

## Additional file 5

Results of the simulation study when seroreversion rate is assumed to be unknown. The true seroreversion rate was fixed at 0.017.

population	SCR	sample size	relative length	absolute SCR range	EIR range	seroprevalence range	
Africa	0.0036	250	4.38	0.0016–0.0174	0.00–0.29	0.027–0.232	
		500	1.95	0.0020–0.0090	0.00–0.07	0.033–0.134	
		1000	1.18	0.0023–0.0066	0.00–0.04	0.037–0.100	
		2500	0.72	0.0026–0.0052	0.01–0.02	0.042–0.081	
		5000	0.53	0.0028–0.0047	0.01–0.02	0.045–0.074	
		10000	0.37	0.0030–0.0043	0.01–0.02	0.048–0.068	
	0.0108	0.0108	250	1.52	0.0064–0.0228	0.04–0.51	0.098–0.286
			500	1.01	0.0070–0.0179	0.04–0.31	0.107–0.237
			1000	0.68	0.0079–0.0152	0.06–0.22	0.118–0.208
			2500	0.43	0.0087–0.0134	0.07–0.17	0.130–0.188
			5000	0.30	0.0093–0.0126	0.08–0.15	0.137–0.178
			10000	0.22	0.0097–0.0120	0.09–0.13	0.142–0.171
	0.0324	0.0324	250	0.90	0.0219–0.0509	0.47–2.7	0.277–0.481
			500	0.62	0.0243–0.0444	0.58–2.04	0.299–0.445
			1000	0.43	0.0263–0.0403	0.68–1.66	0.316–0.420
			2500	0.27	0.0284–0.0371	0.80–1.40	0.334–0.399
			5000	0.19	0.0295–0.0356	0.87–1.29	0.343–0.389
			10000	0.13	0.0304–0.0346	0.92–1.21	0.350–0.382
	0.0969	0.0969	250	0.71	0.0710–0.1400	5.41–22.24	0.568–0.732
			500	0.48	0.0777–0.1244	6.53–17.39	0.592–0.706
			1000	0.34	0.0824–0.1150	7.37–14.77	0.607–0.688
			2500	0.21	0.0878–0.1077	8.41–12.89	0.623–0.673
			5000	0.14	0.0903–0.1043	8.93–12.06	0.630–0.665
			10000	0.10	0.0921–0.1022	9.31–11.55	0.635–0.660
0.2900	0.2900	250	0.80	0.2073–0.4394	50.39–241.12	0.808–0.909	
		500	0.52	0.2288–0.3804	61.91–178.55	0.825–0.894	
		1000	0.36	0.2454–0.3500	71.62–150.14	0.836–0.884	
		2500	0.22	0.2605–0.3250	81.16–128.65	0.845–0.875	
		5000	0.16	0.2689–0.3145	86.65–120.09	0.849–0.871	
		10000	0.11	0.2747–0.3072	90.62–114.40	0.852–0.868	
SEA+SA	0.0036	250	5.29	0.0017–0.0208	0.00–0.42	0.028–0.266	
		500	2.24	0.0020–0.0100	0.00–0.09	0.033–0.147	
		1000	1.27	0.0022–0.0068	0.00–0.04	0.036–0.104	
		2500	0.78	0.0025–0.0053	0.01–0.02	0.041–0.083	
		5000	0.54	0.0028–0.0047	0.01–0.02	0.045–0.074	
		10000	0.39	0.0030–0.0044	0.01–0.02	0.048–0.069	
	0.0108	0.0108	250	1.64	0.0063–0.0241	0.03–0.57	0.097–0.297
			500	1.06	0.0070–0.0184	0.04–0.32	0.106–0.242
			1000	0.73	0.0076–0.0155	0.05–0.23	0.115–0.211
			2500	0.45	0.0086–0.0135	0.07–0.17	0.128–0.189
			5000	0.32	0.0093–0.0127	0.08–0.15	0.137–0.179
			10000	0.22	0.0097–0.0121	0.08–0.14	0.142–0.172
	0.0324	0.0324	250	0.99	0.0213–0.0534	0.44–2.99	0.271–0.493
			500	0.67	0.0236–0.0454	0.55–2.13	0.293–0.450
			1000	0.47	0.0259–0.0410	0.66–1.73	0.313–0.424
			2500	0.29	0.0281–0.0374	0.79–1.43	0.332–0.401
			5000	0.20	0.0294–0.0359	0.86–1.31	0.342–0.391
			10000	0.14	0.0302–0.0349	0.91–1.23	0.349–0.383
	0.0969	0.0969	250	0.82	0.0681–0.1480	4.96–24.97	0.558–0.744
			500	0.56	0.0755–0.1295	6.15–18.90	0.584–0.715
			1000	0.37	0.0809–0.1172	7.10–15.37	0.602–0.693
			2500	0.24	0.0862–0.1095	8.11–13.33	0.618–0.677
			5000	0.17	0.0892–0.1057	8.70–12.39	0.627–0.669
			10000	0.12	0.0914–0.1030	9.16–11.73	0.633–0.662
0.2900	0.2900	250	1.15	0.1944–0.5272	44.11–352.37	0.797–0.925	
		500	0.73	0.2152–0.4255	54.47–225.48	0.814–0.905	
		1000	0.47	0.2355–0.3708	65.73–169.31	0.829–0.891	
		2500	0.29	0.2523–0.3374	75.91–139.07	0.840–0.880	
		5000	0.21	0.2629–0.3228	82.69–126.84	0.846–0.874	
		10000	0.14	0.2703–0.3121	87.59–118.22	0.850–0.870	