Figure S1 Forest plot: Effect of Iron fortification on serum hemoglobin levels in children

		tificatio			ontrol			Std. Mean Difference	Std. Mean Difference
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% CI	IV, Random, 95% CI
1.16.1 Healthy									
Abizari 2012	120	11	109	117	11	115	3.1%	0.27 [0.01, 0.54]	<del>-</del>
Andang'o Electrolyte Fe	112.2	9.9	127	115.7	9.7	64	3.0%	-0.35 [-0.66, -0.05]	
Andang'o NaFeEDTA	117.2	8.5	121	115.7	9.7	64	3.0%	0.17 [-0.14, 0.47]	+
Arcanjo 2010	11.4	1	77	11	0.7	77	3.0%	0.46 [0.14, 0.78]	<del> </del>
Bagni 2009	11.75	1.16	180	11.51	1.16	174	3.1%	0.21 [-0.00, 0.42]	<del>-</del>
Barbosa 2012	126	11	88	123	11	85	3.0%	0.27 [-0.03, 0.57]	<del> -</del>
Chen 2005	118.2	9.2	202	114	8.9	126	3.1%	0.46 [0.24, 0.69]	-
Daly 1996	123	7	41	115	13	43	2.8%	0.75 [0.31, 1.20]	
de Almeida 2005	11.54	1.35	74	11.95	1.22	76	3.0%	-0.32 [-0.64, 0.00]	$\dashv$
Gill 1997	121.5	13.26	192	117.7	11.22	60	3.0%	0.30 [0.00, 0.59]	<del> </del>
Haschke 1988	125	7	43	122	7	45	2.8%	0.42 [0.00, 0.85]	<del> </del>
Levi Fe Gluconate 2008	120.4	9.6	135	123.6	10.8	67	3.0%	-0.32 [-0.61, -0.02]	-
Levi Fe Sulphate 2008	120.2	9.9	136	123.6	10	67	3.0%	-0.34 [-0.64, -0.05]	-
Longfils 2008	109.8	8.7	93	104.9	11.3	44	2.9%	0.51 [0.14, 0.87]	<del></del>
Marsh 1959	12.69	0.95	46	10.46	1.43	39	2.7%	1.85 [1.34, 2.36]	
Moffatt 1994	118.6	5.7	78	115.1	5.7	76	3.0%	0.61 [0.29, 0.93]	
Morley 1999	126	11	40	120	11	32	2.8%	0.54 [0.07, 1.01]	
Nogueira 2012 (2)	11.5	0.8	60	11.2	0.73	60	2.9%	0.39 [0.03, 0.75]	<del> </del>
Noqueria 2012 (1)	116.7	0.96	96	113.6	2.1	92	3.0%	1.90 [1.56, 2.25]	<del></del>
Rim 2008	118	11.7	107	110	11.1	104	3.0%	0.70 [0.42, 0.98]	-
Sari 2001	120.8	7.8	57	115.3	7.9	60	2.9%	0.70 [0.32, 1.07]	<del></del>
Stevens 1995	122	6.1	24	119.7	10.1	26	2.6%	0.27 [-0.29, 0.83]	<del></del>
Szymlek-Gay 2009	121.6	3.1	41	120.2	2.6	81	2.9%	0.50 [0.12, 0.88]	<del></del>
Virtanen 2001	121	7.5	20	121	6.9	16	2.4%	0.00 [-0.66, 0.66]	<del></del>
Walter (2) 1993	126	1	73	121	1.6	64	2.6%	3.78 [3.22, 4.35]	
Walter 1993 (1) Boys	142.8	8.5	245	139	8.4	248	3.1%	0.45 [0.27, 0.63]	-
Walter 1993 (1) Girls	140.4	8.3	209	138.2	8.5	225	3.1%	0.26 [0.07, 0.45]	-
Zimmerman 2010	107.1	9.4	69	106.6	9.7	70	3.0%	0.05 [-0.28, 0.38]	+
Subtotal (95% CI)			2783			2300	82.0%	0.50 [0.28, 0.71]	♦
Heterogeneity: Tau² = 0.3 Test for overall effect: Z =				'(P < 0.	00001)	; I² = 92	%		
1.16.2 Deficient									
Huo 2002	137.8	9	159	118.5	4.7	81	3.0%	2.46 [2.11, 2.81]	
Huong 2006	17.8	7.6	72	14.5	8.5	73	3.0%	0.41 [0.08, 0.74]	<del></del>
Moretti 2006	119	9	80	116	11	90	3.0%	0.30 [-0.01, 0.60]	<del> </del>
Muthayya 2012	129	11	185	123	11	193	3.1%	0.54 [0.34, 0.75]	-
Schu"mann 2005	120.8	7.8	57	115.3	7.9	60	2.9%	0.70 [0.32, 1.07]	
Zimmerman 2006	117	8	66	114	10	68	3.0%	0.33 [-0.01, 0.67]	<del>-</del>
Subtotal (95% CI)			619			565	18.0%	0.79 [0.19, 1.38]	•
Heterogeneity: Tau² = 0.5 Test for overall effect: Z =	•		df = 5	(P < 0.0	0001);	P= 969	6		
Total (95% CI)			3402			2865	100.0%	0.55 [0.34, 0.76]	•
Heterogeneity: Tau <sup>2</sup> = 0.3				3 (P < 0.	00001)	; I² = 93	%		-4 -2 0 2 4
Test for overall effect: Z = Test for subgroup differer	•		•	(P = 0.3	(7) IZ-	N96			Favours control Favours fortification

Figure S2 Effect of Iron fortifications on anemia prevalence in children

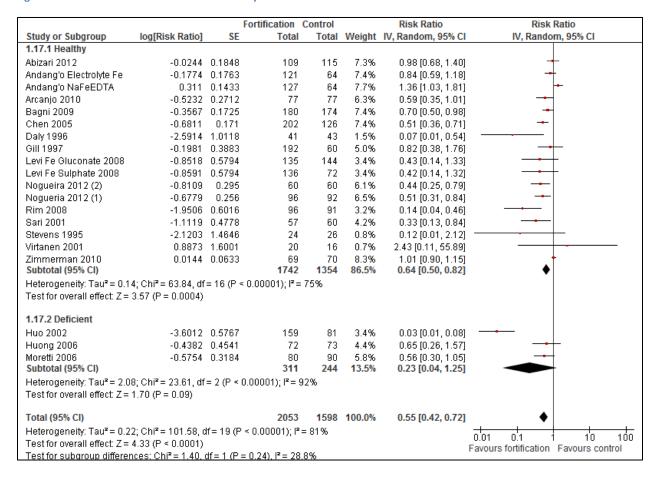


Figure S3 Effect of Iron fortification on serum ferritin levels in children

	For	tificatio	n	C	ontrol			Std. Mean Difference	Std. Mean Difference	
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% CI	IV, Random, 95% CI	
1.18.1 Healthy										
Daly 1996	30.5	17	41	15.9	12.2	43	12.0%	0.98 [0.53, 1.44]	<del></del>	
Gill 1997	25.1	16.52	192	15.3	11.46	60	12.6%	0.63 [0.34, 0.93]	-	
Levi Fe Gluconate 2008	20.1	2.5	135	20.1	2.1	67	12.6%	0.00 [-0.29, 0.29]	+	
Levi Fe Sulphate 2008	22.3	2.3	136	20.1	2.1	67	12.6%	0.98 [0.67, 1.29]	-	
Rim 2008	40.7	24	107	26.8	21.4	104	12.7%	0.61 [0.33, 0.88]	<del>*</del>	
Subtotal (95% CI)			611			341	62.6%	0.63 [0.28, 0.98]	•	
Heterogeneity: Tau <sup>2</sup> = 0.13	3; Chi² =	24.70, (	df = 4 (F	o.00 >	01); l² =	84%				
Test for overall effect: Z = 3	3.50 (P =	0.0005	5)							
1.18.2 Deficient										
Huo 2002	59.5	20	159	7.13	15.65	81	12.4%	2.80 [2.43, 3.17]	-	
Huong 2006	18.5	30.9	72	-6.5	27.1	73	12.5%	0.86 [0.52, 1.20]	-	
Moretti 2006	26.3	19	80	17.7	17	90	12.6%	0.48 [0.17, 0.78]	-	
Subtotal (95% CI)			311			244	37.4%	1.37 [0.01, 2.74]		
Heterogeneity: Tau <sup>2</sup> = 1.42	2; Chi² =	97.87, (	df = 2 (B)	o.00 >	001); l²	= 98%				
Test for overall effect: Z = 1	1.98 (P =	0.05)								
Total (95% CI)			922			585	100.0%	0.91 [0.38, 1.44]	•	
Heterogeneity: Tau <sup>2</sup> = 0.55; Chi <sup>2</sup> = 151.49, df = 7 (P < 0.00001); i <sup>2</sup> = 95%										
Test for overall effect: Z = 3	3.38 (P =	0.0007	")	-					-2 -1 U 1 2 Favours control Favours fortification	
Test for subgroup differen	ces: Chi	r = 1.08	. df = 1	(P = 0.3)	(0),  z  =	7.8%			Favours Control Favours fortilication	

Figure S4 Effect of zinc fortification on serum zinc levels in children

	Forti	ficatio	n	0	ontrol			Std. Mean Difference	Std. Mean Difference
Study or Subgroup	Mean			Mean		Total	Weight	IV, Random, 95% CI	IV, Random, 95% CI
1.4.1 Full term health	y infants	i						,	
Matsuda 1984	102	17	20	78	12	19	11.4%	1.59 [0.86, 2.32]	
Salmenpera 1999	85	3	16	65	4	16	7.9%	5.51 [3.91, 7.11]	
Subtotal (95% CI)			36			35	19.3%	3.49 [-0.36, 7.33]	
Heterogeneity: Tau² = Test for overall effect:				f=1 (P ·	< 0.000°	1); I² = 9	35%		
1.4.2 Newborns with	VLBW								
Diaz Gomez 2003	119	37	18	87	30	17	11.5%	0.93 [0.22, 1.63]	
Friel 1993	95	17	15	93	30	14	11.4%	0.08 [-0.65, 0.81]	+
Subtotal (95% CI)			33			31	22.9%	0.51 [-0.32, 1.34]	<b>*</b>
Heterogeneity: Tau <sup>2</sup> = Test for overall effect:  1.4.3 Infants at risk o	Z=1.20	(P = 0		= 1 (P =	0.10); l²	'= 63%			
		_	70	77	4.4	77	10.50	0.001.004.0441	1
Brown 2007 Subtotal (95% CI)	78	12	70 <b>70</b>	77	11	77 <b>77</b>	12.5% <b>12.5%</b>	0.09 [-0.24, 0.41] <b>0.09 [-0.24, 0.41]</b>	<b>↓</b>
Heterogeneity: Not ap Test for overall effect:	•	(P = 0	.60)						
1.4.4 Malnourished in	nfants								
Schlesinger 1992 Subtotal (95% CI)	122	28	18 <b>18</b>	118	38	17 <b>17</b>	11.6% <b>11.6%</b>	0.12 [-0.55, 0.78] <b>0.12 [-0.55, 0.78</b> ]	<del>+</del>
Heterogeneity: Not ap Test for overall effect:	•	(P = 0	.73)						
1.4.5 School going ch	nildren								
Hambidge 1979	77	14	31	71	14	28	12.1%	0.42 [-0.09, 0.94]	-
Ohiokpehai 2009	66.6			54.92		154	12.6%	1.79 [1.51, 2.06]	
Subtotal (95% CI)	00.0		165	0 1.02	0.001	182	24.7%	1.12 [-0.21, 2.46]	•
Heterogeneity: Tau² = Test for overall effect:				f=1 (P ·	< 0.000	01); I²=	95%		
1.4.6 School going ch	nildren w	ith as	ympto	matic zi	inc defi	ciency			
Kilic 1998	82	9	9	63	3	10	9.0%	2.77 [1.43, 4.11]	<del></del> -
Subtotal (95% CI)			9			10	9.0%	2.77 [1.43, 4.11]	•
Heterogeneity: Not ap	plicable								
Test for overall effect:	Z = 4.06	(P < 0	.0001)						
Total (95% CI)			331			352	100.0%	1.28 [0.56, 2.01]	•
Heterogeneity: Tau <sup>2</sup> =	1.07; Ch	ni² = 11	9.70, (	df = 8 (P	< 0.00	001); l²	= 93%		
Test for overall effect:									-4 -2 0 2 4 Favors Control Favors Fortificatio
Test for subgroup diff	<u>erences:</u>	Chi <sup>z</sup> =	: 19.40	l, df = 5	(P = 0.0)	02), l²=	74.2%		1 avois Control 1 avois 1 offineau

Figure S5 Effect of zinc fortification on height gain in children

	Expe	erimen	tal	C	ontrol			Std. Mean Difference	Std. Mean Difference
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% CI	IV, Random, 95% CI
4.2.1 Healthy newborns									
Matsuda 1984	1.01	0.42	20	1.01	0.41	18	13.5%	0.00 [-0.64, 0.64]	+
Salmenpera 1999 (Boys)	0.71	0.04	10	0.84	0.03	7	7.5%	-3.40 [-5.02, -1.77]	<del></del>
Salmenpera 1999 (Girls)	0.65	0.05	6	0.7	0.03	9	10.1%	-1.21 [-2.36, -0.06]	<del></del>
Walravens1976 Subtotal (95% CI)	1.01	0.03	24 <b>60</b>	0.94	0.03	18 <b>52</b>	12.4% <b>43.4</b> %	2.29 [1.49, 3.09] - <b>0.48 [-2.45, 1.48</b> ]	•
Heterogeneity: $Tau^2 = 3.71$ ; Test for overall effect: $Z = 0$ .			= 3 (P	< 0.0001	01); I²=	94%			
4.2.2 Newborns with VLBV	V								
Diaz Gomez 2003 Subtotal (95% CI)	1.04	0.07	18 <b>18</b>	0.99	0.07	18 <b>18</b>	13.2% <b>13.2%</b>	0.70 [0.02, 1.37] <b>0.70 [0.02, 1.37]</b>	<u>-</u>
Heterogeneity: Not applicate Test for overall effect: Z = 2.		0.04)							
4.2.3 Infants at risk of stur	iting								
Brown 2007 Subtotal (95% CI)	0.382	0.061	84 <b>84</b>	0.379	0.06	92 <b>92</b>	15.2% <b>15.2%</b>	0.05 [-0.25, 0.35] <b>0.05 [-0.25, 0.35]</b>	<b>†</b>
Heterogeneity: Not applicable Test for overall effect: Z = 0.		).74)							
4.2.4 Malnourished infants	;								
Schlesinger 1992 Subtotal (95% CI)	0.62	0.23	19 <b>19</b>	0.58	0.26	20 <b>20</b>	13.5% <b>13.5</b> %	0.16 [-0.47, 0.79] <b>0.16 [-0.47, 0.79</b> ]	<del> </del>
Heterogeneity: Not applicable Test for overall effect: $Z = 0$ .		).62)							
4.2.5 School going children	1								
Hambidge 1979 Subtotal (95% CI)	0.18	0.031	46 <b>46</b>	0.17	0.032	42 <b>42</b>	14.7% <b>14.7%</b>	0.31 [-0.11, 0.74] <b>0.31 [-0.11, 0.74</b> ]	•
Heterogeneity: Not applicable Test for overall effect: $Z = 1$ .		0.14)							
Total (95% CI)			227			224	100.0%	0.08 [-0.53, 0.69]	•
Heterogeneity: Tau <sup>2</sup> = 0.62;	Chi²= 5	4.71. dt		< 0.000	01): I <b>z</b> =				<del></del>
Test for overall effect: $Z = 0$ .				0.000	// ' -	21.70			-4 -2 0 2 4
Test for subgroup difference	•		df = 4	P = 0.43	$),  \mathbf{r} = 0$	%			Favours control Favours fortification

Figure S6 Effect of zinc fortification on weight gain in children

	Fort	ificatio	n	C	ontrol			Std. Mean Difference	Std. Mean Difference
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% CI	IV, Random, 95% CI
3.2.1 Healthy newbor	rns								
Matsuda 1984	26.4	8.3	20	26.5	7	18	16.4%	-0.01 [-0.65, 0.62]	<del>-</del>
Walravens1976	23.8	0.58		21.48	0.94	18	13.8%	3.02 [2.10, 3.93]	
Subtotal (95% CI)			44			36	30.2%	1.48 [-1.49, 4.45]	
Heterogeneity: Tau <sup>2</sup> =				'= 1 (P ·	< 0.000	)01); l²	= 96%		
Test for overall effect:	Z = 0.98	(P = 0	.33)						
3.2.2 Newborns with	VLBW								
Diaz Gomez 2003	25.7	3.43	18	24.86	0.9	18	16.2%	0.33 [-0.33, 0.99]	<del> -</del>
Subtotal (95% CI)			18			18	16.2%	0.33 [-0.33, 0.99]	<b>*</b>
Heterogeneity: Not ap	plicable								
Test for overall effect:	Z = 0.98	(P = 0)	.33)						
3.2.3 Infants at risk of	of stuntin	na							
Brown 2007		2.78	84	7.22	2.78	92	19.0%	0.00 [-0.30, 0.30]	<del> </del>
Subtotal (95% CI)	1.22	2.70	84	1.22	2.70	92	19.0%	0.00 [-0.30, 0.30]	<b>+</b>
Heterogeneity: Not ap	plicable								
Test for overall effect:	Z = 0.00	(P = 1	.00)						
3.2.4 Malnourished in	nfants								
Schlesinger 1992	24.9	6.3	19	25.8	10.2	20	16.4%	-0.10 [-0.73, 0.52]	<del>-</del>
Subtotal (95% CI)			19			20	16.4%	-0.10 [-0.73, 0.52]	•
Heterogeneity: Not ap	plicable								
Test for overall effect:	Z = 0.32	(P = 0)	.75)						
3.2.5 School going ch	hildren								
Hambidge 1979	7.97	2.3	46	7.45	1.67	42	18.2%	0.25 [-0.17, 0.67]	<del> -</del> -
Subtotal (95% CI)			46			42	18.2%	0.25 [-0.17, 0.67]	<b>*</b>
Heterogeneity: Not ap									
Test for overall effect:	Z = 1.19	(P = 0	.23)						
Total (95% CI)			211			208	100.0%	0.50 [-0.12, 1.11]	•
Heterogeneity: Tau <sup>2</sup> =	0.49; CI	hi² = 39	3.88, dt	= 5 (P ·	< 0.000	001); l²	= 87%		+ + + + + + + + + + + + + + + + + + + +
Test for overall effect:				•		••			-4 -2 0 2 4 Favors Control Favors Fortification
Test for subgroup diff	<u>erences</u>	: Chi²=	= 2.65,	df = 4 (F	o = 0.6	2), I² =	0%		1 avois Control Favois Foldilication

Figure S7 Effect of zinc fortification on serum hemoglobin levels in children

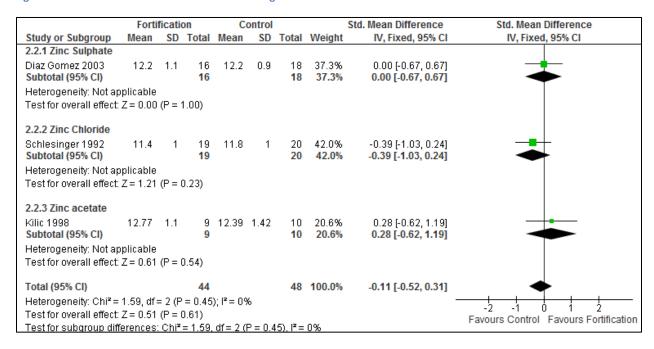


Figure S8 Effect of zinc fortification on serum copper levels in children

	Fort	ificatio	1	С	ontrol			Std. Mean Difference	Std. Mean Difference
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% CI	IV, Random, 95% CI
Kilic 1998	80.832	27.07	9	98.75	28.74	10	23.7%	-0.61 [-1.54, 0.31]	
Matsuda 1984	111	31	20	124	21	19	25.4%	-0.48 [-1.12, 0.16]	<del></del>
Schlesinger 1992	155	28	18	149	29	17	25.3%	0.21 [-0.46, 0.87]	<del></del>
Walravens1976	124.2	5.8	34	112.3	6.1	34	25.7%	1.98 [1.39, 2.56]	-
Total (95% CI)			81			80	100.0%	0.29 [-0.96, 1.54]	-
Heterogeneity: Tau² = Test for overall effect:				3 (P < 0	.00001)	); I² = 9:	2%		-4 -2 0 2 4 Favours Control Favours Fortification

Figure S9 Effect of vitamin D and calcium fortification on serum vitamin D levels in children

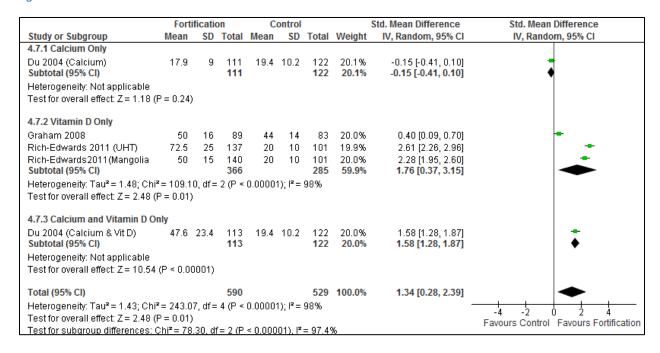


Figure S10 Effect of vitamin D and calcium fortification on serum PTH levels in children

	Favours	Interven	tion	Favou	rs Con	trol		Std. Mean Difference	Std. Mean Difference
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% Cl	I IV, Random, 95% CI
4.6.1 Calcium Only									
Du 2004 (Calcium)	6.68	3.03	111	8.19	6.3	122	36.9%	-0.30 [-0.56, -0.04]	] <del></del>
Zhu 2005 (Calcium) Subtotal (95% CI)	6.67	3.03	43 <b>154</b>	7.6	4.83	41 <b>163</b>	13.4% <b>50.3%</b>	-0.23 [-0.66, 0.20] - <b>0.28 [-0.50, -0.06</b> ]	
Heterogeneity: Tau <sup>2</sup> = 0.00; C	$hi^2 = 0.08$	df=1 (P	= 0.78);	2 = 0%					
Test for overall effect: Z = 2.4	9 (P = 0.01)	)							
4.6.3 Calcium and Vitamin D	only								
Du 2004 (Calcium & Vit D)	5.64	3.34	113	8.19	6.3	122	36.6%	-0.50 [-0.76, -0.24]	] <del></del>
Zhu 2005(Calcium & Vit D) Subtotal (95% CI)	5.36	2.78	44 157	7.6	4.83	41 <b>163</b>	13.1% <b>49.7%</b>	-0.57 [-1.00, -0.13] - <b>0.52 [-0.74</b> , - <b>0.29</b> ]	
Heterogeneity: Tau <sup>2</sup> = 0.00; C	hi² = 0.07,	df=1 (P	= 0.79);	2 = 0%					
Test for overall effect: $Z = 4.5$	4 (P < 0.00	001)							
Total (95% CI)			311			326	100.0%	-0.40 [-0.56, -0.24]	•
Heterogeneity: Tau <sup>2</sup> = 0.00; C	hi² = 2.31,	df = 3 (P	= 0.51);	I <sup>2</sup> = 0%					<del></del>
Test for overall effect: $Z = 4.9$	7 (P < 0.00	001)							Favours Fortification Favours Control
Test for subgroup difference:	s: Chi² = 2.	16. df = 1	(P = 0.1)	(4), (2 = 3)		ravours rounicauoff Favours Control			

Figure S11 Effect of vitamin D and calcium fortification on serum calcium levels in children

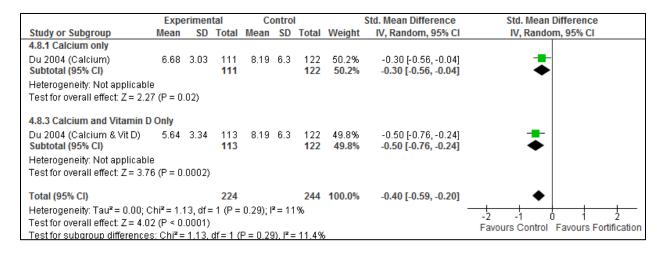


Figure S12 Effect of Vitamin A fortification on serum retinol concentration in children

	Fort	ificatio	on	C	ontrol			Std. Mean Difference	Std. Mean Difference
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% CI	IV, Random, 95% CI
Solon 1979	28.5	14.8	387	16.4	11.9	391	22.1%	0.90 [0.75, 1.05]	+
Solon 2000	1.32	0.37	396	1.17	0.33	396	22.3%	0.43 [0.29, 0.57]	•
Zhang 2010 (a)	1.15	0.27	87	1.02	0.23	87	16.7%	0.52 [0.21, 0.82]	<del></del>
Zhang 2010 (b)	1.27	0.32	144	1.05	0.28	144	19.0%	0.73 [0.49, 0.97]	-
Zhang 2010 (c)	1.18	0.28	165	1.06	0.26	165	19.8%	0.44 [0.22, 0.66]	-
Total (95% CI)			1179			1183	100.0%	0.61 [0.39, 0.83]	•
Heterogeneity: Tau <sup>2</sup> =		-2 -1 0 1 2							
Test for overall effect:	Z = 5.46	Favours control Favours fortification							

Figure S13 Effect of Vitamin A fortification on Vitamin A deficiency in children

			Fortification	Control		Risk Ratio	Risk Ratio
Study or Subgroup	log[Risk Ratio]	SE	Total	Total	Weight	IV, Random, 95% CI	IV, Random, 95% CI
Zhang 2010 (a)	-1.5002	0.7603	141	173	22.9%	0.22 [0.05, 0.99]	-
Zhang 2010 (b)	-1.9608	0.738	165	209	23.2%	0.14 [0.03, 0.60]	_ <del></del>
Zhang 2010 (c)	-1.3406	0.6193	139	194	24.8%	0.26 [0.08, 0.88]	_ <del>-</del>
Solon 1979	0.6225	0.1912	202	242	29.0%	1.86 [1.28, 2.71]	
Total (95% CI)			647	818	100.0%	0.39 [0.09, 1.74]	-
Heterogeneity: Tau² =	2.00; Chi² = 24.63	3, df = 3 (	(P < 0.0001); I	²= 88%			0.01 0.1 1 10 100
Test for overall effect:	Z=1.24 (P=0.22	()					Favours fortification Favours control

Figure 14 Effect of Vitamin A fortification on serum hemoglobin levels in children

	Fortification 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
Solon 2000	130	123	382	131	113	426	26.5%	-0.01 [-0.15, 0.13]	+
Zhang 2010 (a)	120.32	8.84	87	113.34	10.13	87	23.6%	0.73 [0.42, 1.04]	-
Zhang 2010 (b)	119.82	9.61	144	114.12	8.84	144	25.0%	0.62 [0.38, 0.85]	-
Zhang 2010 (c)	119.48	8.86	134	114.26	7.61	134	24.9%	0.63 [0.38, 0.88]	-
Total (95% CI)			747			791	100.0%	0.48 [0.07, 0.89]	•
Heterogeneity: Tau² = Test for overall effect:				:3(P<0	Fa	-2 -1 0 1 2 vours experimental Favours control			

Figure S15 Effect of iodine fortification on urinary iodine concentration in children

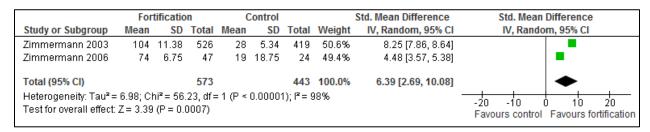


Figure S16 Effect of iodine fortification on serum thyroxin levels in children

	Fortification Control				I	!	Std. Mean Difference	Std. Mean Difference	
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% CI	IV, Random, 95% CI
Zimmermann 2003	126	29	641	137	36	419	51.3%	-0.34 [-0.47, -0.22]	•
Zimmermann 2006	118	24	47	87	23	24	48.7%	1.30 [0.76, 1.83]	•
Total (95% CI)			688			443	100.0%	0.45 [-1.15, 2.06]	•
Heterogeneity: Tau² = Test for overall effect:		-20 -10 0 10 20 Favours control Favours fortification							

Figure S17 Effect of MMN fortification on serum hemoglobin levels in children

	Fort	ificatio	n	С	ontrol			Std. Mean Difference	Std. Mean Difference
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% CI	IV, Random, 95% CI
3.3.1 LMIE									
Kumar 2007	102	0.77	63	101	0.75	66	6.7%	1.31 [0.93, 1.69]	
Lartey 1999	103	13	52	100	17	53	6.7%	0.20 [-0.19, 0.58]	+
Lein 2009	126.1	7.2	150	123.7	10.5	151	7.1%	0.27 [0.04, 0.49]	+
Nesamvuni 2005	11.4	2.2	16	10.8	2.4	20	5.7%	0.25 [-0.41, 0.91]	+
Nga 2009	121.2	7.3	114	120.1	8	118	7.0%	0.14 [-0.11, 0.40]	+
Phu 2010 (a)	114	7	106	109	8	61	6.8%	0.67 [0.35, 1.00]	-
Phu 2010 (b)	112.5	8	120	109	8	62	6.9%	0.44 [0.13, 0.75]	-
Sazawal 2010	109	11.4	233	95.4	15.4	232	7.1%	1.00 [0.81, 1.20]	-
Thankachan 2012	114	8.7	76	113	7.7	76	6.9%	0.12 [-0.20, 0.44]	<del>†.</del>
Subtotal (95% CI)			930			839	60.9%	0.50 [0.21, 0.78]	◆
Heterogeneity: Tau <sup>2</sup> =	0.16; CI	hi <b>z</b> = 6:	3.93, di	f= 8 (P ·	< 0.001	001); l²	= 87%		
Test for overall effect:	Z = 3.41	(P = 0)	1.0007)						
3.3.2 UMIE									
Faber 2005 (a)	119	11	144	110	14	142	7.0%	0.71 [0.47, 0.95]	-
Lopriore 2004	127	14	82	109	19	93	6.9%	1.06 [0.75, 1.38]	-
Lutter 2007	114.6	8.8	49	109.9	10.3	61	6.7%	0.48 [0.10, 0.86]	
Stekel 1988	128	7	39	129	8	39	6.5%	-0.13 [-0.58, 0.31]	+
Villalpando 2006	127.4	0.5	58	124.1	0.59	57	4.9%	6.00 [5.13, 6.87]	
Winichagoon 2006	121.3	9.54	261	120.6	9.63	257	7.2%	0.07 [-0.10, 0.25]	+
Subtotal (95% CI)			633			649	39.1%	1.25 [0.45, 2.06]	•
Heterogeneity: Tau² =	0.97; C	hi² = 2	00.13,	df = 5 (F	< 0.00	0001); (	<sup>2</sup> = 98%		
Test for overall effect:	Z = 3.04	(P = 0	.002)	•					
Total (95% CI)			1563			1488	100.0%	0.75 [0.41, 1.08]	•
Heterogeneity: Tau <sup>2</sup> =	0.40±0	hi≅ – 21		HF = 1.4 /	P«Λι			. , .	
Test for overall effect:			-4 -2 0 2 4						
Test for subgroup diff			Favours control Favours fortification						
Test for subdroup alli	<u>erences</u>	. Office	- 3.01,	ui – 1 (f	0.0	0), ["=	00.770		

Figure S18 Effect of MMN fortification on serum ferritin levels in children

	For	tificatio	n	0	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	
3.8.1 LIE/LMIE										
Lartey 1999	14.9	44.57	52	14.6	38.41	53	11.2%	0.01 [-0.38, 0.39]	<del>- + -</del>	
Lein 2009	108.3	69.4	150	104.2	69.1	151	13.6%	0.06 [-0.17, 0.29]	<del>- -</del> -	
Phu 2010 (a)	19.8	13.4	120	11.1	7.6	122	13.1%	0.80 [0.54, 1.06]	<del></del>	
Phu 2010 (b)	20.8	13.85	105	11.1	7.61	122	12.9%	0.88 [0.61, 1.16]		
Sazawal 2010 Subtotal (95% CI)	15.3	11.2	233 <b>660</b>	9.8	8.6	272 <b>720</b>	14.2% <b>65.1%</b>	0.56 [0.38, 0.73] <b>0.47 [0.14, 0.80]</b>	-	
Heterogeneity: Tau <sup>2</sup> =	0.12; CI	hi <b>=</b> 33.	.85, df=	= 4 (P <	0.0000	1);   ² = {	38%			
Test for overall effect:	Z = 2.82	(P = 0.	005)							
3.8.2 UMIE/HIE										
Faber 2005 (a)	15.8	57.5	141	6.5	35.3	138	13.5%	0.19 [-0.04, 0.43]	<del>  • -</del>	
Lutter 2007	17.4	59.5	49	19.3	66	61	11.3%	-0.03 [-0.41, 0.35]	<del></del>	
Stekel 1988	15.4	5.6	38	13	5.1	41	10.2%	0.44 [-0.00, 0.89]	-	
Subtotal (95% CI)			228			240	34.9%	0.18 [-0.03, 0.40]	•	
Heterogeneity: Tau <sup>2</sup> =	0.01; CI	$hi^2 = 2.5$	5, df=	2(P = 0)	.28); l <b>²</b> =	22%				
Test for overall effect:	Z = 1.67	(P = 0.	10)							
Total (95% CI)			888			960	100.0%	0.37 [0.13, 0.62]	•	
Heterogeneity: Tau² = 0.10; Chi² = 44.53, df = 7 (P < 0.00001); I² = 84%										
Test for overall effect:	Favours control Favours fortification									
Test for subgroup diff	erences	: Chi <sup>z</sup> =	2.04, d	f=1 (P	= 0.15).	$I^2 = 51$	.1%		1 avours control 1 avours fortilication	

Figure S19 Effect of MMN fortification on serum zinc levels in children

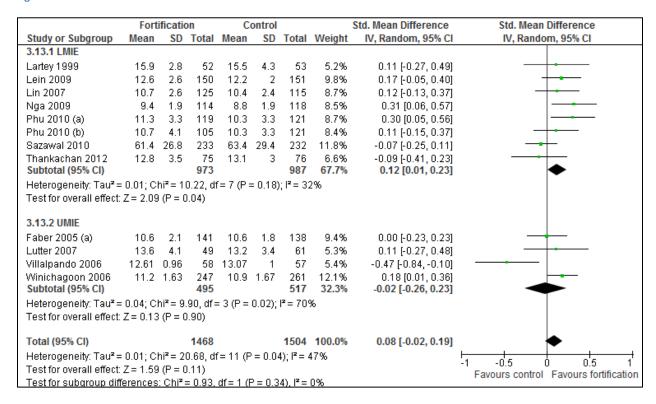


Figure S20 Effect of MMN fortification on serum retinol levels in children

		MMN			Control			Std. Mean Difference	Std. Mean Difference		
Study or Subgroup	Mean		Total	Mean		Total	Weight	IV, Random, 95% CI	IV, Random, 95% CI		
3.33.1 LIE and LMIE								,			
Faber 2005 (a)	1.21	0.35	68	1.1	0.3	69	9.8%	0.34 [-0.00, 0.67]	-		
Faber 2005 (b)	0.8	0.28	71	0.95	0.26	69	9.8%	-0.55 [-0.89, -0.21]			
Kumar 2007	41.4	14.8	63	46.2	18.6	66	9.6%	-0.28 [-0.63, 0.06]	<del></del>		
Lartey 1999	0.84	0.4	52	0.93	0.4	53	8.9%	-0.22 [-0.61, 0.16]	<del></del>		
Lein 2009	0.99	0.21	150	1.01	0.59	151	12.1%	-0.04 [-0.27, 0.18]	+		
Nesamvuni 2005	1.3	0.35	16	1.35	0.49	20	5.0%	-0.11 [-0.77, 0.55]	<del></del>		
Phu 2010 (a)	0.74	0.196	120	0.72	0.199	123	11.5%	0.10 [-0.15, 0.35]	<del> -</del>		
Phu 2010 (b)	0.76	0.21	106	0.72	0.198	123	11.4%	0.20 [-0.06, 0.46]	<del>] -</del>		
Subtotal (95% CI)			646			674	78.0%	-0.06 [-0.25, 0.14]	•		
Heterogeneity: Tau <sup>z</sup> =											
Test for overall effect:	Z = 0.57	' (P = 0.	57)								
3.33.2 UMIE and HIE											
Lutter 2007	1.08	0.23	49	0.99	0.27	61	9.0%	0.35 [-0.03, 0.73]	<del>  -</del>		
Winichagoon 2006	1.3	0.31	241	1.4	0.36	256	13.0%	-0.30 [-0.47, -0.12]	- <del>-</del> -		
Subtotal (95% CI)			290			317	22.0%	0.01 [-0.63, 0.64]	-		
Heterogeneity: Tau <sup>2</sup> =	0.19; C	$hi^2 = 9.2$	7. df=	1 (P = 0	.002); l <sup>2</sup>	= 89%					
Test for overall effect:			•	•							
		,	•								
Total (95% CI)		-0.05 [-0.23, 0.13]	<b>*</b>								
Heterogeneity: Tau <sup>2</sup> = 0.06; Chi <sup>2</sup> = 32.35, df = 9 (P = 0.0002); i <sup>2</sup> = 72%											
Test for overall effect:	Z = 0.57	P = 0.	57)						-2 -1 U 1 2		
Test for subgroup diff	Test for subgroup differences: $Chi^2 = 0.03$ , $df = 1$ ( $P = 0.85$ ), $P = 0.85$										

Figure S21 Effect of MMN fortification of vitamin A deficiency in children

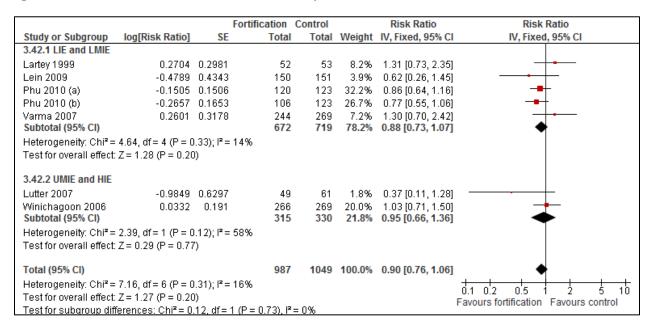


Figure S22 Effect of MMN fortification on anemia

			Fortification	Control		Risk Ratio	Risk Ratio				
Study or Subgroup	log[Risk Ratio]	SE	Total		Weight	IV, Random, 95% CI					
3.38.1 LIE and LMIE						,					
Gibson 2011	-0.6006	0.1353	273	282	11.6%	0.55 [0.42, 0.72]	-				
Lartev 1999	-0.0863	0.2597	52	53	8.8%	0.92 [0.55, 1.53]	I				
Lein 2009	-0.7216	0.3043	150	151	7.8%	0.49 [0.27, 0.88]	I				
Lopriore 2004	-1.6013	0.3525	82	93	6.9%	0.20 [0.10, 0.40]					
Nga 2009	-0.2678	0.2917	114	118	8.1%	0.77 [0.43, 1.36]	<del></del>				
Phu 2010 (a)	-0.4152	0.1441	120	123	11.5%	0.66 [0.50, 0.88]	-				
Phu 2010 (b)	-0.6842	0.174	106	123	10.8%	0.50 [0.36, 0.71]	-				
Varma 2007	-1.6252	0.3317	176	213	7.3%	0.20 [0.10, 0.38]					
Subtotal (95% CI)			1073	1156	72.9%	0.50 [0.37, 0.67]	<b>◆</b>				
Heterogeneity: Tau <sup>2</sup> =	0.12; Chi <sup>2</sup> = 24.8	6, df = 7 (	P = 0.0008); P	²= 72%							
Test for overall effect:	Z = 4.64 (P < 0.00)	1001)									
3.38.2 UMIE and HIE											
Lutter 2007	-0.4377	0.2677	49	61	8.6%	0.65 [0.38, 1.09]	<del></del>				
Rivera 2010	-0.8873	0.3372	357	210	7.2%	0.41 [0.21, 0.80]					
Winichagoon 2006	0.0114	0.1512	58	91	11.3%	1.01 [0.75, 1.36]	+				
Subtotal (95% CI)			464	362	27.1%	0.69 [0.41, 1.15]	<b>◆</b>				
Heterogeneity: Tau² = 0.15; Chi² = 6.90, df = 2 (P = 0.03); l² = 71%											
Test for overall effect: Z = 1.41 (P = 0.16)											
Total (95% CI)			1537	1518	100.0%	0.55 [0.42, 0.71]	<b>♦</b>				
Heterogeneity: Tau <sup>2</sup> = 0.13; Chi <sup>2</sup> = 39.80, df = 10 (P < 0.0001); i <sup>2</sup> = 75%											
Test for overall effect: Z = 4.54 (P < 0.00001)  Favours fortification Favours control											
Test for subgroup diff	erences: Chi <sup>z</sup> = 1.	.09, df = 1	$(P = 0.30), I^2$	= 8.7%			1 avours fortilleduori 1 avours control				

Figure S23 Effect of MMN fortification on Height-for-age Z Score in children

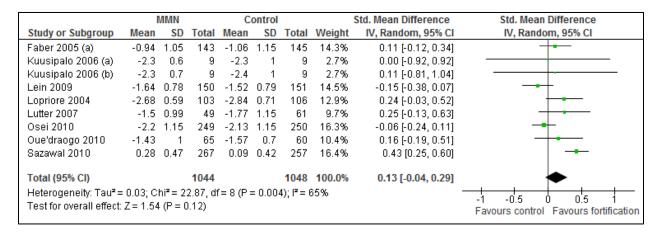


Figure S24 Effect of MMN fortification on Weight-for-age Z Score in children

	1	MMN		С	ontrol			Std. Mean Difference	Std. Mean Difference
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% CI	IV, Random, 95% CI
Faber 2005 (a)	0.05	1.25	143	0.09	1.37	145	17.1%	-0.03 [-0.26, 0.20]	+
Kuusipalo 2006 (a)	-2.3	0.5	9	-2.1	0.9	9	0.0%	-0.26 [-1.19, 0.67]	
Kuusipalo 2006 (b)	-2.4	0.6	9	-2.2	1	9	0.0%	-0.23 [-1.16, 0.70]	
Lein 2009	-1.68	0.64	150	-1.76	0.61	151	17.1%	0.13 [-0.10, 0.35]	+-
Lopriore 2004	-1.71	0.63	103	-1.9	0.65	106	0.0%	0.30 [0.02, 0.57]	
Lutter 2007	-2.62	0.91	49	-0.88	1.03	61	14.7%	-1.77 [-2.21, -1.32]	<del></del>
Osei 2010	-2.19	0.77	249	-2.1	0.77	250	17.5%	-0.12 [-0.29, 0.06]	<del>-= </del>
Oue'draogo 2010	-1.34	0.99	65	-1.5	1.03	66	15.9%	0.16 [-0.19, 0.50]	+-
Sazawal 2010	0.38	0.54	267	0.18	0.51	257	17.6%	0.38 [0.21, 0.55]	*
Total (95% CI)			923			930	100.0%	-0.17 [-0.56, 0.22]	•
Heterogeneity: Tau <sup>2</sup> =		<del></del>							
Test for overall effect:		Favours control Favours fortification							

Figure S25 Effect of MMN fortification on Weight-for-Height Z Score in children

	1	MMN		C	ontrol			Std. Mean Difference	Std. Mean Difference
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% CI	IV, Random, 95% CI
Faber 2005 (a)	0.82	1.15	143	0.99	1.23	145	13.0%	-0.14 [-0.37, 0.09]	
Kuusipalo 2006 (a)	-1	0.7	9	-0.9	1.2	9	5.7%	-0.10 [-1.02, 0.83]	<del></del>
Kuusipalo 2006 (b)	-1.3	0.6	9	-1.2	1.2	9	5.7%	-0.10 [-1.03, 0.82]	<del></del>
Lein 2009	-1.05	0.75	150	-1.14	0.68	151	13.0%	0.13 [-0.10, 0.35]	+
Lopriore 2004	-1.11	0.72	103	-0.28	0.66	106	12.3%	-1.20 [-1.49, -0.90]	<del></del>
Lutter 2007	0.19	0.87	49	0.04	0.97	61	11.4%	0.16 [-0.22, 0.54]	<del> -</del>
Osei 2010	-1.25	0.79	249	-1.16	0.72	250	13.5%	-0.12 [-0.29, 0.06]	<del></del> +
Oue'draogo 2010	-0.79	0.99	65	-0.97	1.11	66	11.8%	0.17 [-0.17, 0.51]	+-
Sazawal 2010	0.42	0.65	267	0.3	0.65	257	13.5%	0.18 [0.01, 0.36]	<del></del>
Total (95% CI)			1044			1054	100.0%	-0.11 [-0.40, 0.17]	•
Heterogeneity: Tau² =	-1 -0.5 0 0.5 1								
Test for overall effect:	Favours control Favours fortification								

Figure S26 Effect of MMN fortification on Morbidities in children

Step   Vision   Step   Vision   Visio					Risk Ratio	Risk Ratio
Manger 2008	Study or Subgroup	log[Risk Ratio]	SE	Weight	IV, Random, 95% CI	IV, Random, 95% CI
Osei 2010 0.33 0.2 6.9% 1.39 [0.94, 2.06] Phu 2010 (a) 0.438 0.062 9.4% 1.55 [1.35, 17.17.5] Phu 2010 (b) 0.425 0.063 9.4% 1.55 [1.35, 17.3] Subtotal (95% CI) 34.3% 1.33 [1.07, 1.67] Heterogeneity. Tau² = 0.04; Chi² = 18.60, df = 3 (P = 0.0003); P = 84%  Test for overall effect Z = 2.54 (P = 0.01)  3.52.2 Respiratory Illness Manger 2008 0.186 0.065 9.3% 0.83 [0.73, 0.94] Manno 2011 0.501 0.225 6.4% 1.65 [1.06, 2.57] Osei 2010 0.01 0.199 6.9% 0.99 [0.67, 1.46] Phu 2010 (a) 0.27 0.062 9.4% 1.31 [1.16, 1.48] Phu 2010 (b) 0.139 0.066 9.3% 1.15 [1.01, 1.31] Subtotal (95% CI) 41.4% 1.12 [0.90, 1.40] Heterogeneity. Tau² = 0.05; Chi² = 30.60, df = 4 (P < 0.00001); P = 87%  Test for overall effect Z = 1.04 (P = 0.30)  3.52.3 UTI Manno 2011 0.843 0.365 4.1% 0.43 [0.21, 0.88] Heterogeneity. Not applicable Test for overall effect Z = 2.31 (P = 0.02)  3.52.4 Diarrheal Episodes  Manger 2008 0.015 0.215 6.6% 0.90 [0.59, 1.37] Osei 2010 1.609 0.407 3.6% 0.20 [0.09, 0.44] Phu 2010 (a) 1.258 0.214 6.7% 3.52 [2.31, 5.35] Phu 2010 (b) 1.28 0.45 3.2% 3.60 [1.49, 8.69] Subtotal (95% CI) 1.28 0.45 3.2% 3.60 [1.49, 8.69] Subtotal (95% CI) 1.28 0.45 3.2% 3.60 [1.49, 8.69] Subtotal (95% CI) 1.29 0.40 7.20 0.0001); P = 94% Test for overall effect Z = 0.36 (P = 0.72)  Total (95% CI) 100.0% 1.19 [0.98, 1.44] Heterogeneity. Tau² = 1.30; Chi² = 49.78, df = 3 (P < 0.00001); P = 94% Test for overall effect Z = 0.70; Chi² = 13.488, df = 13 (P < 0.00001); P = 94% Test for overall effect Z = 1.77 (P = 0.08)	3.52.1 Fever					
Phu 2010 (a)	Manger 2008	-0.083	0.111	8.7%	0.92 [0.74, 1.14]	<del></del>
Phu 2010 (b)	Osei 2010	0.33	0.2	6.9%	1.39 [0.94, 2.06]	<del>  • -</del>
Subtotal (95% CI)  Heterogeneity. Taur = 0.04; Chir = 18.60, df = 3 (P = 0.0003); F = 84%  Test for overall effect. Z = 2.54 (P = 0.01)  3.52.2 Respiratory Illness  Manger 2008  -0.186  0.065  9.3%  0.83 [0.73, 0.94]  Manno 2011  0.501  0.225  6.4%  1.65 [1.06, 2.57]  Osei 2010  -0.01  0.199  6.9%  0.99 [0.67, 1.46]  Phu 2010 (a)  0.27  0.062  9.4%  1.31 [1.16, 1.48]  Phu 2010 (b)  0.139  0.066  9.3%  1.15 [1.01, 1.31]  Subtotal (95% CI)  Heterogeneity. Taur = 0.05; Chir = 30.60, df = 4 (P < 0.00001); F = 87%  Test for overall effect. Z = 1.04 (P = 0.30)  3.52.3 UTI  Manno 2011  -0.843  0.365  4.1%  0.43 [0.21, 0.88]  Subtotal (95% CI)  Heterogeneity. Not applicable  Test for overall effect. Z = 2.31 (P = 0.02)  3.52.4 Diarrheal Episodes  Manger 2008  -0.105  0.215  6.6%  0.90 [0.59, 1.37]  Osei 2010  -1.609  0.407  3.6%  0.20 [0.09, 0.44]  Phu 2010 (a)  1.258  0.214  6.7%  3.52 [2.31, 5.35]  Phu 2010 (a)  1.28  0.45  3.2%  3.60 [1.49, 8.69]  Subtotal (95% CI)	Phu 2010 (a)	0.438	0.062	9.4%	1.55 [1.37, 1.75]	-
Test for overall effect: Z = 2.54 (P = 0.01)  3.52.2 Respiratory Illness  Manger 2008		0.425	0.063			<b>→</b>
3.52.2 Respiratory Illness  Manger 2008	Heterogeneity: Tau <sup>2</sup> =	0.04; Chi <sup>2</sup> = $18.6$ !	0, df = 3	(P = 0.00)	103); I² = 84%	
Manger 2008	Test for overall effect:	Z = 2.54 (P = 0.01	)			
Manger 2008						
Manno 2011	3.52.2 Respiratory Illr	ness				
Osei 2010	Manger 2008	-0.186	0.065			•
Phu 2010 (a)						-
Phu 2010 (b)						+
Subtotal (95% CI)  Heterogeneity: Tau² = 0.05; Chi² = 30.60, df = 4 (P < 0.00001); I² = 87%  Test for overall effect: Z = 1.04 (P = 0.30)  3.52.3 UTI  Manno 2011	3 7					•
Heterogeneity: Tau² = 0.05; Chi² = 30.60, df = 4 (P < 0.00001); I² = 87%  Test for overall effect: Z = 1.04 (P = 0.30)  3.52.3 UTI  Manno 2011		0.139	0.066			<b>I</b>
Test for overall effect: Z = 1.04 (P = 0.30)  3.52.3 UTI  Manno 2011						Y
3.52.3 UTI  Manno 2011			•	(P < 0.00	J001); F= 87%	
Manno 2011	l est for overall eπect: .	Z = 1.04 (P = 0.30	1)			
Manno 2011	3 52 3 HTI					
Subtotal (95% CI)       4.1% 0.43 [0.21, 0.88]         Heterogeneity: Not applicable         Test for overall effect: Z = 2.31 (P = 0.02)         3.52.4 Diarrheal Episodes         Manger 2008		0.042	0.265	1104	0.42 (0.24 0.00)	
Heterogeneity: Not applicable Test for overall effect: $Z = 2.31 \ (P = 0.02)$ 3.52.4 Diarrheal Episodes  Manger 2008		-0.643	0.369			
Test for overall effect: Z = 2.31 (P = 0.02)  3.52.4 Diarrheal Episodes  Manger 2008		nlicable		4.170	0140 [0121, 0100]	•
3.52.4 Diarrheal Episodes  Manger 2008			n			
Manger 2008 -0.105 0.215 6.6% 0.90 [0.59, 1.37] Osei 2010 -1.609 0.407 3.6% 0.20 [0.09, 0.44] Phu 2010 (a) 1.258 0.214 6.7% 3.52 [2.31, 5.35] Phu 2010 (b) 1.28 0.45 3.2% 3.60 [1.49, 8.69] Subtotal (95% Cl) 20.1% 1.24 [0.39, 3.98] Heterogeneity: Tau² = 1.30; Chi² = 49.78, df = 3 (P < 0.00001); l² = 94% Test for overall effect: Z = 0.36 (P = 0.72)  Total (95% Cl) 100.0% 1.19 [0.98, 1.44] Heterogeneity: Tau² = 0.10; Chi² = 134.68, df = 13 (P < 0.00001); l² = 90% Test for overall effect: Z = 1.77 (P = 0.08)  Test for overall effect: Z = 1.77 (P = 0.08)	Test for overall effect.	2 - 2.51 (1 - 0.02	,			
Osei 2010 -1.609 0.407 3.6% 0.20 [0.09, 0.44]  Phu 2010 (a) 1.258 0.214 6.7% 3.52 [2.31, 5.35]  Phu 2010 (b) 1.28 0.45 3.2% 3.60 [1.49, 8.69]  Subtotal (95% CI) 20.1% 1.24 [0.39, 3.98]  Heterogeneity: Tau² = 1.30; Chi² = 49.78, df = 3 (P < 0.00001); l² = 94%  Test for overall effect: Z = 0.36 (P = 0.72)  Total (95% CI) 100.0% 1.19 [0.98, 1.44]  Heterogeneity: Tau² = 0.10; Chi² = 134.68, df = 13 (P < 0.00001); l² = 90%  Test for overall effect: Z = 1.77 (P = 0.08)  Test for overall effect: Z = 1.77 (P = 0.08)	3.52.4 Diarrheal Episo	odes				
Phu 2010 (a) 1.258 0.214 6.7% 3.52 [2.31, 5.35] Phu 2010 (b) 1.28 0.45 3.2% 3.60 [1.49, 8.69] Subtotal (95% CI) 20.1% 1.24 [0.39, 3.98]  Heterogeneity: Tau² = 1.30; Chi² = 49.78, df = 3 (P < 0.00001); I² = 94%  Test for overall effect: Z = 0.36 (P = 0.72)  Total (95% CI) 100.0% 1.19 [0.98, 1.44]  Heterogeneity: Tau² = 0.10; Chi² = 134.68, df = 13 (P < 0.00001); I² = 90%  Test for overall effect: Z = 1.77 (P = 0.08)	Manger 2008	-0.105	0.215	6.6%	0.90 [0.59, 1.37]	<del></del>
Phu 2010 (b) 1.28 0.45 3.2% 3.60 [1.49, 8.69]  Subtotal (95% CI) 20.1% 1.24 [0.39, 3.98]  Heterogeneity: Tau² = 1.30; Chi² = 49.78, df = 3 (P < 0.00001); I² = 94%  Test for overall effect: Z = 0.36 (P = 0.72)  Total (95% CI) 100.0% 1.19 [0.98, 1.44]  Heterogeneity: Tau² = 0.10; Chi² = 134.68, df = 13 (P < 0.00001); I² = 90%  Test for overall effect: Z = 1.77 (P = 0.08)	Osei 2010	-1.609	0.407	3.6%	0.20 [0.09, 0.44]	<del></del>
Subtotal (95% CI)  Peterogeneity: Tau² = 1.30; Chi² = 49.78, df = 3 (P < 0.00001); I² = 94%  Test for overall effect: Z = 0.36 (P = 0.72)  Total (95% CI)  Heterogeneity: Tau² = 0.10; Chi² = 134.68, df = 13 (P < 0.00001); I² = 90%  Test for overall effect: Z = 1.77 (P = 0.08)  Test for overall effect: Z = 1.77 (P = 0.08)	Phu 2010 (a)	1.258	0.214	6.7%	3.52 [2.31, 5.35]	-
Heterogeneity: $Tau^2 = 1.30$ ; $Chi^2 = 49.78$ , $df = 3$ (P < 0.00001); $I^2 = 94\%$ Test for overall effect: $Z = 0.36$ (P = 0.72)  Total (95% CI)  Heterogeneity: $Tau^2 = 0.10$ ; $Chi^2 = 134.68$ , $df = 13$ (P < 0.00001); $I^2 = 90\%$ Test for overall effect: $Z = 1.77$ (P = 0.08)  Test for overall effect: $Z = 1.77$ (P = 0.08)		1.28	0.45			
Test for overall effect: Z = 0.36 (P = 0.72)  Total (95% CI)  Heterogeneity: Tau² = 0.10; Chi² = 134.68, df = 13 (P < 0.00001); I² = 90%  Test for overall effect: Z = 1.77 (P = 0.08)  Test for overall effect: Z = 1.77 (P = 0.08)						-
Total (95% CI)  Heterogeneity: Tau² = 0.10; Chi² = 134.68, df = 13 (P < 0.00001); I² = 90%  Test for overall effect: Z = 1.77 (P = 0.08)  1.19 [0.98, 1.44]  0.01 0.1 10 100  Favours Fortification Favours Control				(P < 0.00)	)001); I²= 94%	
Heterogeneity: $Tau^2 = 0.10$ ; $Chi^2 = 134.68$ , $df = 13$ (P < 0.00001); $I^2 = 90\%$ Test for overall effect: $Z = 1.77$ (P = 0.08)  Test for overall effect: $P = 0.08$	Test for overall effect:	Z = 0.36 (P = 0.72)	2)			
Heterogeneity: $Tau^2 = 0.10$ ; $Chi^2 = 134.68$ , $df = 13$ (P < 0.00001); $I^2 = 90\%$ Test for overall effect: $Z = 1.77$ (P = 0.08)  Test for overall effect: $P = 0.08$	Total (95% CI)			100.0%	1.19 [0.98, 1.44]	•
Test for overall effect: Z = 1.77 (P = 0.08)  Test for overall effect: Z = 1.77 (P = 0.08)  Eavours Fortification Favours Control		0.10: Chi <sup>2</sup> = 134.i	68. df=	13 (P < 0		
FAVOUR FORMICATION FAVOURS CONTROL						
		•		3(P = 0.	03), I²= 66,5%	-avours Fortification Favours Control

Figure S27 Effect of iron fortification on serum hemoglobin levels in women

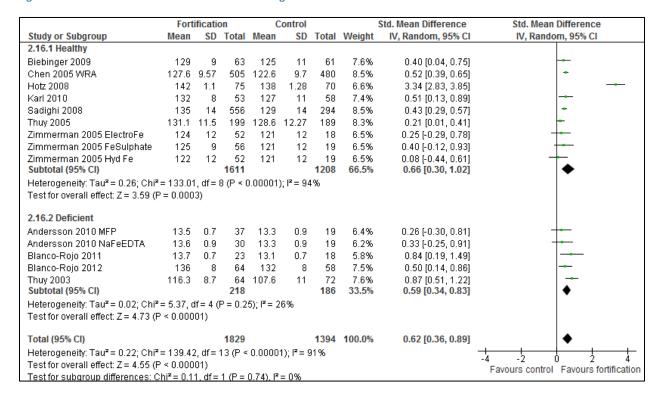


Figure S28 Effect of iron fortification on anemia prevalence in women

			Fortification	Control		Risk Ratio	Risk Ratio
Study or Subgroup	log[Risk Ratio]	SE	Total	Total	Weight	IV, Random, 95% CI	IV, Random, 95% CI
2.17.1 Healthy							
Karl 2010	-0.6763	0.4596	59	65	8.9%	0.51 [0.21, 1.25]	· ·
Sadighi 2008	-1.1282	0.2739	545	291	16.2%	0.32 [0.19, 0.55]	· ·
Zimmerman 2005 ElectroFe	0.1229	0.246	52	18	17.7%	1.13 [0.70, 1.83]	·
Zimmerman 2005 FeSulphate	-0.5108	0.3124	56	19	14.3%	0.60 [0.33, 1.11]	· · · · · · · · · · · · · · · · · · ·
Zimmerman 2005 Hyd Fe	-0.1054	0.2643	56		16.7%	0.90 [0.54, 1.51]	· <del></del>
Subtotal (95% CI)			768	412	73.7%	0.65 [0.40, 1.04]	•
Heterogeneity: Tau² = 0.20; Chi² =	= 13.31, df = 4 (P :	= 0.010)	I <sup>2</sup> = 70%				
Test for overall effect: Z= 1.78 (P	= 0.07)						
2.17.2 Deficient							
Thuy 2003	-0.3034	0.0996	64	72	26.3%	0.74 [0.61, 0.90]	•
Subtotal (95% CI)			64	72	26.3%	0.74 [0.61, 0.90]	•
Heterogeneity: Not applicable							
Test for overall effect: Z = 3.05 (P	= 0.002)						
Total (95% CI)			832	484	100.0%	0.68 [0.49, 0.93]	•
Heterogeneity: Tau <sup>2</sup> = 0.09; Chi <sup>2</sup> =	= 13.57, df = 5 (P :	= 0.02); [	²= 63%				
Test for overall effect: Z = 2.37 (P		/1					0.01 0.1 1 10 100  Favours fortification Favours control
Test for subgroup differences: Ch	,	P = 0.62	, I² = 0%				Favours fortilication Favours control

Figure S29 Effect of iron fortification on serum ferritin levels in women

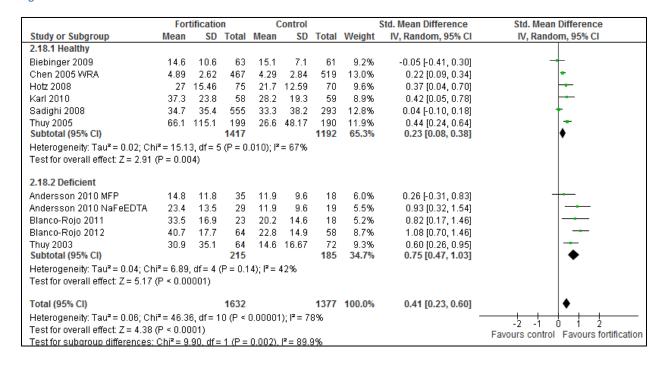


Figure S30 Effect of folate fortification on neural tube defects

				Risk Ratio	Risk Ratio					
Study or Subgroup	log[Risk Ratio]	SE	Weight	IV, Random, 95% CI	IV, Random, 95% CI					
Amarin 2010	-0.6623	0.3034	9.1%	0.52 [0.28, 0.93]	-					
Chen 2008	-0.1666	0.897	1.8%	0.85 [0.15, 4.91]	<del></del>					
De Wals 2007	-0.478	0.0897	17.6%	0.62 [0.52, 0.74]	•					
Honein 2011	-0.215	0.037	19.0%	0.81 [0.75, 0.87]	•					
Liu 2004	-1.5193	0.2499	11.0%	0.22 [0.13, 0.36]	<del></del>					
Persad 2002	-0.8028	0.2038	12.8%	0.45 [0.30, 0.67]	<del></del>					
Sayed 2008	-0.3645	0.1766	14.0%	0.69 [0.49, 0.98]	<del></del>					
Simmons 2004	-0.3147	0.1634	14.6%	0.73 [0.53, 1.01]						
Total (95% CI)			100.0%	0.57 [0.45, 0.73]	<b>◆</b>					
Heterogeneity: Tau <sup>2</sup> =	Heterogeneity: Tau² = 0.08; Chi² = 40.69, df = 7 (P < 0.00001); I² = 83%									
Test for overall effect: Z = 4.41 (P < 0.0001)  Test for overall effect: Z = 4.41 (P < 0.0001)  Test for overall effect: Z = 4.41 (P < 0.0001)  Test for overall effect: Z = 4.41 (P < 0.0001)										

Figure S31 Effect of folate fortification on Spina Bifida

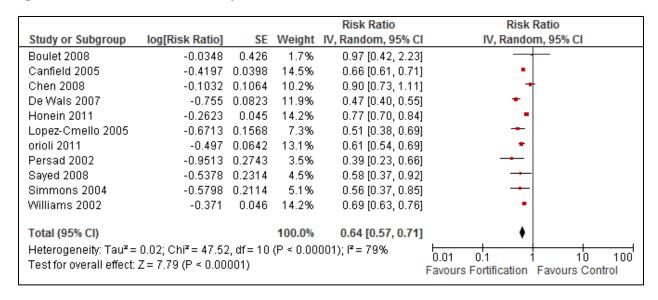


Figure S32 Effect of folate fortification on anencephaly

				Risk Ratio	Risk Ratio
Study or Subgroup	log[Risk Ratio]	SE	Weight	IV, Random, 95% CI	IV, Random, 95% CI
Boulet 2008	-0.2212	0.0533	15.9%	0.80 [0.72, 0.89]	•
Canfield 2005	-0.17118	0.0554	15.8%	0.84 [0.76, 0.94]	•
Chen 2008	-0.478	0.0897	12.7%	0.62 [0.52, 0.74]	•
De Wals 2007	-0.2663	0.1351	9.1%	0.77 [0.59, 1.00]	<del> </del>
Honein 2011	-0.1156	0.065	14.9%	0.89 [0.78, 1.01]	•
Lopez-Cmello 2005	-0.9476	0.1862	6.3%	0.39 [0.27, 0.56]	<del>-</del>
Persad 2002	-0.7695	0.3598	2.2%	0.46 [0.23, 0.94]	<del></del>
Sayed 2008	-0.1156	0.2986	3.1%	0.89 [0.50, 1.60]	<del></del>
Simmons 2004	-0.0513	0.243	4.3%	0.95 [0.59, 1.53]	+
Williams 2002	-0.1917	0.0576	15.6%	0.83 [0.74, 0.92]	•
Total (95% CI)			100.0%	0.76 [0.68, 0.85]	•
Heterogeneity: Tau <sup>2</sup> =	0.02; Chi <sup>z</sup> = 30.16	i, df = 9 (l	P = 0.000	4); I² = 70%	box of 10 400
Test for overall effect: 2	Z = 4.83 (P < 0.00	001)			0.01 0.1 1 10 100 Favours Fortification Favours Control

Figure S33 Effect of folate fortification on twinning

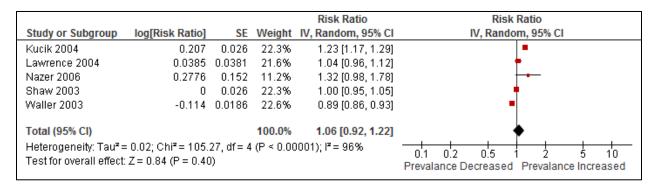


Figure S34 Effect of folate fortification on serum folate levels

	Expe	erimen	tal	С	ontrol			Std. Mean Difference	Std. Mean Difference
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% CI	IV, Random, 95% CI
Chen 2004 (rural)	12.5	18.6	300	9.6	7.03	190	25.0%	0.19 [0.01, 0.37]	•
Chen 2004 (urban)	15.8	9.09	288	10.1	5.83	204	25.0%	0.72 [0.54, 0.90]	
Hertrampf 2003	37.2	9.5	605	9.7	4.32	605	25.0%	3.72 [3.54, 3.91]	•
Liu 2004	18.1	5.83	204	13.5	4.67	233	25.0%	0.88 [0.68, 1.07]	-
Total (95% CI)			1397			1232	100.0%	1.38 [-0.20, 2.95]	•
Heterogeneity: Tau² =	: 2.57; CI	hi <b>=</b> 84	44.84, 0	df = 3 (P	< 0.00	0001); I	²=100%	-	-4 -2 0 2 4
Test for overall effect:	Z = 1.72	Favours Control Favours Fortification							

Figure S35 Effect of folate fortification on RBC folate levels

	Experimental 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	
Bar-oz 2008	462	5,520	1537	226	1,012	221	33.4%	0.05 [-0.10, 0.19]	•	
Hertrampf 2003	707	179	605	290	102	605	33.3%	2.86 [2.70, 3.02]	•	
Liu 2004	818	255.05	204	625	186.91	233	33.3%	0.87 [0.67, 1.07]	•	
Total (95% CI)			2346			1059	100.0%	1.26 [-0.49, 3.01]	•	
Heterogeneity: Tau² =	2.38; C	hi² = 679.	.83, df=	= 2 (P <	0.00001)	); l² = 10	00%		<del></del> _	
Test for overall effect:	Z=1.41	(P = 0.1	6)						Favours Control Favours Fortification	

Figure S36 Effect of folate fortification on folate deficiency

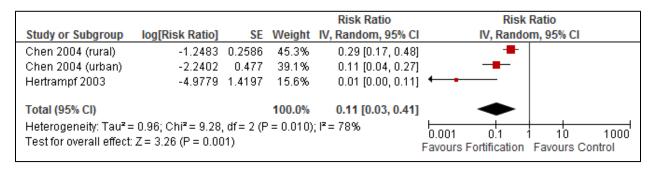


Figure S37 Effect of iodine fortification on urinary iodine concentration in women

	Fort	ificatio	on	C	ontrol			Std. Mean Difference	Std. Mean Difference
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% CI	IV, Random, 95% CI
Burgess 2007	86	4.14	229	76	3.16	285	25.0%	2.75 [2.51, 2.99]	•
Moleti 2011	76.3	7.13	105	52.2	7.76	160	25.0%	3.20 [2.83, 3.57]	
Rasmussen 2008	128	3.89	2516	78	3.26	3011	25.0%	14.04 [13.77, 14.31]	•
Seal 2007	105	3.72	401	75	2.45	124	25.0%	8.65 [8.09, 9.21]	-
Total (95% CI)			3251			3580	100.0%	7.16 [1.00, 13.31]	-
Heterogeneity: Tau² = Test for overall effect:		-10 -5 0 5 10 Favours control Favours fortification							

Figure S38 Effect of Iodine fortification on Hypothyroidism in women

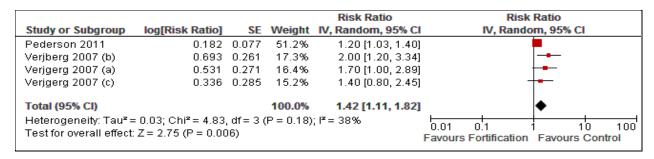


Figure S39 Effect of vitamin D and calcium fortification on serum vitamin D levels in post-menopausal women

	Fortification 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
4.2.1 Calcium Only									
Chee 2003	86.4	22	91	71.2	21.7	82	40.2%	0.69 [0.38, 1.00]	<del>-</del>
Subtotal (95% CI)			91			82	40.2%	0.69 [0.38, 1.00]	◆
Heterogeneity: Not ap	plicable								
Test for overall effect:	Z = 4.41	(P < 0.1	0001)						
4.2.3 Calcium and Vit	amin D	Only							
Manios 2009	63.5	19.75	42	55.25	19.5	40	35.1%	0.42 [-0.02, 0.85]	<del>  -</del>
Tenta 2010	68	21	20	38.25	15	20	24.6%	1.60 [0.88, 2.32]	<del></del>
Subtotal (95% CI)			62			60	59.8%	0.97 [-0.18, 2.13]	-
Heterogeneity: Tau <sup>2</sup> =	0.61; CI	$hi^2 = 7.5$	3, df=	1 (P = 0)	.006);	$I^2 = 87^{\circ}$	%		
Test for overall effect:	Z=1.65	P = 0.1	10)						
Total (95% CI)			153			142	100.0%	0.82 [0.30, 1.34]	•
Heterogeneity: Tau <sup>2</sup> =	0.15; CI	<del></del>							
Test for overall effect:	Z = 3.09	Favours Control Favours Fortification							
Test for subgroup diffe	erences		1 avours Control 1 avours 1 offittedion						

Figure S40 Effect of vitamin D and calcium fortification on serum vitamin D levels in women of reproductive age group

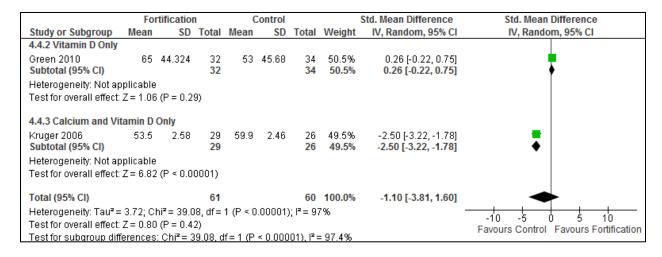


Figure S41 Effect of vitamin D and calcium fortification on serum PTH levels in post-menopausal women

	Favours	Favou	rs Con	trol		Std. Mean Difference	Std. Mean Difference			
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% CI	IV, Random, 95% CI	
4.1.3 Calcium and Vitamin D only										
Kruger 2010 (Indo)	4.43	0.23	27	5.95	0.23	29	23.2%	-6.52 [-7.87, -5.16]	-	
Kruger 2010 (Phili)	3.75	0.27	30	4.54	0.27	30	25.3%	-2.89 [-3.62, -2.15]	•	
Manios 2009	3.48	1.8	42	4.67	1.8	40	25.9%	-0.65 [-1.10, -0.21]	-	
Tenta 2010	4.05	2.08	20	5.1	2.2	20	25.6%	-0.48 [-1.11, 0.15]	_ <del>=</del>	
Subtotal (95% CI)			119			119	100.0%	-2.53 [-4.42, -0.65]	•	
Heterogeneity: Tau² =	3.51; Chi²	= 89.14,	df = 3 (F	o.000	001); l²	= 97%				
Test for overall effect:	Z= 2.64 (F	9 = 0.008)	)							
Total (95% CI)			119			119	100.0%	-2.53 [-4.42, -0.65]	•	
Heterogeneity: Tau <sup>2</sup> = 3.51; Chi <sup>2</sup> = 89.14, df = 3 (P < 0.00001); I <sup>2</sup> = 97%										
Test for overall effect: Z = 2.64 (P = 0.008)  Test for overall effect: Z = 2.64 (P = 0.008)  Favours Fortification Favours Control										
Test for subgroup diffe	erences: N	ot applic	able						avours i orunication - Favours Control	

Figure S42 Effect of vitamin D and calcium fortification on serum PTH levels in women of reproductive age

	Favours Intervention		Favou	ırs Con	trol		Std. Mean Difference	Std. Mean Difference		
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% CI	IV, Random, 95% CI	
4.3.2 Vitamin D Only										
Green 2010	2.9	1.662	32	2.9	1.203	37	43.5%	0.00 [-0.47, 0.47]	<del></del>	
Natri 2006 (Rye)	2.08	0.8	11	2.13	0.65	9	12.5%	-0.06 [-0.95, 0.82]	<del></del>	
Natri 2006 (Wheat)	2.46	0.2	10	2.13	0.65	9	11.2%	0.67 [-0.26, 1.60]	<del>  -</del>	
Subtotal (95% CI)			53			55	67.3%	0.10 [-0.28, 0.48]	•	
Heterogeneity: Tau² = (	0.00; Chi²	<sup>2</sup> = 1.75, c	lf = 2 (P	= 0.42);	$I^2 = 0\%$					
Test for overall effect: 2	Z= 0.51 (F	P = 0.61)								
4.3.3 Calcium and Vita	amin D or	ıly								
Kruger 2006	1.67	0.087	26	1.69	0.084	26	32.7%	-0.23 [-0.78, 0.32]	<del></del>	
Subtotal (95% CI)			26			26	32.7%	-0.23 [-0.78, 0.32]	<b>*</b>	
Heterogeneity: Not app	olicable									
Test for overall effect: 2	Z= 0.83 (F	P = 0.41)								
Total (95% CI)			79			81	100.0%	-0.01 [-0.32, 0.30]	<b>*</b>	
Heterogeneity: Tau <sup>2</sup> = 0.00; Chi <sup>2</sup> = 2.70, df = 3 (P = 0.44); i <sup>2</sup> = 0%										
Test for overall effect: Z = 0.05 (P = 0.96)  Favours Fortification Favours Control										
Test for subgroup diffe	rences: (	$Chi^2 = 0.9$	5. df = 1	(P = 0.3)	33), J² =	0%		'	avours i orunication. I avours control	

Figure S43 Effect of vitamin D and calcium fortification on serum calcium levels in women of reproductive age

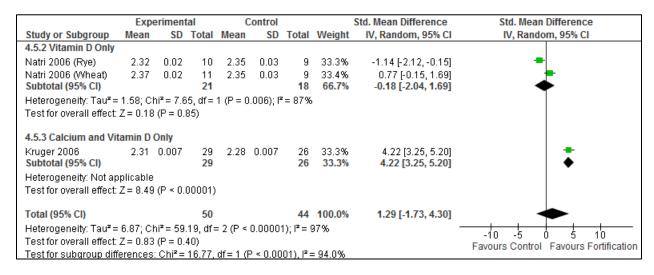


Figure S44 Effect of vitamin D and calcium fortification on CTx levels (bone resorption marker) in women

	Fortification			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	
4.1.1 Reproductive ag	ge									
Kruger 2006	0.3	0.018	29	0.46	0.018	26	19.3%	-8.76 [-10.54, -6.98]	-	
Subtotal (95% CI)			29			26	19.3%	-8.76 [-10.54, -6.98]	•	
Heterogeneity: Not ap	plicable									
Test for overall effect:	Z = 9.65	i (P < 0.1	00001)							
4.1.2 Post-menopaus	sal									
Bonjour 2009	4,607	2,147	35	4,979	2,462	35	20.7%	-0.16 [-0.63, 0.31]	+	
Kruger 2010 (Indo)	0.33	0.03	30	0.6	0.03	30	19.4%	-8.88 [-10.60, -7.16]		
Kruger 2010 (Phili)	0.38	0.03	30	0.6	0.03	30	19.8%	-7.24 [-8.67, -5.81]		
Manios 2009	0.31	0.12	39	0.34	0.12	36	20.8%	-0.25 [-0.70, 0.21]	_ +	
Subtotal (95% CI)			134			131	80.7%	-3.98 [-6.75, -1.21]	•	
Heterogeneity: Tau <sup>2</sup> =	7.66; CI	$hi^2 = 179$	5.23, df	= 3 (P <	< 0.0000	01); l² =	98%			
Test for overall effect:	Test for overall effect: Z = 2.81 (P = 0.005)									
Total (95% CI)			163			157	100.0%	-4.93 [-7.78, -2.08]	•	
Heterogeneity: Tau² =	Heterogeneity: Tau <sup>2</sup> = 10.15; Chi <sup>2</sup> = 249.26, df = 4 (P < 0.00001); I <sup>2</sup> = 98%									
Toot for overall affect: 7 = 2.20 /D = 0.0007\									Favours Fortification Favours Control	
Test for subgroup differences: Chi² = 8.09, df = 1 (P = 0.004), l² = 87.6%										

Figure S45 Effect of vitamin D and calcium fortification on P1NP levels (bone resorption marker) in women

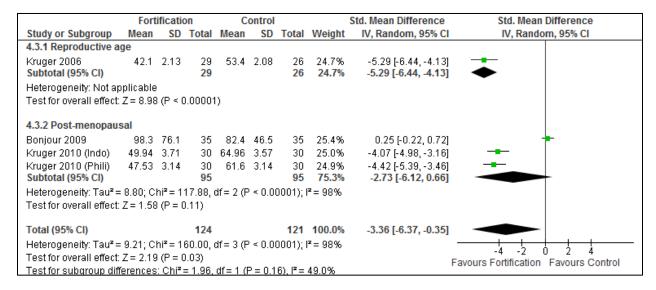


Figure S46 Effect of MMN fortification on serum ferritin levels in women

	Fortification Control						Std. Mean Difference	Std. Mean Difference		
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% CI	IV, Rando	m, 95% CI
Huo 2011	0.86	0.16	269	0.76	0.26	247	42.5%	0.47 [0.29, 0.64]		-
Mardones 2007	24.3	9.76	365	20.05	8.03	333	57.5%	0.47 [0.32, 0.62]		-
Total (95% CI)			634			580	100.0%	0.47 [0.36, 0.58]		•
Heterogeneity: Tau <sup>2</sup> = Test for overall effect:	-1 -0.5 Favours control	0 0.5 1 Favours fortification								

Figure S47 Effect of MMN fortification on serum zinc levels in women

	Fortification Control						Std. Mean Difference	Std. Mean Difference		
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% CI	IV, Rando	m, 95% CI
Huo 2011	0.79	0.16	269	0.71	0.19	247	42.7%	0.46 [0.28, 0.63]		
Mardones 2007	12.77	4.87	365	10.58	3.22	333	57.3%	0.53 [0.37, 0.68]		
Total (95% CI)			634			580	100.0%	0.50 [0.38, 0.61]		•
Heterogeneity: Tau² = Test for overall effect:			0 0.25 0.5 Favours fortification							