Supplementary Tables and Figures

Supplementary table 1: Vaccines received as part of the study protocol and adjusted for in the analysis

MnCC=Menjugate, MnACp=capsular group A + C meningococcal polysaccharide vaccine, MenACWY= capsular groups A,C,W,Y meningococcal conjugate vaccine, MenACWY- = meningococcal ACWY conjugate vaccine (without adjuvant), 9vPnC-MnCC= capsular group C meningococcal + 9 valent pneumococcal polysaccharide–CRM197 conjugate vaccine, MenC-TT= NeisVac-C, Hib-MenC-TT=Menitorix, MMR=measles mumps rubella vaccine, DTaP-IPV-Hib=Pediacel, OPV=oral polio vaccine, Pn=pneumococcal, PCV10= Synflorix, PV13=Prevenar-13.

Supplementary Table 2 : Individual participant data meta-analysis of immunological endpoints by vaccine antigen

PRP: Polyribosylribitol phosphate, hSBA: serum bactericidal assay (human complement), rSBA: serum bactericidal assay (rabbit complement), IgG: immunoglobulins, GMR: geometric mean ratio. Heterogeneity p value from sex-by-study interaction term in models which included at least 3 studies.

Supplementary Table 3: Individual participant data meta-analyses of pneumococcal serotype specific IgG for vaccine serotypes

Supplementary Table 4: Individual participant data meta-analyses of pneumococcal serotype specific opsonophagocytic activity for vaccine serotypes

Supplementary table 5: Meta-analysis of pneumococcal serotype-specific differences in proportions with IgG > 0.35µg/mL (female – male)

*Results from an unadjusted two-stage random effects meta-analysis of proportions.

Supplementary Figure 1: Individual participant data meta-analyses of pneumococcal serotype specific opsonophagocytic activity for vaccine serotypes.

Each point estimate represents the summary GMR from one meta-analysis. Lines indicate 95% confidence intervals. A GMR of 1.0 represents no difference in responses between females and males. 5 months = one-month post-prime, 12 months = pre-boost, 13 months = one-month post-boost, 24 months = persistence at one year post-boost.

Supplementary table 1: Vaccines received as part of the study protocol and adjusted for in the analysis

Study	*Group*	*MenC-prime*	*MenC-Boost*	*MenA-Prime*	*MenA-Boost*	*MenWY-Prime*	*MenWY-Boost*	*DTP-Hib prime*	*Hib-boost*	*Pn Prime*	*Pn Boost*
1.	1	MnCC	MnCC					DTwP-Hib+OPV			
	2	MnCC	MnACp		MnACp			DTwP-Hib+OPV			
	3	9vPnC-MnCC	MnCC					DTwP-Hib+OPV			
	4	9vPnC-MnCC	MnACp		MnACp			DTwP-Hib+OPV			
2.	ALL	MnCC	MnCC					DTaP-IPV-Hib	Hiberix		
3.	1	MenACWY	MenACWY	MenACWY	MenACWY	MenACWY	MenACWY	DTaP-IPV-Hib			
	2	MenACWY	MenACWY	MenACWY	MenACWY	MenACWY	MenACWY	DTaP-IPV-Hib			
	3	MnCC	MenACWY		MenACWY		MenACWY	DTaP-IPV-Hib			
	4	MenACWY-	MenACWY-	MenACWY-	MenACWY-	MenACWY-	MenACWY-	DTaP-IPV-Hib			
4.	1	MenACWY	MenACWY	MenACWY	MenACWY	MenACWY	MenACWY	DTaP-IPV-Hib			
	2	MenACWY	MenACWY	MenACWY	MenACWY	MenACWY	MenACWY	DTaP-IPV-Hib			
	3	MenACWY	MenACWY	MenACWY	MenACWY	MenACWY	MenACWY	DTaP-IPV-Hib			
5.	1	MnCC	MnACp		MnACp			DTwP-Hib+OPV			
	2	MnCC	MnCC+MMR					DTwP-Hib+OPV			
	3	MnCC	MnCC					DTwP-Hib+OPV			
	4		MnACp		MnACp			DTwP-Hib+OPV			
	5		MnCC+MMR					DTwP-Hib+OPV			
	6		MnCC					DTwP-Hib+OPV			
6.	1	MnCC	Hib-MenC-TT					DTaP-IPV-Hib	Hib-MenC-TT	PCV13	PCV13
	2	MnCC	Hib-MenC-TT					DTaP-IPV-Hib	Hib-MenC-TT	PCV13	PCV13
	3		Hib-MenC-TT					DTaP-IPV-Hib	Hib-MenC-TT	PCV13	PCV13
	4	MenC-TT	Hib-MenC-TT					DTaP-IPV-Hib	Hib-MenC-TT	PCV13	PCV13
7.	1							DTaP-IPV-Hib		PCV13	PCV10
	2							DTaP-IPV-Hib		PCV13	PCV13
8.	1,2,3	MnCC						DTwP-Hib+OPV			
9.	1							DTwP-Hib+OPV		PCV10	PCV10
	2							DTwP-Hib+OPV		PCV10	

MnCC=Menjugate, MnACp=capsular group A + C meningococcal polysaccharide vaccine, MenACWY= capsular groups A,C,W,Y meningococcal conjugate vaccine, MenACWY- = meningococcal ACWY conjugate vaccine (without adjuvant), 9vPnC-MnCC= capsular group C meningococcal + 9 valent pneumococcal polysaccharide–CRM197 conjugate vaccine, MenC-TT= NeisVac-C, Hib-MenC-TT=Menitorix, MMR=measles mumps rubella vaccine, DTaP-IPV-Hib=Pediacel, OPV=oral polio vaccine, Pn=pneumococcal, PCV10= Synflorix, PV13=Prevenar-13.

Supplementary Table 2: Individual participant data meta-analysis of immunological endpoints by vaccine antigen

Measure	Age	Trial Number (number of included participants)	N female	GMC (95% CI) females	N male	GMC (95% CI) Males	GMR (female/male) (95% CI)	p-value
Group C *Neisseria meningitidis*								
IgG	5 months	2(N=31),4(N=128),5 (N=111)	126	1.22 (0.98, 1.52)	144	1.24 (1.00, 1.54)	0.98 (0.84 - 1.15)	0.8302
	12 months	1(N=121),2(N=22),4(N=116),5 (N=112)	165	0.34 (0.25, 0.46)	206	0.35 (0.26, 0.48)	0.95 (0.80 - 1.12)	0.5380
	13 months	1(N=123),2(N=28),4(N=145),5 (N=217)	234	9.15 (5.25, 15.97)	279	10.09 (5.78, 17.6)	0.91 (0.78 - 1.06)	0.2107
hSBA	5 months	3(N=285),4 (N=165)	209	103.6 (61.5, 174.5)	241	113.4 (68.47, 187.9)	0.91 (0.68 - 1.23)	0.5553
	12 months	3(N=268),4 (N=177)	220	3.78 (2.8, 5.09)	225	3.64 (2.68, 4.95)	1.04 (0.82 - 1.31)	0.7619
	13 months	3(N=266),4 (N=176)	216	134.3 (93.15, 193.6)	226	143.1 (98.24, 208.3)	0.94 (0.71 - 1.25)	0.6608
rSBA	5 months	2(N=33),3(N=99),5(N=55),6(N=380),8 (N=696)	602	1535 (826.8, 2848)	661	1550 (835.1, 2877)	0.99 (0.84 - 1.17)	0.9035
	12 months	1(N=123),2(N=22),6 (N=368)	238	4.37 (2.29, 8.36)	275	3.54 (1.86, 6.74)	1.24 (0.91 - 1.68)	0.1750
	13 months	1(N=125),2(N=28),5(N=201),6 (N=400)	353	293.1 (111.1, 773.2)	401	285.3 (108, 753.7)	1.03 (0.83 - 1.28)	0.8090
Memory B cells	5 months	2(N=22),4(N=170),6 (N=188)	164	1.64 (1.16, 2.32)	216	1.8 (1.28, 2.53)	0.91 (0.73 - 1.14)	0.4303
	12 months	2(N=23),4(N=163),6 (N=147)	154	2.36 (1.71, 3.26)	179	2.06 (1.5, 2.82)	1.15 (0.92 - 1.43)	0.2247
	13 months	2(N=28),4(N=169),6 (N=163)	160	7.6 (4.2, 13.74)	200	6.44 (3.61, 11.49)	1.18 (0.90 - 1.55)	0.2306
Group A *Neisseria meningitidis*								
hSBA	5 months	3(N=189),4 (N=179)	170	59.82 (42.35, 84.49)	198	44.86 (31.81, 63.26)	1.33 (1.00 - 1.77)	0.0482
	12 months	3(N=192),4 (N=182)	182	3.1 (2.74, 3.5)	192	2.94 (2.6, 3.33)	1.05 (0.95 - 1.16)	0.3270
	13 months	3(N=261),4 (N=187)	223	78.23 (48.93, 125.1)	225	57.79 (36.14, 92.4)	1.35 (1.00 - 1.83)	0.0469
Group W *Neisseria meningitidis*								
hSBA	5 months	3(N=191),4 (N=116)	137	75.19 (53.1, 106.5)	170	59.54 (42.36, 83.69)	1.26 (0.93 - 1.72)	0.1388
	12 months	3(N=184),4 (N=150)	155	17.47 (12.61, 24.19)	179	13 (9.37, 18.03)	1.34 (1.02 - 1.78)	0.0384
	13 months	3(N=242),4 (N=146)	195	868.1 (599.2, 1258)	193	730.2 (502.3, 1061)	1.19 (0.89 - 1.58)	0.2325
Group Y *Neisseria meningitidis*								
hSBA	5 months	3(N=203),4 (N=39)	115	67.21 (48.04, 94.03)	127	47.07 (33.92, 65.31)	1.43 (1.02 - 2.00)	0.0393
	12 months	3(N=193),4 (N=93)	138	20.95 (15.26, 28.74)	148	14.65 (10.66, 20.14)	1.43 (1.07 - 1.91)	0.0162
	13 months	3(N=265),4 (N=76)	170	1608 (1112, 2327)	171	1182 (818.8, 1708)	1.36 (1.00 - 1.86)	0.0530
Anti-diphtheria toxoid								
IgG	5 months	2(N=32),3(N=227),5(N=226),8 (N=696)	567	1.51 (1.08, 2.11)	614	1.37 (0.98, 1.92)	1.10 (0.84 - 1.44)	0.5043

Measure	Age	Trial Number (number of included participants)	N female	GMC (95% CI) females	N male	GMC (95% CI) Males	GMR (female/male) (95% CI)	p-value
	12 months	1(N=111),2(N=22),5 (N=222)	157	0.17 (0.12, 0.25)	198	0.14 (0.09, 0.2)	1.28 (1.05 - 1.58)	0.0173
	13 months	1(N=103),2(N=28),5 (N=217)	156	1.62 (1.06, 2.48)	192	1.38 (0.91, 2.08)	1.18 (0.94 - 1.48)	0.1615
Memory B cells	5 months	2(N=20),6 (N=215)	99	1.43 (0.72, 2.85)	136	1.89 (0.98, 3.64)	0.76 (0.51 - 1.11)	0.1544
	12 months	2(N=23),6(N=171),7 (N=119)	141	11.9 (8.52, 16.62)	172	9.34 (6.9, 12.66)	1.27 (0.98 - 1.65)	0.0693
	13 months	2(N=25),6(N=156),7 (N=121)	129	28.59 (21.02, 38.89)	173	23.94 (18.39, 31.15)	1.19 (0.93 - 1.53)	0.1598
***Haemophilus influenzae* type b**								
Anti-PRP IgG	5 months	3(N=240),5(N=226),6(N=439),8 (N=696)	768	5.84 (4.54, 7.52)	833	5.92 (4.61, 7.61)	0.99 (0.83 - 1.18)	0.8792
	12 months	5(N=223),6 (N=422)	310	0.64 (0.52, 0.8)	335	0.62 (0.5, 0.76)	1.04 (0.84 - 1.29)	0.7188
	13 months	5(N=217),6 (N=401)	299	0.51 (0.34, 0.78)	319	0.48 (0.31, 0.73)	1.08 (0.86 - 1.34)	0.5103
Anti-tetanus toxoid								
IgG	5 months	3(N=227),5(N=227),6(N=439),8 (N=696)	762	2.72 (2.28, 3.24)	827	2.61 (2.2, 3.11)	1.04 (0.92 - 1.18)	0.5250
	12 months	5(N=220),6 (N=421)	309	1.09 (0.81, 1.48)	332	1.13 (0.84, 1.53)	0.97 (0.83 - 1.12)	0.6479
	13 months	5(N=213),6 (N=401)	297	0.97 (0.71, 1.32)	317	1.01 (0.74, 1.38)	0.95 (0.81 - 1.12)	0.5594
Memory B cells	12 months	6(N=172),7 (N=120)	133	4.96 (3.23, 7.62)	159	3.61 (2.45, 5.32)	1.37 (0.97 - 1.94)	0.0709
	13 months	2(N=18),6(N=158),7 (N=121)	127	4.62 (3.05, 6.99)	170	3.97 (2.79, 5.66)	1.16 (0.83 - 1.63)	0.3770

PRP: Polyribosylribitol phosphate, hSBA: serum bactericidal assay (human complement), rSBA: serum bactericidal assay (rabbit complement), IgG: immunoglobulins, GMR: geometric mean ratio. Heterogeneity p value from sex-by-study interaction term in models which included at least 3 studies.

Supplementary Table 3: Individual participant data meta-analyses of pneumococcal serotype specific IgG for vaccine serotypes

S. pneumoniae serotype	*Age*	*Trial Number (N=number of included participants)*	*N female*	*GMC (95% CI) females*	*N male*	*GMC (95% CI) males*	*GMR (female/male) (95% CI)*	*p-value*
Serotype 1	5 months	6(N=441),9 (N=198)	300	2.78 (2.18, 3.55)	339	2.44 (1.91, 3.11)	1.14 (0.96 - 1.37)	0.1443
	12 months	6(N=422),7(N=140),9 (N=99)	301	0.41 (0.34, 0.5)	360	0.36 (0.3, 0.43)	1.14 (0.99 - 1.30)	0.0606
	13 months	6(N=400),7(N=144),9 (N=102)	288	4.25 (3.44, 5.25)	358	3.8 (3.11, 4.63)	1.12 (0.96 - 1.30)	0.1538
	24 months	6(N=413),7 (N=151)	264	0.19 (0.16, 0.23)	300	0.16 (0.14, 0.2)	1.18 (1.03 - 1.34)	0.0165
Serotype 3	5 months	6 (N=439)	209	8.12 (6.89, 9.58)	230	6.76 (5.78, 7.91)	1.20 (1.02 - 1.41)	0.0249
	12 months	6(N=422),7 (N=70)	228	1.56 (1.3, 1.88)	264	1.31 (1.1, 1.57)	1.19 (1.00 - 1.42)	0.0470
	13 months	6(N=400),7 (N=74)	216	15.23 (12.78, 18.15)	258	13.24 (11.16, 15.7)	1.15 (0.98 - 1.36)	0.0959
	24 months	6(N=413),7 (N=75)	230	2.51 (2.01, 3.13)	258	2.09 (1.67, 2.6)	1.20 (0.98 - 1.48)	0.0825
Serotype 4	5 months	6(N=441),9 (N=207)	304	3.68 (2.92, 4.63)	344	3.26 (2.59, 4.12)	1.13 (0.95 - 1.34)	0.1731
	12 months	6(N=422),7(N=140),9 (N=100)	301	0.75 (0.62, 0.9)	361	0.66 (0.56, 0.79)	1.13 (0.99 - 1.28)	0.0740
	13 months	6(N=401),7(N=144),9 (N=101)	288	5.08 (4.15, 6.21)	358	4.72 (3.9, 5.7)	1.08 (0.93 - 1.24)	0.3204
	24 months	6(N=413),7 (N=151)	264	0.33 (0.27, 0.4)	300	0.27 (0.23, 0.33)	1.19 (1.04 - 1.37)	0.0104
Serotype 5	5 months	6(N=439),9 (N=200)	299	4.38 (3.44, 5.58)	340	4.09 (3.21, 5.22)	1.07 (0.90 - 1.28)	0.4516
	12 months	6(N=422),7(N=140),9 (N=100)	301	0.83 (0.69, 1)	361	0.73 (0.61, 0.87)	1.14 (1.00 - 1.30)	0.0523
	13 months	6(N=400),7(N=144),9 (N=102)	288	6.85 (5.62, 8.34)	358	6.02 (5, 7.25)	1.14 (0.99 - 1.31)	0.0757
	24 months	6(N=413),7 (N=151)	264	0.31 (0.25, 0.38)	300	0.23 (0.18, 0.28)	1.37 (1.19 - 1.59)	<.0001
Serotype 6B	5 months	6(N=441),9 (N=197)	300	0.44 (0.35, 0.55)	338	0.42 (0.34, 0.52)	1.05 (0.85 - 1.29)	0.6782
	12 months	6(N=422),7(N=140),9 (N=99)	301	0.51 (0.41, 0.65)	360	0.36 (0.29, 0.45)	1.42 (1.20 - 1.67)	<.0001
	13 months	6(N=401),7(N=143),9 (N=102)	287	2.29 (1.78, 2.96)	359	1.82 (1.44, 2.31)	1.26 (1.05 - 1.51)	0.0140
	24 months	6(N=413),7 (N=151)	264	0.47 (0.37, 0.61)	300	0.35 (0.27, 0.44)	1.36 (1.15 - 1.61)	0.0004
Serotype 6A	5 months	6 (N=441)	211	2.05 (1.56, 2.7)	230	2.42 (1.86, 3.14)	0.85 (0.65 - 1.11)	0.2324
	12 months	6(N=422),7 (N=73)	229	1.31 (1.07, 1.62)	266	0.97 (0.79, 1.18)	1.36 (1.12 - 1.66)	0.0023
	13 months	6(N=400),7 (N=74)	216	31.85 (25.92, 39.14)	258	30.36 (24.84, 37.1)	1.05 (0.86 - 1.27)	0.6278
	24 months	6(N=413),7 (N=76)	230	3.55 (2.95, 4.28)	259	3.21 (2.67, 3.86)	1.11 (0.93 - 1.32)	0.2544
Serotype 7F	5 months	6(N=441),9 (N=202)	302	3.55 (2.95, 4.28)	341	3.21 (2.67, 3.86)	1.15 (0.99 - 1.33)	0.0641
	12 months	6(N=422),7(N=139),9 (N=102)	301	1.15 (0.98, 1.34)	362	0.92 (0.79, 1.07)	1.25 (1.12 - 1.40)	<.0001

	13 months	6(N=400),7(N=144),9 (N=102)	288	6.22 (5.22, 7.41)	358	5.79 (4.91, 6.83)	1.08 (0.95 - 1.22)	0.2618
	24 months	6(N=413),7 (N=151)	264	0.39 (0.34, 0.46)	300	0.29 (0.25, 0.34)	1.35 (1.21 - 1.51)	<.0001
Serotype 9V	5 months	6(N=441),9 (N=200)	301	3.6 (2.82, 4.6)	340	3.09 (2.41, 3.96)	1.16 (0.97 - 1.40)	0.0992
	12 months	6(N=422),7(N=140),9 (N=98)	300	0.91 (0.75, 1.1)	360	0.77 (0.64, 0.93)	1.17 (1.02 - 1.35)	0.0221
	13 months	6(N=401),7(N=144),9 (N=102)	288	7.73 (6.42, 9.3)	359	6.91 (5.8, 8.22)	1.12 (0.98 - 1.28)	0.0997
	24 months	6(N=413),7 (N=151)	264	0.18 (0.14, 0.22)	300	0.15 (0.12, 0.18)	1.23 (1.06 - 1.42)	0.0060
Serotype 14	5 months	6(N=440),9 (N=200)	300	3.32 (2.67, 4.13)	340	3.41 (2.76, 4.2)	0.97 (0.79 - 1.20)	0.8090
	12 months	6(N=422),7(N=140),9 (N=100)	301	1.12 (0.87, 1.43)	361	0.96 (0.76, 1.22)	1.16 (0.97 - 1.38)	0.0994
	13 months	6(N=401),7(N=144),9 (N=102)	288	6.17 (4.85, 7.85)	359	5.8 (4.63, 7.27)	1.06 (0.89 - 1.27)	0.4835
	24 months	6(N=413),7 (N=151)	264	0.86 (0.68, 1.09)	300	0.8 (0.64, 1.01)	1.07 (0.91 - 1.26)	0.4037
Serotype 18C	5 months	6(N=440),9 (N=197)	299	9.14 (6.98, 11.95)	338	7.97 (6.07, 10.46)	1.15 (0.94 - 1.40)	0.1781
	12 months	6(N=422),7(N=139),9 (N=101)	300	2.94 (2.43, 3.56)	362	2.59 (2.16, 3.1)	1.14 (0.99 - 1.30)	0.0634
	13 months	6(N=400),7(N=144),9 (N=102)	288	35.97 (29.83, 43.38)	358	33.98 (28.49, 40.53)	1.06 (0.92 - 1.21)	0.4093
	24 months	6(N=413),7 (N=147)	263	0.22 (0.17, 0.27)	297	0.18 (0.14, 0.22)	1.22 (1.06 - 1.40)	0.0062
Serotype 19A	5 months	6 (N=441)	211	2.07 (1.63, 2.62)	230	1.44 (1.15, 1.8)	1.44 (1.14 - 1.82)	0.0021
	12 months	6(N=420),7 (N=73)	229	0.71 (0.57, 0.88)	264	0.52 (0.42, 0.64)	1.36 (1.10 - 1.67)	0.0039
	13 months	6(N=401),7 (N=74)	216	13.57 (10.81, 17.04)	259	11.68 (9.36, 14.58)	1.16 (0.94 - 1.44)	0.1699
	24 months	6(N=413),7 (N=76)	230	1.64 (1.3, 2.07)	259	1.36 (1.08, 1.72)	1.20 (0.97 - 1.50)	0.0965
Serotype 19F	5 months	6(N=441),9 (N=198)	300	5.24 (4.12, 6.67)	339	5.2 (4.08, 6.63)	1.01 (0.84 - 1.20)	0.9324
	12 months	6(N=422),7(N=140),9 (N=99)	301	2.04 (1.62, 2.56)	360	1.54 (1.24, 1.92)	1.32 (1.12 - 1.56)	0.0008
	13 months	6(N=400),7(N=144),9 (N=101)	288	14.47 (11.74, 17.83)	357	12.92 (10.61, 15.73)	1.12 (0.96 - 1.30)	0.1400
	24 months	6(N=413),7 (N=151)	264	2.43 (1.89, 3.13)	300	2 (1.56, 2.56)	1.21 (1.02 - 1.44)	0.0267
Serotype 23F	5 months	6(N=441),9 (N=197)	300	0.89 (0.7, 1.13)	338	0.68 (0.54, 0.85)	1.31 (1.05 - 1.64)	0.0180
	12 months	6(N=421),7(N=140),9 (N=99)	300	0.55 (0.42, 0.73)	360	0.41 (0.32, 0.53)	1.34 (1.11 - 1.63)	0.0028
	13 months	6(N=400),7(N=138),9 (N=102)	284	4.65 (3.7, 5.84)	356	4.12 (3.32, 5.11)	1.13 (0.96 - 1.33)	0.1534
	24 months	6(N=413),7 (N=151)	264	0.48 (0.35, 0.67)	300	0.35 (0.26, 0.48)	1.37 (1.10 - 1.71)	0.0045

Supplementary Table 4: Individual participant data meta-analyses of pneumococcal serotype specific opsonophagocytic activity for vaccine serotypes

S. pneumoniae serotype	*Age*	*Trials included (N)*	N female	GMC (95% CI) females	N male	GMC (95% CI) males	GMR (female/male) (95% CI)	*p-value*
Serotype 1	5 months	9 (N=75)	33	32.71 (13.35, 80.14)	42	19.24 (8.73, 42.4)	1.70 (0.64 - 4.49)	0.2799
	12 months	7(N=139),9 (N=41)	72	11.32 (8.27, 15.5)	108	10.83 (8.07, 14.53)	1.05 (0.80 - 1.37)	0.7436
	13 months	7(N=140),9 (N=43)	69	645.8 (349.9, 1192)	114	412.1 (234.7, 723.6)	1.57 (0.92 - 2.66)	0.0958
	24 months	7 (N=151)	61	3.96 (3.81, 4.12)	90	4.03 (3.88, 4.18)	0.98 (0.94 - 1.03)	0.4687
Serotype 3	12 months	7 (N=67)	22	4.51 (4.15, 4.9)	45	4.06 (3.83, 4.31)	1.11 (1.00 - 1.23)	0.0462
	13 months	7 (N=72)	21	46.31 (26.31, 81.54)	51	30.7 (21.36, 44.14)	1.51 (0.77 - 2.95)	0.2266
	24 months	7 (N=76)	27	5.47 (4.17, 7.19)	49	4.71 (3.85, 5.77)	1.16 (0.83 - 1.63)	0.3846
Serotype 4	5 months	9 (N=74)	32	694.6 (481.7, 1002)	42	634.9 (462.8, 870.9)	1.09 (0.74 - 1.62)	0.6483
	12 months	7(N=132),9 (N=39)	67	35.75 (20.37, 62.75)	104	22.46 (13.29, 37.96)	1.59 (0.99 - 2.57)	0.0567
	13 months	7(N=141),9 (N=43)	70	1342 (982.5, 1833)	114	1084 (813.5, 1443)	1.24 (0.95 - 1.62)	0.1178
	24 months	7 (N=145)	58	33.51 (17.02, 66)	87	30.27 (16.15, 56.73)	1.11 (0.52 - 2.38)	0.7926
Serotype 5	5 months	9 (N=69)	30	86.23 (45.71, 162.7)	39	73.5 (42.36, 127.6)	1.17 (0.60 - 2.27)	0.6319
	12 months	7(N=132),9 (N=38)	67	16.11 (11.38, 22.81)	103	14.87 (10.72, 20.62)	1.08 (0.81 - 1.46)	0.5906
	13 months	7(N=140),9 (N=42)	68	16.11 (11.38, 22.81)	114	14.87 (10.72, 20.62)	1.93 (1.33 - 2.82)	0.0007
	24 months	7 (N=144)	57	5.22 (4.02, 6.77)	87	4.81 (3.79, 6.11)	1.08 (0.81 - 1.46)	0.5869
Serotype 6B	5 months	9 (N=73)	33	188.5 (71.15, 499.2)	40	175.8 (72.56, 425.8)	1.07 (0.29 - 4.00)	0.9162
	12 months	7(N=131),9 (N=39)	66	29.27 (16.48, 51.97)	104	23.22 (13.74, 39.24)	1.26 (0.78 - 2.05)	0.3470
	13 months	7(N=143),9 (N=43)	71	1103 (735.5, 1654)	115	661.1 (455.4, 959.7)	1.67 (1.18 - 2.36)	0.0041
	24 months	7 (N=148)	60	35.37 (19.22, 65.07)	88	11.41 (6.48, 20.1)	3.10 (1.56 - 6.16)	0.0014
Serotype 6A	12 months	7 (N=66)	21	25.83 (9.82, 67.97)	45	26.78 (13.83, 51.87)	0.96 (0.30 - 3.11)	0.9509
	13 months	7 (N=74)	22	10857 (6722, 17536)	52	5826 (4265, 7957)	1.86 (1.05 - 3.30)	0.0333
	24 months	7 (N=73)	26	721.2 (317.6, 1638)	47	370.4 (201.2, 681.7)	1.95 (0.70 - 5.41)	0.1978
Serotype 7F	5 months	9 (N=75)	33	1996 (1257, 3168)	42	1687 (1122, 2536)	1.18 (0.72 - 1.95)	0.5064
	12 months	7(N=134),9 (N=40)	69	1103 (584.2, 2082)	105	698.1 (383.3, 1271)	1.58 (0.92 - 2.73)	0.0996
	13 months	7(N=143),9 (N=43)	71	5370 (3527, 8175)	115	4060 (2758, 5976)	1.32 (0.92 - 1.90)	0.1269
	24 months	7 (N=150)	60	504.4 (333.2, 763.6)	90	363.9 (247.6, 535)	1.39 (0.87 - 2.21)	0.1690

Serotype 9V	5 months	9 (N=75)	33	880.8 (488.5, 1588)	42	904.2 (537.7, 1521)	0.97 (0.51 - 1.85)	0.9351
	12 months	7(N=134),9 (N=38)	71	446.6 (241.5, 825.9)	101	385.7 (213.6, 696.5)	1.16 (0.69 - 1.95)	0.5806
	13 months	7(N=142),9 (N=42)	69	6408 (3978, 10320)	115	4330 (2806, 6682)	1.48 (0.99 - 2.22)	0.0574
	24 months	7 (N=148)	61	12.53 (6.19, 25.35)	87	7.98 (4.1, 15.55)	1.57 (0.70 - 3.50)	0.2683
Serotype 14	5 months	9 (N=75)	33	626.2 (293.1, 1338)	42	351.6 (179.3, 689.2)	1.78 (0.65 - 4.91)	0.2605
	12 months	7(N=133),9 (N=41)	69	87.59 (47.95, 160)	105	61.52 (35.03, 108)	1.42 (0.85 - 2.39)	0.1814
	13 months	7(N=143),9 (N=43)	71	1179 (739.6, 1878)	115	980.2 (638.4, 1505)	1.20 (0.81 - 1.79)	0.3631
	24 months	7 (N=148)	61	560.3 (391.1, 802.9)	87	553.6 (392.7, 780.3)	1.01 (0.67 - 1.52)	0.9534
Serotype 18C	5 months	9 (N=74)	32	618.6 (295.4, 1295)	42	437.3 (231, 827.9)	1.41 (0.64 - 3.12)	0.3845
	12 months	7(N=132),9 (N=40)	69	44.15 (24, 81.2)	103	41.95 (23.62, 74.5)	1.05 (0.62 - 1.78)	0.8481
	13 months	7(N=143),9 (N=43)	71	2465 (1660, 3660)	115	2025 (1407, 2913)	1.22 (0.87 - 1.71)	0.2534
	24 months	7 (N=143)	59	178.3 (81.77, 388.6)	84	130.9 (62.69, 273.2)	1.36 (0.56 - 3.31)	0.4925
Serotype 19A	12 months	7 (N=73)	24	8.47 (4.97, 14.46)	49	6.16 (4.24, 8.96)	1.38 (0.72 - 2.64)	0.3336
	13 months	7 (N=74)	22	2120 (1167, 3852)	52	1162 (787.8, 1713)	1.82 (0.89 - 3.72)	0.0968
	24 months	7 (N=71)	25	148.7 (61.21, 361.4)	46	92.82 (48.24, 178.6)	1.60 (0.53 - 4.83)	0.3968
Serotype 19F	5 months	9 (N=73)	32	185.2 (93.07, 368.5)	41	160.8 (87.77, 294.5)	1.15 (0.54 - 2.44)	0.7088
	12 months	7(N=134),9 (N=40)	68	37.97 (20.07, 71.84)	106	23.97 (13.29, 43.22)	1.58 (0.92 - 2.73)	0.0960
	13 months	7(N=143),9 (N=42)	71	37.97 (20.07, 71.84)	114	23.97 (13.29, 43.22)	1.55 (1.00 - 2.41)	0.0488
	24 months	7 (N=148)	61	374.2 (199.2, 702.7)	87	159.9 (87.62, 291.8)	2.34 (1.14 - 4.80)	0.0206
Serotype 23F	5 months	9 (N=71)	32	873 (314.4, 2424)	39	445.1 (176.5, 1123)	1.96 (0.49 - 7.78)	0.3328
	12 months	7(N=132),9 (N=40)	69	275.5 (117.9, 644.1)	103	109.5 (49.17, 243.8)	2.52 (1.21 - 5.23)	0.0137
	13 months	7(N=143),9 (N=42)	71	275.5 (117.9, 644.1)	114	109.5 (49.17, 243.8)	1.38 (0.94 - 2.03)	0.1011
	24 months	7 (N=144)	58	180 (87.78, 369.1)	86	118 (60.3, 230.8)	1.53 (0.68 - 3.40)	0.2995

Supplementary table 5: Meta-analysis of pneumococcal serotype-specific differences in proportions with IgG > 0.35µg/mL (female – male)

Serotype	*Age (months)*	*Overall proportion (female)*	*Overall proportion (male)*	*Weighted Risk Diff [F-M]**	*[95% Conf.*	*Interval]*
1	5	0.933	0.885	0.04	-0.003	0.084
	12	0.654	0.542	0.078	0.010	0.145
	13	0.944	0.936	0.006	-0.007	0.019
	24	0.773	0.697	0.025	-0.025	0.075
3	5	0.995	1.000	-0.005	-0.018	0.008
	12	0.890	0.742	0.112	-0.017	0.24
	13	0.991	0.984	0.0	-0.014	0.014
	24	0.922	0.841	0.036	-0.055	0.127
4	5	0.941	0.927	0.011	-0.022	0.043
	12	0.551	0.496	0.037	-0.027	0.102
	13	0.985	0.976	0.005	-0.017	0.027
	24	0.780	0.707	0.024	-0.030	0.079
5	5	0.946	0.947	0.007	-0.017	0.03
	12	0.671	0.590	0.052	-0.011	0.116
	13	0.959	0.924	0.037	-0.105	0.178
	24	0.856	0.720	0.109	-0.027	0.246
6A	5	0.891	0.891	0.0	-0.059	0.058
	12	0.856	0.782	0.049	-0.014	0.112
	13	0.995	0.996	0.0	-0.014	0.013
	24	0.991	0.973	0.02	-0.048	0.088
6B	5	0.403	0.405	0.002	-0.072	0.076
	12	0.588	0.422	0.152	0.078	0.225
	13	0.944	0.944	0.006	-0.011	0.024
	24	0.890	0.817	0.05	-0.016	0.115
7F	5	0.997	0.982	0.012	-0.011	0.035
	12	0.927	0.845	0.077	-0.049	0.203
	13	1.000	0.983	0.016	-0.010	0.041
	24	0.913	0.847	0.066	-0.522	0.653
9V	5	0.920	0.900	0.019	-0.018	0.055
	12	0.587	0.511	0.059	-0.008	0.126
	13	0.985	0.966	0.019	-0.040	0.079
	24	0.795	0.727	0.029	-0.015	0.072
14	5	0.910	0.921	-0.002	-0.037	0.033
	12	0.857	0.820	0.038	-0.017	0.093
	13	0.979	0.968	0.008	-0.011	0.027
	24	0.928	0.910	0.010	-0.033	0.053
	5	0.936	0.938	0.009	-0.033	0.052
18c	12	0.680	0.608	0.043	-0.013	0.098
	13	0.997	0.990	0.002	-0.008	0.011
	24	0.764	0.636	0.078	0.023	0.133

19a	5	0.929	0.865	0.064	0.008	0.12
	12	0.642	0.591	0.052	-0.092	0.196
	13	0.995	0.996	0.0	-0.014	0.013
	24	0.909	0.873	0.031	-0.023	0.086
19f	5	0.980	0.985	-0.005	-0.031	0.02
	12	0.874	0.758	0.089	0.023	0.154
	13	0.988	0.993	-0.001	-0.010	0.008
	24	0.977	0.943	0.037	-0.028	0.102
23F	5	0.767	0.686	0.089	-0.016	0.194
	12	0.523	0.392	0.117	0.045	0.189
	13	0.976	0.966	0.008	-0.006	0.022
	24	0.902	0.793	0.120	-0.113	0.352

*Results from an unadjusted two-stage random effects meta-analysis of proportions.