

SUPPLEMENTARY MATERIAL

Supplementary Table 1: Standard Error (SE) and Upper Bound (UB) and Lower Bound (LB) of 95% Confidence Interval Estimates of AE Prevalence Rates[18,19]

Country	Year	Stunting			Overweight			Stuntingoverweight		
		SE	LB	UB	SE	LB	UB	SE	LB	UB
Albania	2008-09	1.1	8.3	12.6	1.2	10.4	15.2	1.0	7.2	11.3
Armenia	2010	1.2	10.0	14.8	1.0	6.5	10.3	0.9	5.5	9.0
Azerbaijan	2006	1.3	14.2	19.3	0.6	3.2	5.8	1.1	6.7	10.9
Bangladesh	2011	0.8	38.9	42.1	0.1	0.6	1.2	0.1	0.5	0.9
Barbados	2012	1.2	3.6	8.6	1.8	7.6	14.6	0.7	0.8	3.9
Belarus	2005	0.5	2.6	4.5	0.6	7.7	9.9	0.2	0.7	1.4
Belize	2011	1.4	14.3	19.8	0.6	4.5	6.8	0.5	1.4	3.3
Benin	2006	0.6	34.9	37.2	0.1	2.1	2.6	0.4	6.1	7.7
Bhutan	2010	1.0	26.5	30.3	0.2	1.7	2.7	0.4	3.8	5.5
BiH	2011-12	0.6	2.2	4.8	1.2	11.3	15.9	0.7	2.7	5.7
Bolivia	2008	0.9	22.8	26.4	0.4	5.3	6.8	0.2	2.1	3.0
Burkina Faso	2010	0.7	31.6	34.5	0.2	0.7	1.3	0.2	1.1	1.8
Burundi	2010	1.0	53.9	58.0	0.2	0.5	1.3	0.3	1.4	2.7
Cambodia	2010	1.1	35.9	40.4	0.2	0.4	1.1	0.2	0.6	1.5
Cameroon	2011	1.0	27.6	31.6	0.3	3.2	4.5	0.3	1.9	3.1
Central African Republic	2006	1.0	35.8	39.5	0.4	2.7	4.1	0.4	4.2	5.9
Chad	2004	1.1	40.2	44.6	0.2	1.3	2.1	0.4	1.6	3.0
Colombia	2010	0.4	11.8	13.4	0.2	3.9	4.7	0.1	0.4	0.7
Congo (Brazzaville)	2011-12	1.0	19.8	23.8	0.3	1.4	2.7	0.3	0.9	2.1
Congo Democratic Republic	2013-14	0.9	38.1	41.7	0.2	1.2	2.0	0.3	2.0	3.1
Comoros	2012	1.2	22.6	27.4	0.6	3.3	5.8	0.6	3.5	6.1
Djibouti	2006	1.5	23.4	29.4	0.8	4.0	7.1	0.9	5.6	9.3
Dominican Republic	2013	1.7	5.9	12.9	0.6	1.2	3.5	0.3	0.2	1.7
Egypt	2014	0.5	13.0	14.9	0.3	6.7	8.0	0.4	6.8	8.4
Ethiopia	2011	0.9	41.7	45.2	0.1	0.7	1.2	0.1	0.6	1.2
Gabon	2012	1.6	13.8	19.9	0.8	3.2	6.5	0.5	1.3	3.2
Gambia	2005	0.7	25.1	28.0	0.2	1.3	1.9	0.2	0.8	1.4
Georgia	2005	0.8	5.5	8.5	1.0	12.2	16.0	0.8	5.2	8.3
Ghana	2008	1.2	22.8	27.4	0.4	2.1	3.7	0.4	1.7	3.4
Guinea	2012	1.1	27.2	31.5	0.3	1.5	2.7	0.3	1.1	2.3
Guinea-Bissau	2006	1.0	33.9	37.7	0.3	2.8	4.0	0.6	10.6	12.8
Guyana	2009	1.6	13.8	19.9	0.8	3.2	6.5	0.5	1.3	3.2
Haiti	2012	1.0	17.8	21.8	0.3	2.0	3.3	0.2	0.8	1.6
Honduras	2011-12	0.7	20.5	23.1	0.3	4.1	5.3	0.1	0.4	0.8
India	2005	0.4	46.3	47.9	0.0	0.5	0.7	0.1	0.9	1.1
Iraq	2006	0.5	18.2	20.0	0.3	6.6	7.9	0.3	6.7	8.1
Ivory Coast	2011	1.1	26.4	30.6	0.3	1.2	2.3	0.2	0.9	1.9
Jordan	2012	0.6	6.0	8.4	0.4	3.1	4.8	0.1	0.4	0.8
Kazakhstan	2010-11	0.5	7.3	9.2	0.5	7.7	9.7	0.4	3.9	5.4
Kenya	2008-09	1.1	30.7	35.1	0.3	1.8	2.8	0.3	1.9	3.0
Kyrgyzstan	2012	0.8	12.7	15.9	0.4	4.3	6.0	0.4	2.8	4.5
Lao PDR	2011-12	0.9	41.3	44.7	0.1	0.6	1.0	0.1	0.8	1.3
Lesotho	2009-10	1.6	26.7	32.9	0.7	3.9	6.8	0.5	1.9	3.9
Liberia	2013	1.1	26.7	31.2	0.3	1.0	2.3	0.3	0.9	2.0
Madagascar	2003-04	1.6	45.8	52.0	0.2	0.9	1.9	0.6	3.1	5.4
Malawi	2010	1.0	40.1	43.9	0.3	2.5	3.8	0.4	4.3	5.9
Maldives	2009	1.0	14.9	18.8	0.5	3.7	5.7	0.3	0.8	1.8
Mali	2006	0.8	34.3	37.2	0.3	1.5	2.6	0.2	1.8	2.5
Mauritania	2011	0.7	26.8	29.7	0.2	1.2	1.9	0.2	1.2	1.9
Mongolia	2010	0.7	11.8	14.6	0.6	7.6	10.1	0.3	1.5	2.6
Montenegro	2013	0.4	0.8	2.6	1.5	13.7	19.5	1.4	3.5	9.1

Morocco	2003-04	0.7	15.6	18.5	0.4	6.9	8.5	0.4	4.8	6.2
Mozambique	2011	0.8	36.7	39.7	0.2	2.5	3.2	0.4	4.0	5.4
Namibia	2013	1.3	18.7	23.8	0.5	1.8	3.7	0.2	0.5	1.5
Nepal	2011	1.4	36.8	42.5	0.2	0.4	1.3	0.2	0.4	1.2
Niger	2012	1.0	39.9	43.9	0.2	0.8	1.5	0.2	1.0	1.8
Nigeria	2013	0.6	32.9	35.3	0.1	1.1	1.5	0.2	2.3	2.9
Pakistan	2012-13	1.4	39.3	44.9	0.2	0.6	1.5	0.3	1.7	3.1
Peru	2012	0.6	16.1	18.6	0.4	6.0	7.8	0.1	0.3	0.7
Rwanda	2010	0.9	38.7	42.2	0.3	2.8	4.0	0.3	3.0	4.2
Sao Tome e Principe	2008	1.6	20.7	26.9	0.7	3.9	6.8	0.7	4.4	7.4
Senegal	2014	0.8	18.5	21.6	0.2	0.5	1.1	0.1	0.2	0.6
Serbia	2010	0.6	2.1	4.5	0.9	11.0	14.4	0.5	2.3	4.1
Sierra Leone	2013	1.0	31.5	35.5	0.4	2.7	4.2	0.4	3.6	5.2
Somalia	2006	1.4	36.9	42.5	0.3	1.5	2.9	0.3	1.8	2.9
Suriname	2010	0.7	11.8	14.6	0.6	7.6	10.1	0.3	1.5	2.6
Swaziland	2010	1.1	25.8	30.2	0.6	6.8	9.1	0.4	2.2	3.6
Syria	2006	0.5	15.9	17.9	0.3	6.5	7.8	0.5	10.0	11.8
Tajikistan	2012	0.9	21.3	24.7	0.4	2.0	3.5	0.4	2.4	4.1
Tanzania	2009-10	0.9	37.2	40.8	0.3	2.1	3.1	0.2	2.2	3.1
Thailand	2005-06	0.7	12.4	15.2	0.3	5.5	6.8	0.2	1.6	2.3
Timor-Leste	2009	0.8	52.5	55.6	0.1	0.8	1.4	0.3	3.0	4.2
Togo	2010	1.0	27.4	31.5	0.3	0.8	2.0	0.1	0.1	0.5
Turkey	2003-04	0.8	12.5	15.5	0.5	6.5	8.5	0.2	0.9	1.6
Uganda	2011	1.3	28.9	34.1	0.3	1.4	2.7	0.3	1.2	2.5
Uzbekistan	2006	0.6	13.5	16.0	0.5	7.0	9.0	0.4	3.6	5.0
Vanuatu	2007	1.6	20.2	26.6	0.4	1.0	2.7	0.5	1.6	3.6
Zambia	2013-14	0.7	35.4	37.9	0.2	2.2	2.9	0.2	2.9	3.8
Zimbabwe	2010	0.8	27.6	30.6	0.3	2.7	3.9	0.2	1.6	2.5

Supplementary Table 2: Exclusion Criteria of DHS/MICS (as noted in survey reports), JME and AEs.[21,22]

Table 2 summarise exclusion criteria for the JME, AEs as well as the estimates in the Final Survey Reports of DHS and MICS (SREs). The SREs are used to triangulate and provide further insight into the estimate and sample size inconsistencies.

Criteria	SREs	JMEs	AEs
>= 60 months*	E	E	E
Missing size at birth	I	<i>Not Indicated**</i>	I
Missing Mother's BMI	E	<i>Not Indicated</i>	I
Mother not listed in household roster	E	<i>Not Indicated</i>	I
Biologically implausible z-scores	E (from affected indicator(s))***	E (from affected indicator(s))	E
Missing one or more of height, weight or age	E (from affected indicator(s))	E (from affected indicator(s))	E
Missing sampling weights	I [^]	<i>Not Indicated</i>	E

*SRE for Honduras provided for 3-59 years, JMEs use age adjustment method to adjust national estimates in cases were age range is different, but there is no other matching criteria to re-analyse data

***Not Indicated* – no indication in manuals or reports of inclusion or exclusion

***Cases with any flagged cases or missing data are excluded from the affected indicator only

[^]SREs include cases missing sample weights, but not the number of unweighted cases in the reports

Supplementary Table 3: MICS/DHS Final Survey Report Estimates (SREs) and Sample Size with Percentage Point (PP) and Sample Size Differences between SREs with JMEs and AEs[17,18,19,21,22]:

Country	Year	Survey Type	Survey Report Estimates (SRE) and Sample Size (n)			Difference in JMEs and Sample Size with Survey Reports			Difference in AEs and Sample Size with Survey Reports		
			Stunting	Over-weight	n ¹	Stunting Δ PP ²	Over-weight Δ PP	JME Δ n ³	AE Stunting ⁴ Δ PP	AE Over-weight ⁴ Δ PP	AE Δ n
Albania	2008-09	DHS	19.3	21.7	1289	3.8	1.7	201	-0.1	0	2
Armenia	2010	DHS	19.3	15.3	1333	1.5	1.5	68	-0.1	0	-4
Azerbaijan⁵	2006	DHS	25.1	12.9	1979	1.7	1	148	0	-0.1	-37
Bangladesh	2011	DHS	41.3	1.5	7861	0.1	0.4	209	-0.1	0.1	-214
Barbados	2012	MICS	7.7	12.2	368	0	0	35	-0.1	-1	-9
Belarus⁵	2005	MICS	2.8	6.7	3018	1.7	3	13	-0.1	0.3	-5
Belize	2011	MICS	19.3	7.9	1780 (H/A) 1768 (W/H)	0	0	29 41	0.1	-0.1	-5 7
Benin⁵	2006	DHS	43.1	9	13099	1.6	2.4	1529	-0.2	0.2	-853
Bhutan	2010	MICS	33.5	7.6	5863	0.1	0	275	0.1	-0.2	-189
BiH	2011-12	MICS	8.9	17.4	2137 (H/A) 2078 (W/H)	0	0	64 103	0	-0.6	50 -9
Bolivia	2008	DHS	27.1	8.5	8422	0.1	0.2	105	0	0	-706
Burkina Faso	2010	DHS	34.6	2.4	6994	0.5	0.4	222	-0.1	0	-462
Burundi	2010	DHS	57.7	2.7	3590	-0.2	0.2	54	0.2	0	-140
Cambodia	2010	DHS	39.9	1.6	3975	1	0.3	102	-0.8	0.1	-276
Cameroon	2011	DHS	32.5	6.2	5860	0.1	0.3	246	-0.5	0	-827
Central African Republic⁵	2006	MICS	37.5	4.7	5873	7.6	3.8	2714	0.5	1.3	1317
Chad⁵	2004	DHS	40.9	NR ⁶	4635	3.9	-	253	3.7	-	-251
Colombia	2010	DHS	13.2	4.8	15702	-0.5	0	119	-0.1	0	267
Comoros	2012	DHS	30.1	9.3	2762	2.0	1.6	357	-0.2	-0.5	-375
Congo (Brazzaville)	2011-12	DHS	24.4	3.3	4951	0.6	0.3	-304	-1.3	0	-476
Congo Democratic Republic	2013-14	DHS	42.7	4.1	9030	-0.1	0.3	365	-0.4	-0.1	-971
Djibouti⁵	2006	MICS	32.6	10.2	1761	0	3.2	411	-2.3	0.2	-54
Dominican Republic	2013	DHS	6.9	7.3	3619	0.2	0.3	72	-0.1	0.2	-432
Egypt	2014	DHS	21.4	14.9	13601	0.9	0.8	1303	0.1	0	81
Ethiopia	2011	DHS	44.4	1.7	10282	-0.2	0.1	892	-0.1	0.1	-671
Gabon	2012	DHS	16.5	7.4	3856	1	0.3	175	-0.5	0.1	-520
Gambia⁵	2005	MICS	22.4	2.3	6386	5.2	0.4	38	0	0	-31
Georgia⁵	2005	MICS	10.4	15.2	1812	4.3	5.8	112	1.4	1.3	2

Ghana	2008	DHS	28	5.3	2525	0.6	0.6	141	-0.5	-0.1	-146
Guinea	2012	DHS	31.2	3.6	3531	0.1	0.2	151	-0.3	0	-446
Guinea-Bissau⁵	2006	MICS	40.9	8.5	4325	6.8	8.5	965	1	2.8	47
Guyana	2009	DHS	18.2	6.2	1522	1.3	0.5	129	0.5	0.5	38
Haiti	2012	DHS	21.9	3.6	4529	0	0	52	-1	0.1	-545
Honduras	2011-12	DHS	22.6	5.1	10167 ⁷	0.1	0.1	52	-0.3	0.2	-194
India⁵	2005	DHS	48	1.5	46655	-0.1	0.4	2578	0	0	-5349
Iraq⁵	2006	MICS	21.4	9.4	15316	6.1	5.6	993	1.4	1.9	170
Ivory Coast	2011	DHS	29.8	3	3581	-0.2	0.2	163	0	-0.1	-381
Jordan	2012	DHS	7.7	4.4	5851	0.1	0.3	52	-0.1	0	416
Kazakhstan	2010-11	MICS	13	0.6	4987 (H/A) 4955 (W/H)	0.1	12.7	28	0.2	12.6	3
Kenya	2008-09	DHS	35.3	4.7	5470	-0.1	0.3	256	-0.1	0	-374
Kyrgyzstan	2012	DHS	17.7	8.5	4337	0.1	0.5	52	0.1	0.1	-321
Lao PDR	2011-12	MICS	44.2	2	10671	-0.4	0	155	-0.3	0	-122
Lesotho	2009-10	DHS	39.2	7.2	2086	-0.2	0.1	53	-1.6	0.4	-774
Liberia	2013	DHS	31.6	2.9	3520	0.5	0.3	100	-1.4	0	-349
Madagascar⁵	2003-04	DHS	50.1	NR	5412	2.7	-	493	-1.2	-	-978
Malawi	2010	DHS	47.1	8.3	4849	0.7	0.9	266	0	-0.1	-263
Maldives	2009	DHS	18.9	5.9	2513	1.4	0.6	102	-0.9	-0.1	-160
Mali⁵	2006	DHS	37.7	NR	11877	0.8	-	893	0.2	-	-1099
Mauritania	2011	MICS	29.7	3.2	8668	0	0	-144	-1.3	0	-492
Mongolia	2010	MICS	15.3	10.9	3672	0.3	-6.2	-2967	-0.2	-0.2	-13
Montenegro⁸	2013	MICS	9.4	22.3	1361 (H/A) 1300 (W/H)	0	0	31	0.3	-1.1	-47
Morocco⁵	2003-04	DHS	22.4	NR	5311	0.7	-	310	0.1	-	66
Mozambique	2011	DHS	42.6	7.4	10313	0.5	0.5	478	0.2	0	-1000
Namibia	2013	DHS	23.8	3.4	2287	-0.7	0.7	343	-1.8	0.1	-729
Nepal	2011	DHS	40.5	1.4	2475	0	0.1	40	-0.2	0	-140
Niger	2012	DHS	43.9	3.5	5481	-0.9	-0.5	354	-0.7	-1.1	-710
Nigeria	2013	DHS	36.8	4	26190	-0.4	0.9	2602	-0.1	-0.1	-1685
Pakistan	2012-13	DHS	44.8	3.2	3466	0.2	1.6	349	-0.4	0.1	-395
Peru	2012	DHS	18.1	NR	9168	0.3	-	20	-0.3	-	45
Rwanda	2010	DHS	44.2	6.7	4356	0.1	0.4	63	-0.2	0.2	-281
Sao Tome e Principe	2008	DHS	29.3	10.5	1544	2.3	1.1	191	0.1	0.4	-90
Senegal	2014	DHS	18.7	1.2	5934	0.7	0.1	106	1.6	-0.2	157
Serbia⁸	2010	MICS	6.6	15.6	2745 (H/A) 2699 (W/H)	0	0	59	0	-0.3	-87
Sierra Leone	2013	DHS	37.9	7.5	5094	0	1.4	677	-0.1	0.2	-1025

Somalia⁵	2006	MICS	37.8	3.2	5424	4.3	1.5	419	0	0.3	-65
Suriname	2010	MICS	8.8	4	2726	0	0	153	6.3	6.7	933
Swaziland	2010	MICS	30.9	10.7	2562 (H/A)	0.1	0	14	0	0	-13
					2560 (W/H)			16			-11
Syria⁵	2006	MICS	22.4	12.4	9578	6.2	6.3	1009	2.1	2.5	180
Tajikistan	2012	DHS	26.2	5.9	5080	0.6	0.7	261	-0.1	-0.1	-557
Tanzania	2009-10	DHS	42	5	7491	0.5	0.5	161	-0.4	0.2	-699
Thailand	2005-06	MICS	11.9	6.9	9409 ⁹	3.8	1.1	353	0.1	0.1	426
Timor-Leste	2009	DHS	58.1	4.7	8171	-0.4	1.1	666	-0.5	-0.1	-627
Togo	2010	MICS	29.7	1.6	4668	0.1	0	11	0	0	-43
Turkey⁵	2003-04	DHS	12.2	NR	3668	3.4	-	109	2.9	-	358
Uganda	2011	DHS	33.4	3.4	2350	0.3	0.4	98	-0.2	0.3	-280
Uzbekistan⁵	2006	MICS	14.6	7.3	4691	5	5.5	192	1	1.2	-8
Vanuatu	2007	MICS	20.1	2.3	1281	5.8	2.4	77	0.4	0.6	-81
Zambia	2013-14	DHS	40.1	5.7	12328	-0.1	0.5	429	-0.1	0.2	-921
Zimbabwe	2010	DHS	32	5.5	5260	0.3	0.3	178	-0.9	-0.2	-961

¹Where different sample sizes were noted for either height-for-age (stunting) or weight-for-height (overweight) they indicator specific sample size is indicated by (H/A) or (W/H) respectively

²(Δ PP) differences in percentage points between SREs and JMEs/AEs respectively. Positive values indicate the JME/AE rates for stunting and overweight are higher than the SREs and negative values vice versa.

³(Δ n) differences in reported sample size for generation of prevalence rates between SREs and JMEs/AEs respectively. Positive values indicate the JME/AE sample size for stunting and overweight are higher than the SREs and negative values vice versa.

⁴Estimates include stunted/overweight children

⁵SREs used NCHS not WHO 2006 Child Growth Standards, this is likely to skew understanding of differences in estimates between SREs and AEs/JMEs.

⁶Overweight estimates not reported survey report, difference in sample sizes could thus not be estimated

⁷Survey reports indices and sample for 3-59 months only

⁸JME reports the sample size for weight-for-age as listed in the MICS Final Reports for Montenegro and Serbia. The sample sizes differ for height-for-age and weight-for-height and suggests an error in the JME.

⁹n for all under-fives in dataset, no indication in survey report of final sample size (after exclusion/cleaning) for these estimates, it only lists the weighted population size of 4632212

Other potential sources of the estimate inconsistencies include: 1) error in use/reporting of data, 2) differential application of sampling weights. There remains an issue of transparency in the use of data, and it is not possible to ascertain the consistency of weighting strategies across the three groups of estimates (SREs, JMEs and AEs). Sampling procedures are described in each survey's final reports, yet how the weights for JME or DHS/MICs estimates were finally applied are not currently made publicly available for either the SREs or JMEs. It should be noted that is not possible to verify whether there was incorrect use or reporting of data in the JME or that the exclusion criteria for the JME was applied as described, as this information is also not publicly available.