
Maleta 2015 (3)	-0.02	1.08	160	0.05	0.97	168	24.3%	-0.07 [-0.29, 0.15]	-
Total (95% CI)			642			650	100.0%	-0.03 [-0.14, 0.08]	•
Heterogeneity: Tau² = 0.0 Test for overall effect: Z =	•		-	-0.5 -0.25 0 0.25 0.5 Favours [control] Favours [LNS]					

Footnotes

- (1) A not B correct score
- (2) A not B correct score
- (3) A not B correct score

Motor development

	LNS supplementation Control				Std. Mean Difference Std. Mean Difference			Std. Mean Difference		
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% CI		IV, Random, 95% CI
Adu-Afarwuah 2016 (1)	0.02	1.01	305	0.05	0.89	298	17.7%	-0.03 [-0.19, 0.13]		
Ashorn 2015 (2)	0.01	0.99	223	0.03	0.99	222	16.0%	-0.02 [-0.21, 0.17]		
Hess 2015 (3)	0.16	0.88	165	-0.27	1.15	251	15.2%	0.41 [0.21, 0.61]		
Luby 2018 (4)	0.18	0.95	426	0	1	886	20.7%	0.18 [0.07, 0.30]		-
Maleta 2015 (5)	0.05	1.05	219	-0.02	0.99	226	16.0%	0.07 [-0.12, 0.25]		
Smuts 2019 (6)	33	4.44	151	32.33	3.7	201	14.4%	0.17 [-0.05, 0.38]		 •
Total (95% CI)			1489			2084	100.0%	0.13 [0.00, 0.25]		•
Heterogeneity: Tau² = 0.0	5.31, df=	5 (P = 0)	.009); l²	= 67%			-1	-0.5 0 0.5 1		
Test for overall effect: Z = 2.02 (P = 0.04)									- 1	Favours [control] Favours [LNS]

- Footnotes (1) Kilifi Developmental Inventory (2) Kilifi Developmental Inventory
- (3) Developmental Milestones Checklist II
- (4) Extended Ages and Stages Questionnaire after 2 years of intervention
- (5) Kilifi Developmental Inventory
- (6) South African Parent Rating

Motor development (standing independently at 12 months of age)

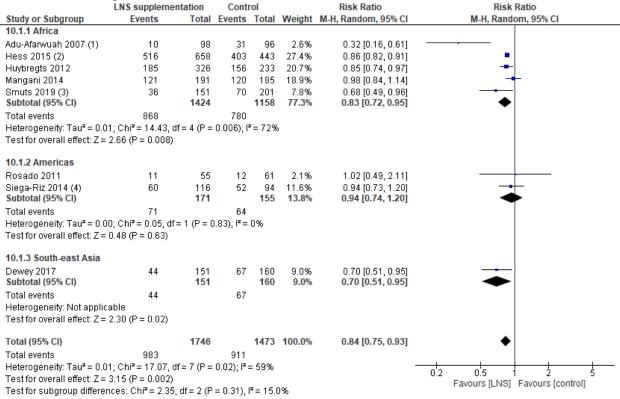
•	LNS suppleme	Cont	rol	-	Risk Ratio	Risk Ratio	
Study or Subgroup	Events	Total	Events	Total	Weight	M-H, Random, 95% CI	M-H, Random, 95% CI
Adu-Afarwuah 2007	62	94	48	88	10.4%	1.21 [0.95, 1.54]	
Adu-Afarwuah 2016	246	325	242	322	26.7%	1.01 [0.92, 1.10]	-
Ashorn 2015	189	218	180	219	27.8%	1.05 [0.97, 1.14]	+-
Luby 2018	469	473	940	948	35.1%	1.00 [0.99, 1.01]	•
Total (95% CI)		1110		1577	100.0%	1.04 [0.95, 1.14]	-
Total events	966		1410				
Heterogeneity: Tau ² =	0.01; Chi ² = 17.2	0, df = 3 (P = 0.000	_	07 005 1 10 15		
Test for overall effect:	Z = 0.78 (P = 0.4)	4)		0.7 0.85 1 1.2 1.5 Favours [control] Favours [LNS]			

Motor development (walking independently at 12 months of age)

-	LNS suppleme	ntation	Cont	rol	-	Risk Ratio	Risk Ratio		
Study or Subgroup	Events	Total	Events	Total	Weight	M-H, Random, 95% CI	M-H, Random, 95% CI		
Adu-Afarwuah 2007	46	94	22	88	22.9%	1.96 [1.29, 2.97]			
Adu-Afarwuah 2016	176	329	142	327	25.6%	1.23 [1.05, 1.44]			
Ashorn 2015	127	218	108	221	25.4%	1.19 [1.00, 1.42]			
Luby 2018	467	473	940	948	26.1%	1.00 [0.98, 1.01]	•		
Total (95% CI)		1114		1584	100.0%	1.29 [0.72, 2.28]			
Total events	816		1212						
Heterogeneity: Tau ² =	: 0.33; Chi ^z = 198.	.25, df = 3	(P < 0.00)	0001); [_	05 07 1 15			
Test for overall effect:	Z = 0.85 (P = 0.3)	9)					0.5 0.7 1 1.5 2 Favours [control] Favours [LNS]		

Comparison 7: Subgroup Analyses for Lipid Nutrient Supplementation vs. Placebo/No Intervention (Efficacy)

Anemia: WHO region



<u>Footnotes</u>

⁽¹⁾ Hemoglobin concentration <100g/L

⁽²⁾ LNS (Zn 5mg) and LNS (Zn 10mg) groups were combined into one group

⁽³⁾ SQ LNS group only

⁽⁴⁾ Hemoglobin concentration <100 g/L for <12 month olds, <110 g/L for 12-24 month olds, and <111 g/l for 2-5 year olds

Stunting: WHO region

_	_			Risk Ratio	Risk Ratio
Study or Subgroup	log[Risk Ratio]	SE	Weight	IV, Random, 95% CI	IV, Random, 95% CI
10.3.1 Africa					
Adu-Afarwuah 2016	-0.5271	0.2145	5.4%	0.59 [0.39, 0.90]	
Ashorn 2015	0.1454	0.1304	10.8%	1.16 [0.90, 1.49]	 •
Hess 2015 (1)	-0.2699	0.0864	16.0%	0.76 [0.64, 0.90]	
Null 2018	-0.1	0.07	18.4%	0.90 [0.79, 1.04]	
Smuts 2019 (2) Subtotal (95% CI)	0.1227	0.135	10.4% 61.0%		•
Heterogeneity: Tau² =	: 0.03; Chi² = 14.03	3, df = 4 (P = 0.007	'); I² = 71%	
Test for overall effect:					
10.3.2 South-east As	sia				
Christian 2015 (3)	-0.0937	0.0561	20.5%	0.91 [0.82, 1.02]	
Luby 2018	-0.2	0.07	18.4%	0.82 [0.71, 0.94]	-
Subtotal (95% CI)			39.0%	0.87 [0.79, 0.96]	•
Heterogeneity: Tau ² =	0.00; Chi ² = 1.40,	df = 1 (P	= 0.24);1	r= 29%	
Test for overall effect:	Z= 2.64 (P = 0.00	18)			
Total (95% CI)			100.0%	0.89 [0.80, 0.99]	•
Heterogeneity: Tau ² =	: 0.01; Chi ^z = 15.58	3, df = 6 (P = 0.02)	; I² = 61%	0.5 0.7 1 1.5 2
Test for overall effect:	Z = 2.10 (P = 0.04))			Favours [LNS] Favours [control]
Test for subgroup diff	ferences: Chi² = 0.	11, df = 1	I (P = 0.7)	4), I² = 0%	r avours [Ervo] - r avours [control]

- (1) LNS (Zn 5mg) and LNS (Zn 10mg) groups were combined into one group
- (2) SQ LNS group only
- (3) Plump'doz group only

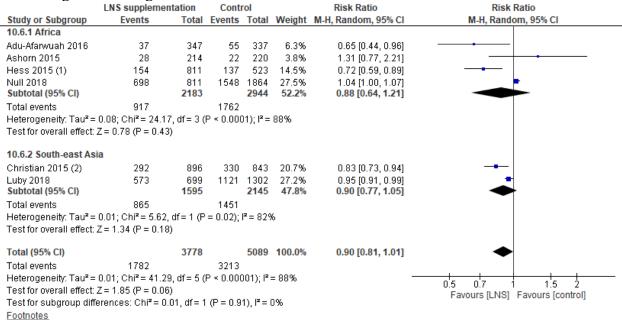
Wasting: WHO region

	LNS suppleme	ntation	Conti	rol		Risk Ratio	Risk Ratio
Study or Subgroup	Events	Total	Events	Total	Weight	M-H, Random, 95% CI	M-H, Random, 95% CI
10.5.1 Africa							
Adu-Afarwuah 2016	22	347	31	337	2.8%	0.69 [0.41, 1.17]	
Ashorn 2015	7	214	8	220	0.8%	0.90 [0.33, 2.44]	-
Hess 2015 (1)	72	811	60	523	6.6%	0.77 [0.56, 1.07]	
Null 2018	695	811	1536	1864	39.6%	1.04 [1.00, 1.08]	•
Subtotal (95% CI)		2183		2944	49.7%	0.88 [0.67, 1.16]	•
Total events	796		1635				
Heterogeneity: Tau² =	0.04; Chi ² = 7.38	, df = 3 (P	= 0.06);	$I^2 = 599$	6		
Test for overall effect:	Z = 0.90 (P = 0.3)	7)					
10.5.2 South-east As	ia						
Christian 2015 (2)	123	896	138	843	11.7%	0.84 [0.67, 1.05]	
_uby 2018	567	699	1104	1302	38.5%	0.96 [0.92, 1.00]	
Subtotal (95% CI)		1595		2145	50.3%	0.93 [0.82, 1.05]	•
Total events	690		1242				
Heterogeneity: Tau² =	0.01; Chi ² = 1.76	, df = 1 (P	= 0.18);	$I^2 = 439$	6		
Test for overall effect:	Z= 1.15 (P = 0.25	5)					
Total (95% CI)		3778		5089	100.0%	0.95 [0.87, 1.04]	•
Total events	1486		2877				
Heterogeneity: Tau² =	0.01; Chi ² = 18.7	7, df = 5 (P = 0.002	2); $I^2 = 7$	'3%		0.2 0.5 1 2 5
Test for overall effect:	Z = 1.09 (P = 0.28	3)					Favours [LNS] Favours [control]
Test for subgroup diff	erences: Chi² = 0	.11, df = 1	(P = 0.7)	4), $I^2 = I$	0%		r avours [Livo] Favours [control]

(1) LNS (Zn 5mg) and LNS (Zn 10mg) groups were combined into one group

(2) Plumpy'doz group only

Underweight: WHO region



⁽¹⁾ LNS (Zn 5mg) and LNS (Zn 10mg) groups were combined into one group

Comparison 8: Targeted Fortification (with MMN) vs. Placebo/No Intervention (Efficacy)

Height (cm)

	For	rtificatio	1		Control			Mean Difference	Mean Difference
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% CI	IV, Random, 95% CI
Christian 2015	1.58	0.555	513	1.57	0.7113	843	94.8%	0.01 [-0.06, 0.08]	
Faber 2005	7	1.8148	143	7.1	1.2184	145	3.4%	-0.10 [-0.46, 0.26]	
Lartey 1999	7	1.4	47	7	1.2	50	1.6%	0.00 [-0.52, 0.52]	+
Oelofse 2003	74.4	1.8	16	74.5	3.1	14	0.1%	-0.10 [-1.95, 1.75]	
Total (95% CI)			719			1052	100.0%	0.01 [-0.06, 0.07]	
Heterogeneity: Tau² = Test for overall effect			-4 -2 0 2 4 Favours [control] Favours [fortification]						

Weight (kg)

2 , 2,	Foi	rtification	n		Control			Mean Difference	Mean Difference
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% CI	IV, Random, 95% CI
Christian 2015	0.26	0.2775	513	0.24	0.3557	843	95.8%	0.02 [-0.01, 0.05]	
Faber 2005	1.6	1.2099	143	1.6	1.2184	145	1.4%	0.00 [-0.28, 0.28]	
Lartey 1999	1.3	0.5	47	1.2	0.6	50	2.3%	0.10 [-0.12, 0.32]	+-
Oelofse 2003	9.6	1	16	9.9	1.8	14	0.1%	-0.30 [-1.36, 0.76]	
Owino 2007	9	1.5	37	8.6	1.1	69	0.4%	0.40 [-0.15, 0.95]	+
Total (95% CI)			756			1121	100.0%	0.02 [-0.01, 0.06]	,
Heterogeneity: Tau ² =	0.00; C	hi² = 2.70), df = 4	(P = 0.0	81); I² = 0	1%		-	-1 -0.5 0 0.5 1
Test for overall effect:	Z = 1.33	P = 0.1	8)						Favours [control] Favours [fortification]

⁽²⁾ Plumpy'doz group only

Length-for-age (z-score)

0 0	Fort	ification	on	С	Control			Mean Difference	Mean Difference		
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% CI	IV, Random, 95% CI		
Christian 2015	-1.87	1	513	-1.91	1.02	843	40.6%	0.04 [-0.07, 0.15]	+		
Faber 2005	-0.94	1.05	143	-1.06	1.15	145	15.4%	0.12 [-0.13, 0.37]	 • -		
Ma 2016	-1.83	0.95	140	-1.67	0.97	133	18.1%	-0.16 [-0.39, 0.07]			
Oelofse 2003	-0.94	0.7	16	-0.72	1.1	14	2.8%	-0.22 [-0.89, 0.45]			
Owino 2007	0.1	0.9	37	-0.2	0.9	69	8.7%	0.30 [-0.06, 0.66]	 • •		
Sazawal 2014	-0.05	0.49	27	-0.21	0.47	24	14.5%	0.16 [-0.10, 0.42]	 		
Total (95% CI)			876			1228	100.0%	0.05 [-0.06, 0.16]	•		
Heterogeneity: Tau ² =	= 0.01; C	hi²= 6	.71, df=	= 5 (P =	0.24);	$I^2 = 26^\circ$		± ± ± ±			
Test for overall effect: Z = 0.84 (P = 0.40)									Favours [control] Favours [fortification]		

Weight-for-age (z-score)

	Fo	rtificatior	1		Control			Mean Difference	Mean Difference	
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% CI	IV, Random, 95% CI	
Christian 2015	-0.08	0.2809	513	-0.1	0.3622	843	94.9%	0.02 [-0.01, 0.05]		
Faber 2005	0.05	1.25	143	0.09	1.37	145	1.2%	-0.04 [-0.34, 0.26]		
Ma 2016	-1.04	0.89	140	-0.91	0.88	133	2.6%	-0.13 [-0.34, 0.08]		
Oelofse 2003	-0.55	0.99	16	-0.52	1.6	14	0.1%	-0.03 [-1.00, 0.94]		
Owino 2007	0.24	1.2	37	0.09	1.1	69	0.5%	0.15 [-0.32, 0.62]		
Sazawal 2014	0.72	0.81	27	0.52	0.67	24	0.7%	0.20 [-0.21, 0.61]		
Total (95% CI)			876			1228	100.0%	0.02 [-0.02, 0.05]	,	
Heterogeneity: Tau ² =	= 0.00; C	hi² = 3.15	, df = 5	(P = 0.1	68); I² = 0	%		_	-1 -0.5 0 0.5 1	
Test for overall effect	Z = 1.01	(P = 0.3)	1)						Favours [control] Favours [fortification]	

Weight-for-height (z-score)

_	Fortification Control							Mean Difference	Mean Difference
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% CI	IV, Random, 95% CI
Christian 2015	-0.2	0.2775	513	-0.22	0.3557	843	95.1%	0.02 [-0.01, 0.05]	
Faber 2005	0.82	1.15	143	0.99	1.23	145	1.5%	-0.17 [-0.44, 0.10]	
Ma 2016	-0.24	0.84	140	-0.15	0.82	133	2.8%	-0.09 [-0.29, 0.11]	-+
Oelofse 2003	0.11	1.1	16	0.42	1.6	14	0.1%	-0.31 [-1.31, 0.69]	
Sazawal 2014	0.79	0.86	27	0.66	0.81	24	0.5%	0.13 [-0.33, 0.59]	
Total (95% CI)			839			1159	100.0%	0.01 [-0.02, 0.05]	•
Heterogeneity: Tau² =	= 0.00; C	hi² = 3.58	i, df = 4		+ + + + +				
Test for overall effect:	Z = 0.85	5 (P = 0.4)	0)		Favours [experimental] Favours [fortification]				

Iron-deficiency anemia

_	Fortifica	ition	Conti	rol		Risk Ratio	Risk Ratio	
Study or Subgroup	Events	Total	Events	Total	Weight	M-H, Random, 95% CI	M-H, Random, 95% CI	
Ma 2016	10	140	22	133	36.1%	0.43 [0.21, 0.88]	-	
Phu 2010	7	133	27	71	33.7%	0.14 [0.06, 0.30]		
Shamah-Levy 2008	8	271	11	144	30.2%	0.39 [0.16, 0.94]		
Total (95% CI)		544		348	100.0%	0.28 [0.14, 0.59]	•	
Total events	25		60					
Heterogeneity: Tau² =	0.25; Chi ²	= 5.08	df = 2 (F	P = 0.08); I ^z = 619	6	0.02 0.1 1 10	
Test for overall effect:	Z = 3.39 (I	P = 0.00	007)				Favours [fortification] Favours [control]	50

Iron deficiency

_	Fortifica	ation	Conti	rol		Risk Ratio	Risk	Ratio	
Study or Subgroup	Events	Total	Events	Total	Weight	M-H, Random, 95% CI	M-H, Rand	om, 95% CI	
Anand 2007	26	93	46	88	25.6%	0.53 [0.36, 0.78]	-		
Glinz 2015 (1)	7	97	13	44	14.5%	0.24 [0.10, 0.57]			
Lartey 1999	3	28	17	31	10.3%	0.20 [0.06, 0.60]			
Ma 2016	32	140	53	133	26.0%	0.57 [0.40, 0.83]	-		
Phu 2010	19	135	42	73	23.5%	0.24 [0.15, 0.39]	-		
Total (95% CI)		493		369	100.0%	0.36 [0.24, 0.56]	•		
Total events	87		171						
Heterogeneity: Tau² =	0.16; Chi	$^{2} = 13.0$	3, df = 4	(P = 0.0)	01); I ^z = 69	3%	0.01 0.1	10	100
Test for overall effect:	Z= 4.53 (P < 0.00	0001)				Favours [fortification]	1 10 Favours [control]	100

Footnotes
(1) Fortified with iron only

Hemoglobin (g/L)

	Fort	ification		C	ontrol			Mean Difference	Mean Difference
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% CI	IV, Random, 95% CI
Anand 2007	121	10	94	110	10	94	10.2%	11.00 [8.14, 13.86]	
Arcanjo 2012 (1)	8.6	3.1	15	2.6	2.9	15	10.6%	6.00 [3.85, 8.15]	_ -
Faber 2005	119	11	144	110	14	142	10.2%	9.00 [6.08, 11.92]	
Glinz 2015 (2)	104.5179	11.9745	97	103	13	44	9.1%	1.52 [-3.00, 6.04]	
Lartey 1999	0	14	47	-5	19	48	7.4%	5.00 [-1.70, 11.70]	 -
Ma 2016	121.6	11.7	140	119.5	12.1	133	10.2%	2.10 [-0.73, 4.93]	 -
Oelofse 2003	108	9	16	106	13	14	6.4%	2.00 [-6.11, 10.11]	
Owino 2007	105	12	37	98	15	69	8.5%	7.00 [1.76, 12.24]	
Phu 2010	7.4947	11.5059	135	2.6	9.9	73	10.1%	4.89 [1.91, 7.88]	
Sazawal 2014	12.9	16	30	2.3	13	22	6.6%	10.60 [2.71, 18.49]	
Shamah-Levy 2008	120.2996	9.7342	271	123.6	10.8	144	10.6%	-3.30 [-5.41, -1.19]	
Total (95% CI)			1026			798	100.0%	4.97 [1.81, 8.12]	•
Heterogeneity: Tau² =	: 23.25; Chi²	= 90.96, di	f= 10 (P < 0.00	0001);	i² = 899	Х.	-	- to to to
Test for overall effect:	Z = 3.08 (P = 3.08)	= 0.002)							-20 -10 0 10 20 Favours (control) Favours (fortification)

- Footnotes (1) Fortified with iron only (2) Fortified with iron only

Serum/plasma ferritin (µg/L)

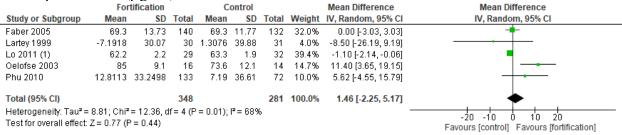
	For	tification			Control			Mean Difference		Mean Di	fference	
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% CI		IV, Rando	m, 95% CI	
Anand 2007	25.9	2.3	93	11.3	2.6	88	16.3%	14.60 [13.88, 15.32]			•	
Faber 2005	6.9	9.2	141	-2.43	4.96	138	16.2%	9.33 [7.60, 11.06]			-	
Glinz 2015 (1)	73.3073	50.9404	97	57.27	51.7	44	7.5%	16.04 [-2.30, 34.37]		-	-	
Lartey 1999	22.1	13.1525	28	14.6	14.1765	31	14.0%	7.50 [0.53, 14.47]			-	
Ma 2016	20.93	14.26	140	16.97	13.18	133	15.8%	3.96 [0.70, 7.22]			-	
Phu 2010	-5.7239	26.8184	135	-14.7	24.3	72	13.8%	8.98 [1.77, 16.19]				
Shamah-Levy 2008	21.1539	2.6179	271	20.1	2.1	144	16.4%	1.05 [0.59, 1.52]			•	
Total (95% CI)			905			650	100.0%	8.19 [1.35, 15.03]			•	
Heterogeneity: Tau² = Test for overall effect:			, df = 6	(P < 0.0	00001); l² =	99%		- / -	-50	-25 (Favours [control]) 2 Favours (fo	 50

Footnotes (1) Fortified with iron only

Serum/plasma retinol ($\mu g/dL$)

_	Fortification Control							Mean Difference	Mean Difference
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% CI	IV, Random, 95% CI
Anand 2007	33.3	9.7	86	31.8	10.6	87	20.3%	1.50 [-1.53, 4.53]	-
Faber 2005	28.0161	10.5346	139	28.7789	8.129	133	24.0%	-0.76 [-2.99, 1.47]	
Lartey 1999	3.92	8.4	29	-2.24	8.4	37	15.8%	6.16 [2.08, 10.24]	
Oelofse 2003	26.8	5.8	16	21.4	5.7	14	15.7%	5.40 [1.28, 9.52]	
Phu 2010	5.434	6.7066	135	3.92	8.12	73	24.3%	1.51 [-0.67, 3.69]	
Total (95% CI)			405			344	100.0%	2.31 [-0.02, 4.63]	•
Heterogeneity: Tau² = Test for overall effect			if= 4 (P	= 0.01); l ²	= 68%				-20 -10 0 10 20 Favours [control] Favours [fortification]

Serum/plasma zinc (µg/dL)

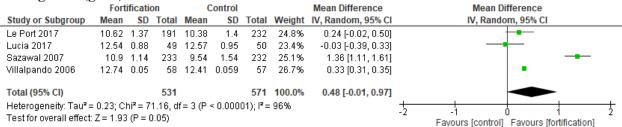


<u>Footnotes</u>

(1) Fortified with zinc only

<u>Comparison 9a: Large-Scale Food Fortification (with MMN) vs. Placebo/No Intervention</u> (Efficacy)

Hemoglobin (g/dL)



Serum/plasma ferritin (µg/L)

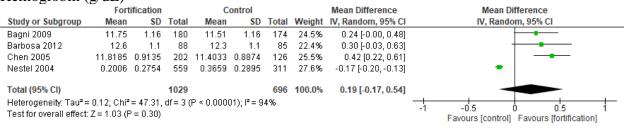
•	Fort	Fortification Control						Mean Difference	Mean Difference		
Study or Subgroup	Mean	SD	-	Mean	SD	Total	Weight	IV, Random, 95% CI	IV, Random, 95% CI		
Lucia 2017	19.72	5.08	49	17.58	4.23	50	32.2%	2.14 [0.30, 3.98]	_ _		
Sazawal 2007	15.3	11.2	233	9.8	8.6	232	32.4%	5.50 [3.69, 7.31]			
Villalpando 2006	2.4564	2.937	58	1.5175	3.5155	57	35.4%	0.94 [-0.25, 2.12]	+=-		
Total (95% CI)			340			339	100.0%	2.80 [0.11, 5.50]			
Heterogeneity: Tau² : Test for overall effect			-	-4 -2 0 2 4 Favours [control] Favours [fortification]							

Serum/plasma zinc (µg/dL)

	For	tificatio	n	(Control			Mean Difference	Mean Difference
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% CI	IV, Random, 95% CI
Lucia 2017	110.21	22.76	49	92.13	15.92	50	30.2%	18.08 [10.33, 25.83]	
Sazawal 2007	61.4	26.8	233	63.4	29.4	232	33.6%	-2.00 [-7.11, 3.11]	
Villalpando 2006	82.44	6.28	58	85.45	6.54	57	36.2%	-3.01 [-5.35, -0.67]	-
Total (95% CI)			340			339	100.0%	3.69 [-6.27, 13.66]	
Heterogeneity: Tau²: Test for overall effect				= 2 (P <	0.0000	1); l² = !	92%	-	-20 -10 0 10 20 Favours (control) Favours (fortification)

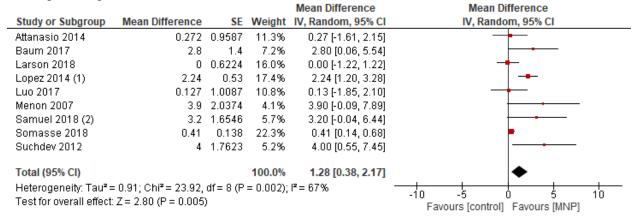
<u>Comparison 9b: Large-Scale Food fortification (with Iron) vs. Placebo/No Intervention</u> (Efficacy)

Hemoglobin (g/dL)



<u>Comparison 10: Micronutrient Powder Supplementation vs. Placebo/No Intervention (Effectiveness)</u>

Hemoglobin (g/L)

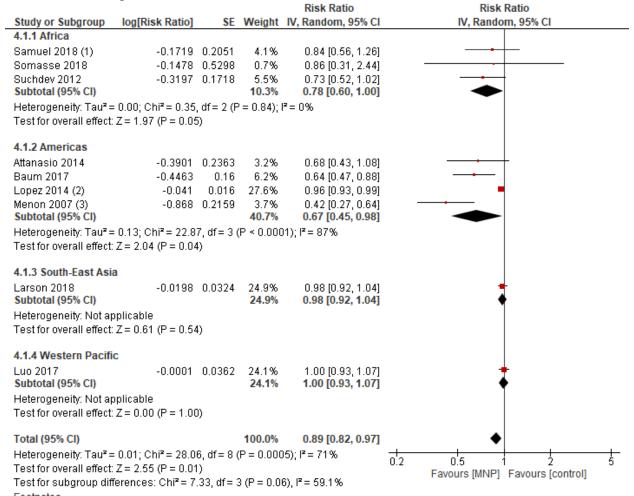


Footnotes

- (1) Controlled before-after study
- (2) Quasi experimental matched control design

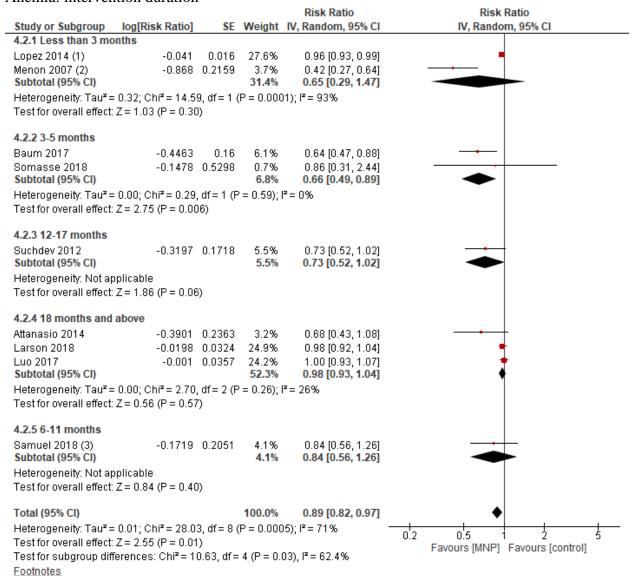
Comparison 10: Subgroup Analyses for Micronutrient Powders vs. Placebo/No Intervention (Effectiveness)

Anemia: WHO region:



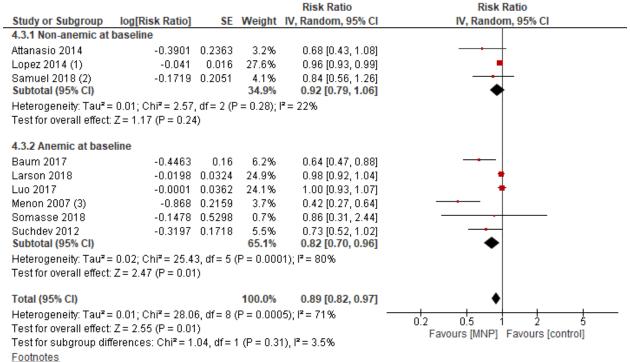
- (1) Quasi experimental matched control design
- (2) Controlled before-after study
- (3) Both groups received iron-fortified wheat-soy blend

Anemia: intervention duration



- (1) Controlled before-after study
- (2) Both groups received iron-fortified wheat-soy blend
- (3) Quasi experimental matched control design

Anemia: nutritional status at baseline (anemic vs. non anemic)



- (1) Controlled before-after study
- (2) quasi experimental matched control design
- (3) Both groups received iron-fortified wheat-soy blend

<u>Comparison 11: Lipid-based Nutrient Supplementation vs. Placebo/No Intervention</u> (Effectiveness)

Stunting

C	LNS suppleme	ntation	Conti	rol		Risk Ratio	Risk Ratio
Study or Subgroup	Events	Total	Events	Total	Weight	M-H, Random, 95% CI	M-H, Random, 95% CI
Dewey 2017	303	772	337	802	18.0%	0.93 [0.83, 1.05]	
Huybregts 2012	157	341	131	251	12.0%	0.88 [0.75, 1.04]	
_uby 2018	457	564	890	1050	33.7%	0.96 [0.91, 1.00]	-
Null 2018	560	654	1238	1503	35.5%	1.04 [1.00, 1.08]	=
Rosado 2011	10	59	10	62	0.7%	1.05 [0.47, 2.34]	
otal (95% CI)		2390		3668	100.0%	0.97 [0.91, 1.04]	•
otal events	1487		2606				
Heterogeneity: Tau² =			(P = 0.02)); I² = 63	7%	_	0.5 0.7 1 1.5 2
Test for overall effect:	Z = 0.81 (P = 0.4)	2)					Favours [LNS] Favours [control]

Hemoglobin (g/L)

	LNS su	LNS supplementation Control						Mean Difference	Mean Difference
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% CI	IV, Random, 95% CI
Batra 2016	-5	2	85	0.03	1	58	26.3%	-5.03 [-5.53, -4.53]	•
Dewey 2017	115.6	9.1702	151	112.4	10.0835	160	25.4%	3.20 [1.06, 5.34]	
Huybregts 2012	105.8	14.3	326	102.5	15.2	233	25.1%	3.30 [0.81, 5.79]	
Rosado 2011	6	11	55	4	11	61	23.2%	2.00 [-2.01, 6.01]	 •
Total (95% CI)			617			512	100.0%	0.78 [-4.81, 6.37]	
Heterogeneity: Tau ^z = Test for overall effect:				-10 -5 0 5 10 Favours [control] Favours [LNS]					

Length-for-age (z-score)

	LNS sup	plement	ation	Control				Mean Difference	Mean Difference		
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% CI	IV, Random, 95% CI		
Batra 2016	0.72	0.1	85	0.7	0.1	58	25.0%	0.02 [-0.01, 0.05]	+		
Dewey 2017	-1.73	0.95	772	-1.8	0.94	802	19.9%	0.07 [-0.02, 0.16]	 • -		
Huybregts 2012	-1.79	1.46	341	-2.06	1.39	251	9.1%	0.27 [0.04, 0.50]			
Luby 2018	-1.53	1.05	457	-1.79	1.01	890	17.6%	0.26 [0.14, 0.38]	_ -		
Null 2018	-1.44	1.11	560	-1.54	1.11	1238	18.2%	0.10 [-0.01, 0.21]	 • 		
Rosado 2011	0.1	0.6	59	0.1	0.6	62	10.1%	0.00 [-0.21, 0.21]			
Total (95% CI)			2274			3301	100.0%	0.11 [0.02, 0.19]	•		
Heterogeneity: Tau ² =	0.01; Chi ² :	= 20.12, (df = 5 (P	= 0.001);	75%					
Test for overall effect:	•								-0.5 -0.25 0 0.25 0.5 Favours [control] Favours [LNS]		

Weight-for-age (z-score)

	LNS sup	LNS supplementation C						Mean Difference	Mean Difference			
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% CI	IV, Random, 95% CI			
Batra 2016	0.35	0.1	85	0.24	0.1	58	31.3%	0.11 [0.08, 0.14]	-			
Dewey 2017	-1.65	0.93	772	-1.75	0.93	802	20.3%	0.10 [0.01, 0.19]				
Luby 2018	-1.29	1.07	462	-1.54	1	904	16.2%	0.25 [0.13, 0.37]	_ 			
Null 2018	-0.65	0.68	563	-0.72	1.01	1248	22.7%	0.07 [-0.01, 0.15]	 • -			
Rosado 2011	0	0.5	56	0.1	0.5	62	9.4%	-0.10 [-0.28, 0.08]				
Total (95% CI)			1938			3074	100.0%	0.10 [0.04, 0.17]	•			
Heterogeneity: Tau ² =	0.00; Chi ² :	= 11.64,	df = 4 (P	= 0.02)	$l^2 = 6l$	6%						
Test for overall effect:	Z = 3.06 (P	= 0.002)	•						-0.5 -0.25 0 0.25 0.5 Favours [control] Favours [LNS]			

Weight-for-height (z-score)

	LNS sup	ation	C	ontrol			Mean Difference	Mean Difference		
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% CI	IV, Random, 95% CI	
Batra 2016	-0.16	0.1	82	-0.31	0.1	54	28.4%	0.15 [0.12, 0.18]	-	
Dewey 2017	-1.03	0.87	772	-1.11	0.89	802	19.5%	0.08 [-0.01, 0.17]		
Huybregts 2012	-1.05	0.93	341	-1.09	0.95	251	10.9%	0.04 [-0.11, 0.19]	- -	
Luby 2018	-0.71	1	457	-0.88	0.93	890	15.9%	0.17 [0.06, 0.28]	_ -	
Null 2018	0.14	0.92	560	0.11	0.94	1239	18.6%	0.03 [-0.06, 0.12]	- •	
Rosado 2011	0	0.6	57	0.1	0.6	62	6.7%	-0.10 [-0.32, 0.12]		
Total (95% CI)			2269			3298	100.0%	0.09 [0.03, 0.15]	•	
Heterogeneity: Tau² =		-0.5 -0.25 0 0.25 0.5								
Test for overall effect:	Z = 2.75 (P	Favours [control] Favours [LNS]								