SUPPLEMENTARY MATERIAL

Supplemental Table 1: Result of regression analysis for controls compared to SAM survivors for outcomes of the "CANTAB" cognitive function tests, disaggregated by sibling and community controls

CANTAB	**Cases**	**Sibling**			**Community**		
	Mean (SD) N=171	**Mean** (SD) N=61	**Difference adjusted for age only** (95% CI) *P value*	**Difference adjusted** (95% CI) *P value*	**Mean** (SD) N=94	**Difference adjusted for age only** (95% CI) *P value*	**Difference adjusted** (95% CI) *P value*
BLC Percent Correct	94.0 (13.1)	98.4 (4.1)	5.65 *(1.9, 9.4)* *0.004 **	5.16 *(1.2, 9.1)* *0.01 **	97.5 (5.9)	3.37 *(0.7, 6.1)* *0.02 **	2.51 *(-0.5, 5.6)* *0.11*
IED Total Errors (adjusted)	93.7 (81.5)	92.2 (84.3)	3.18 *(-26, 33)* *0.83*	4.77 *(-24.5, 34)* *0.75*	67.8 (73.2)	-26.8 *(-48, -5.9)* *0.01**	-12.04 *(-34, 10.4)* *0.29*
IED Stage completed (ordinal logistic regression‡)	5.77 (3.5)	5.85 (3.7)	-0.04 *(-0.7, 0.7)* *0.90*	-0.03 *(-0.8, 0.7)* *0.93*	6.81 (3.1)	0.66 *(0.2, 1.2)* *0.009**	0.47 *(-0.1, 1.0)* *0.098*

MOT mean latency	1348 (502)	1282 (411)	-39.6 *(-178, 100)* *0.58*	-18.5 *(-163, 126)* *0.80*	1240 (431)	-115.4 *(-233, 2.90)* *0.06*	-78.7 *(-210, 53)* *0.24*
MOT mean error	10.0 (2.8)	10.2 (3.2)	0.28 *(-0.6, 1.1)* *0.52*	0.21 *(-0.6, 1.1)* *0.63*	9.6 (2.7)	-0.41 *(-1.1, 0.3)* *0.26*	-0.71 *(-1.5, 0.1)* *0.08*
PAL total errors (adjusted)	111.1 (70)	116.4 (77)	10.5 *(-10, 31)* *0.32*	*12.1* *(-9.3, 33)* *0.27*	83.4 (65)	-28.9 *(-46, -11)* *0.001**	*-23.0* *(-42, -3.6)* *0.02 **
PAL total errors (6 shapes adjusted)	31.2 (20)	32.9 (20)	2.82 *(-3.2, 8.9)* *0.36*	3.02 *(-3.2, 9.2)* *0.34*	25.5 (21)	-5.9 *(-11, -0.9)* *0.02**	-4.38 *(-10.0,1.2)* *0.12*
PRM percent correct	63.6 (16)	73.2 (17)	5.69 *(0.4, 10.9)* *<0.04**	4.42 *(-0.8, 9.7)* *0.097*	67.4 (15)	*3.73* *(-0.3, 7.8)* *0.07*	3.34 *(-1.0, 7.7)* *0.13*

Linear regress unless otherwise stated‡; adjusted differences includes age, sex, HIV status and socioeconomic status in the model. Test outcomes which quantify the number of total errors have been adjusted for incomplete tests as subjects who fail at earlier stages of the test have fewer opportunities to make errors.

Supplemental Table 2: Associations between CANTAB cognitive test results and wealth quintile

CANTAB outcome	**Wealth quintile (1=poorest)**	**Mean**	**SD**	**Unadjusted Coefficient**	**P value**
BLC % correct	1	95.8	8.1	*Ref*	*Ref*
	2	96.7	5.1	0.91 (-2.9 to 4.8)	0.65
	3	95.9	10.0	0.07 (-4.0 to 4.2)	0.97
	4	96.6	9.4	0.81 (-2.9 to 4.5)	0.67
	5	94.2	16.6	-1.57 (-5.5 to 2.4)	0.43
IED total errors (adjusted for incomplete tests□)	1	118.3	85.8	*Ref*	*Ref*
	2	84.1	77.7	-34.2 (-63.1 to -5.3)	0.02
	3	69.8	71.0	-48.9 (-78.9 to -18.0)	0.002
	4	90.3	80.9	-27.9 (-55.6 to -0.3)	0.05 *
	5	50.4	62.1	-67.9 (-97.4 to -38.4)	<0.001*
MOT mean error	1	10.2	3.1	*Ref*	*Ref*
	2	10.2	2.9	0.05 (-0.90 to 0.99)	0.92

	3	9.5	2.7	-0.69 (-1.68 to 0.31)	0.18
	4	9.5	2.6	-0.69 (-1.61 to 0.23)	0.14
	5	10.1	2.8	-0.02 (-1.00 to 0.96)	0.96
MOT mean latency (millisecs)	1	1381	474	*Ref*	*Ref*
	2	1329	492	-52.0 (-209 to 105)	0.52
	3	1203	379	-179 (-344 to -13.3)	0.03 *
	4	1306	485	-75.4 (-228 to 77.2)	0.33
	5	1283	497	-98.6 (-261 to 64.2)	0.23
PAL total errors (adjusted for incomplete tests□)	1	120.2	67.6	*Ref*	*Ref*
	2	108.9	71.3	-11.3 (34.9 to 12.3)	0.35
	3	95.8	60.9	-24.5 (-49.4 to 0.53)	0.06
	4	100.3	78.0	-19.9 (-43.0 to 3.13)	0.09
	5	86.6	73.1	-33.6 (-58.2 to -9.03)	0.008 *
PAL total errors (6 shapes,	1	33.4	19.8	*Ref*	*Ref*
	2	31.1	20.2	-2.31 (-9.0 to 4.4)	0.50
	3	30.5	21.0	-2.89 (-10.0 to 4.2)	0.42

adjusted)	4	28.4	20.1	-4.98 (-11.6 to 1.60)	0.14
	5	23.7	20.2	-9.70 (-16.7 to -2.6)	0.007 *
PRM % correct	1	60.1	14.7	*Ref*	*Ref*
	2	63.7	15.8	3.69 (-2.1 to 9.4)	0.21
	3	67.8	16.7	7.72 (1.7 to 13.7)	0.01
	4	71.6	17.1	11.5 (6.0 to 17.1)	<0.001*
	5	69.1	15.1	9.07 (3.1 to 15.0)	0.003 *
IED total stages completed (ordered logistic‡)	1	4.69	3.7	*Ref*	*Ref*
	2	6.13	3.4	0.71 (0.0 to 1.4)	0.04 *
	3	6.79	3.1	1.21 (0.5 to 1.9)	0.001 *
	4	5.90	3.4	0.65 (0.0 to 1.3)	0.05 *
	5	7.63	2.7	1.98 (1.2 to 2.7)	<0.001*

Linear regress unless otherwise stated‡. Test outcomes which quantify the number of total errors have been adjusted for incomplete tests as subjects who fail at earlier stages of the test have fewer opportunities to make errors

Supplementary Table 3: Association between CANTAB cognitive testing outcomes and severity of SAM at admission (oedema classification and mid-upper arm circumference)

CANTAB outcomes	Adjusted (age, sex, HIV, SES) regression of CANTAB outcomes on oedema severity (1, 2 or 3) n=110		Adjusted (age, sex, HIV, SES) regression of CANTAB outcomes on MUAC at admission (if no oedema) n=72	
	Unit Difference (CI)	P value	Unit Difference (CI)	P value
BLC % correct	2.57 (-1.2, 6.4)	0.19	0.66 (-3.7, 5.0)	0.75
IED total errors	6.14 (-17.2, 29.5)	0.60	-18.31 (-48.3, 11.6)	0.22
MOT mean error	0.04 (-0.7, 0.8)	0.91	-0.36 (-1.3, 0.6)	0.44
MOT mean latency (millisecs)	-56.9 (-176.5, 62.6)	0.35	-159.2 (-356.7, 38.4)	0.11
PAL total errors	-14.85 (-33.0, 3.3)	0.11	-0.47 (-24.2, 23.3)	0.97
PAL total errors (6 shapes)	-3.29 (-8.4, 1.8)	0.21	-0.64 (-7.7, 6.4)	0.85
PRM % correct	-2.62 (-6.7, 1.6)	0.22	2.45 (-4.2, 9.1)	0.46

Linear regression of CANTAB outcomes against oedema severity score (1 to 3), and for those without oedema, mid-upper arm circumference at admission. * indicated significant difference ($p<0{\cdot}05$). Unadjusted analyses also showed no significant differences.