

## Supplemental tables

**Table S1. Predictors of anaemia with RDT-positive as reference.** Multivariate logistic regression model for predicting mild-to-severe (left columns), moderate-to-severe (middle columns), and severe anaemia (right columns). The effect of risk factors expressed as odds ratios.

	Adjusted haemoglobin <110 g/L (anaemia)			Adjusted haemoglobin <100 g/L (moderate-to-severe anaemia)			Adjusted haemoglobin <70 g/L (severe anaemia)		
	Odds ratio	(2.5%, 97.5%)	p	Odds ratio	(2.5%, 97.5%)	p	Odds ratio	(2.5%, 97.5%)	p
<i>age in years</i>	0.68	(0.65,0.71)	<0.001	0.71	(0.69,0.74)	<0.001	0.73	(0.67,0.80)	<0.001
<i>female</i>	0.86	(0.77,0.96)	0.009	0.84	(0.76,0.93)	<0.001	0.87	(0.67,1.14)	0.31
<b>HBB/malaria status</b>									
<i>HbAA/+ (ref)</i>									
<i>HbAS/+</i>	0.84	(0.64,1.08)	0.18	0.84	(0.70,1.00)	0.051	0.48	(0.31,0.72)	<0.001
<i>HbAC/+</i>	0.72	(0.40,1.29)	0.26	0.98	(0.60,1.59)	0.93	0.14	(0.02,1.02)	0.052
<i>HbSC/+</i>	*	*	*	4.53	(1.01,20.35)	0.05	4.78	(0.85,26.71)	0.08
<i>HbSS/+</i>	*	*	*	12.33	(2.73,55.81)	0.001	15.54	(6.24,38.74)	<0.001
<i>HbAA/-</i>	0.25	(0.21,0.29)	<0.001	0.20	(0.18,0.22)	<0.001	0.09	(0.06,0.14)	<0.001
<i>HbAS/-</i>	0.32	(0.19,0.36)	<0.001	0.26	(0.22,0.31)	<0.001	0.06	(0.03,0.15)	<0.001
<i>HbAC/-</i>	0.29	(0.24,0.54)	<0.001	0.28	(0.17,0.47)	<0.001	#	#	#
<i>HbSC/-</i>	2.97	(0.43,20.35)	0.27	0.48	(0.12,1.98)	0.31	#	#	#
<i>HbSS/-</i>	17.18	(2.36,125.03)	0.005	4.53	(2.08,9.89)	<0.001	6.95	(3.32,14.55)	<0.001
<i>rural (urban ref)</i>	0.99	(0.85,1.14)	0.86	0.92	(0.80,1.05)	0.22	1.62	(1.13,2.31)	0.008
<b>wealth</b>									
<i>richer/richest (ref)</i>									
<i>middle</i>	1.03	(0.88,1.20)	0.71	1.09	(0.93,1.28)	0.28	0.96	(0.60,1.53)	0.87
<i>poorer</i>	1.33	(1.09,1.63)	0.005	1.34	(1.11,1.62)	0.003	1.27	(0.82,1.97)	0.29
<i>poorest</i>	1.71	(1.36,2.14)	<0.001	1.51	(1.24,1.84)	<0.001	1.56	(0.97,2.49)	0.06
<b>mother's education</b>									
<i>none or primary (ref)</i>									
<i>Secondary or higher</i>	0.85	(0.73,1.00)	0.05	0.85	(0.74,0.98)	0.03	0.95	(0.68,1.33)	0.76

\* indicates odds ratios could not be estimated because all observed children in this category were anaemic

# odds ratios could not be estimated because no observed children in this category were severely anaemic.

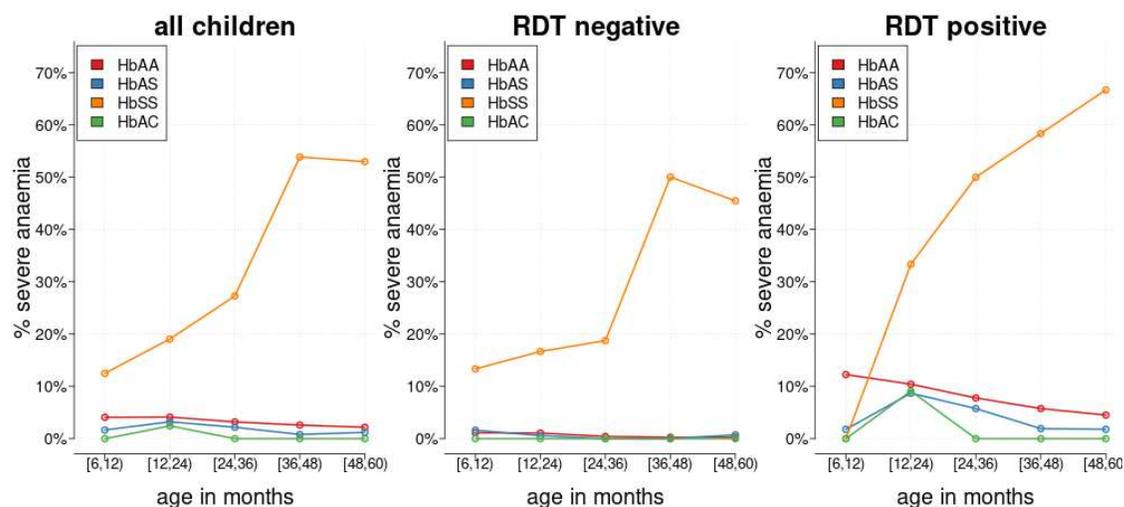
**Table S2. Predictors of mild-to-severe, moderate-to-severe, and severe anemia without using sickle cell status.**

	<i>Mild-to-severe</i>			<i>Moderate-to-severe</i>			<i>Severe</i>		
	<i>Odds ratio</i>	<i>(2.5, 97.5%)</i>	<i>p</i>	<i>Odds ratio</i>	<i>(2.5, 97.5%)</i>	<i>p</i>	<i>Odds ratio</i>	<i>(2.5%, 97.5%)</i>	<i>p</i>
<i>age in years</i>	0.68	(0.65, 0.71)	<0.001	0.72	(0.69, 0.74)	<0.001	0.74	(0.68, 0.81)	<0.001
<i>female</i>	0.87	(0.78, 0.97)	0.01	0.85	(0.77, 0.94)	<0.01	0.90	(0.69, 1.17)	0.43
<i>RDT positive</i>	3.69	(3.23, 4.21)	<0.001	4.48	(4.02, 4.98)	<0.001	6.97	(5.00, 9.73)	<0.001
<i>rural (ref: urban)</i>	0.98	(0.84, 1.13)	0.75	0.91	(0.79, 1.04)	0.18	1.68	(1.18, 2.40)	0.004
<i>wealth</i>									
<i>richer/richest (ref)</i>	--			--			--		
<i>middle</i>	1.03	(0.88, 1.21)	0.71	1.09	(0.93, 1.28)	0.28	0.96	(0.61-1.51)	0.85
<i>poorer</i>	1.35	(1.11, 1.65)	<0.01	1.36	(1.12, 1.64)	<0.01	1.37	(0.89-2.10)	0.16
<i>poorest</i>	1.71	(1.37, 2.14)	<0.001	1.52	(1.25, 1.85)	<0.001	1.57	(0.99-2.50)	0.06
<i>mother's education</i>									
<i>None or primary (ref)</i>	--			--			--		
<i>Secondary or higher</i>	0.87	(0.74, 1.01)	0.07	0.86	(0.75, 1.00)	<0.05	1.02	(0.73-1.43)	0.90

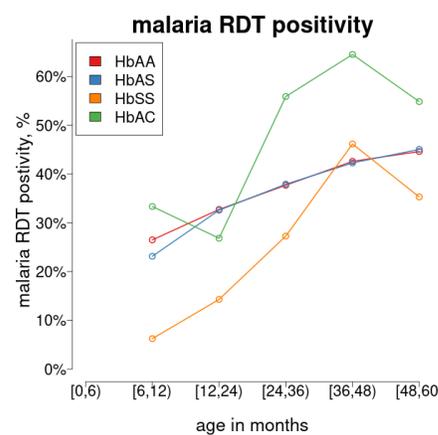
**Table S3. Predictors of haemoglobin concentration with RDT-positive as reference.** Multivariate linear regression results to predict adjusted haemoglobin concentration. The baseline haemoglobin concentration is in the first row, with the following rows summarizing the effect of risk factors.

	<b>g/L</b>	<b>(2.5%,97.5%)</b>	<b>p</b>
<b>Baseline concentration</b>	86.36	(85.00,87.72)	<0.001
<b>age in years</b>	2.74	(2.50,2.97)	<0.001
<b>Female (ref: male)</b>	1.23	(0.61,1.85)	<0.001
<b>HBB/malaria status</b>			
<b>HbAA/+ (ref)</b>	--		
<b>HbAS/+</b>	2.17	(0.90,3.45)	<0.001
<b>HbAC/+</b>	3.51	(0.26,6.75)	0.03
<b>HbSC/+</b>	-14.92	(-22.74,-7.10)	<0.001
<b>HbSS/+</b>	-24.32	(-30.64,-18.00)	<0.001
<b>HbAA/-</b>	12.93	(12.10,13.76)	<0.001
<b>HbAS/-</b>	11.06	(10.01,12.12)	<0.001
<b>HbAC/-</b>	11.78	(8.98,14.58)	<0.001
<b>HbSC/-</b>	0.58	(-2.97,4.14)	0.74
<b>HbSS/-</b>	-15.98	(-20.44,-11.53)	<0.001
<b>rural (ref: urban)</b>	-0.03	(-0.87, 0.81)	0.94
<b>wealth</b>			
<b>richer/richest (ref)</b>	--		
<b>middle</b>	-0.15	(-1.05, 0.76)	0.75
<b>poorer</b>	-1.89	(-3.04, -0.74)	0.001
<b>poorest</b>	-3.80	(-5.10, -2.50)	<0.001
<b>mother's education</b>			
<b>none or primary (ref)</b>	--		
<b>Secondary or higher</b>	1.12	(0.28,1.97)	0.009

## Supplemental figures



**Figure S1. Severe anemia by age and sickle cell genotype.** Among children with HbSS, the prevalence of severe anemia increases dramatically with age. Among children without HbSS, the prevalence of severe anemia decreases with age. Also note the difference between HbAA (red) and HbAS (blue) among RDT-positive children.



**Figure S2. Malaria positivity by age and sickle cell genotype.**