

**Additional file 5: Comparison between estimates generated in the current work and from other sources****Corelation**

Table 1: Corelation coefficients between estimates generated from the current study and estimates from [1–4]

ID	Determinant	Source	Temporal range	Correlation	P value
1	Underweight	[1–3] IHME	2000-2014	0.8575	<0.0001
2	Wasting			0.7728	<0.0001
3	Stunting			0.7475	<0.0001
4	Three doses of DPT			0.8001	<0.0001
5	Improved water			0.7403	<0.0001
6	Skilled birth attendance	[4] Worldpop	2014	0.6547	<0.0001

IHME- institute of Health Measure Evaluation, MAP-Malaria Atlas Project

**Ranking of determinants**

The high coverage or low prevalence counties were the best performing in 2014 based on estimates from the current study and the comparator with blue coded counties simultaneously identified from the two sets of data. Likewise, for the counties lagging behind (Low coverage or high prevalence counties), analogous interpretation applies.

Table 2: Ranking of estimates generated from the current study and other sources (Table 1 above)

Determinant	High coverage or low prevalence counties		Low coverage or high prevalence counties		Overall match
	Current study	Table 1	Current study	Table 1	
Underweight	Nairobi Nyeri Kirinyaga Murang'a Siaya Kisumu Vihiga Kiambu Homa Bay Nyandarua	Nairobi Nyeri Kirinyaga Murang'a Siaya Kisumu Vihiga Kiambu Homa Bay Kisii	West Pokot Turkana Mandera Marsabit Samburu Wajir Baringo Isiolo Tana River Garissa	West Pokot Turkana Mandera Marsabit Samburu Wajir Baringo Isiolo Tana River E-Marakwet	18/20=90%
Wasting	Siaya Vihiga Kirinyaga Nyeri Kakamega Kisii Kisumu Nakuru Kajiado Bungoma	Siaya Vihiga Kirinyaga Nyeri Kakamega Kisii Nyamira Nairobi Murang'a Kiambu	Turkana Garissa Mandera Samburu Wajir Marsabit West Pokot Isiolo Baringo Tana River	Turkana Garissa Mandera Samburu Wajir Marsabit West Pokot Isiolo Baringo Tana River	16/20=80%
Stunting	Nairobi Nyeri Kirinyaga Garissa Mombasa Murang'a Isiolo Kisumu Vihiga Kajiado	Nairobi Nyeri Kirinyaga Garissa Mombasa Murang'a Isiolo Siaya Laikipia Kiambu	West Pokot Kilifi Mandera Kitui Kwale Bomet Trans Nzoia E-Marakwet Narok Baringo	West Pokot Kilifi Mandera Kitui Kwale Bomet Trans Nzoia E-Marakwet Narok Tana River	16/20=80%
Improved (piped) water	Nairobi Mombasa Taita Taveta Nyeri Meru Kiambu Kilifi Isiolo Garissa Kajiado	Nairobi Mombasa Taita Taveta Nyeri Meru Kiambu Kilifi Nakuru Kirinyaga Kwale	Migori Kisii Nyamira Vihiga Busia Homa Bay Wajir Narok West Pokot Tana River	Migori Kisii Nyamira Vihiga Busia Homa Bay Trans Nzoia Nandi Kakamega Siaya	13/20=65%

Three doses of DPT	Kirinyaga Kiambu Bomet Embu Machakos Nandi Kericho Makueni Taita Taveta E-Marakwet	Kirinyaga Kiambu Bomet Embu Machakos Nandi Uasin Gishu Nyamira Vihiga Nyeri	Mandera Wajir West Pokot Garissa Marsabit Migori Turkana Lamu Homa Bay Bungoma	Mandera Wajir West Pokot Garissa Marsabit Migori Turkana Lamu Kajiado Narok	15/20=75%
Skilled birth attendance	Nairobi Murang'a Mombasa Kirinyaga Kiambu Embu Tharaka Nithi Meru Nyandarua Nyeri	Nairobi Murang'a Mombasa Kirinyaga Kiambu Nyamira Kisii Kakamega Busia Vihiga	Wajir Turkana Marsabit Tana River Isiolo Samburu Garissa Mandera West Pokot Trans Nzoia	Wajir Turkana Marsabit Tana River Isiolo Samburu Garissa Lamu Kitui Taita Taveta	12/20=60%

#### References

- 1 Kinyoki DK, Osgood-Zimmerman AE, Pickering B V., *et al.* Mapping child growth failure across low- and middle-income countries. *Nature* 2020;**577**:231–4. doi:10.1038/s41586-019-1878-8
- 2 Mosser JF, Gagne-Maynard W, Rao PC, *et al.* Mapping diphtheria-pertussis-tetanus vaccine coverage in Africa, 2000–2016: a spatial and temporal modelling study. *Lancet* 2019;**6736**:1–13. doi:10.1016/S0140-6736(19)30226-0
- 3 Deshpande A, Miller-Petrie MK, Lindstedt PA, *et al.* Mapping geographical inequalities in access to drinking water and sanitation facilities in low-income and middle-income countries, 2000–17. *Lancet Glob Heal* 2020;**8**:e1162–85. doi:10.1016/S2214-109X(20)30278-3
- 4 Ruktanonchai CW, Ruktanonchai NW, Nove A, *et al.* Equality in Maternal and Newborn Health: Modelling Geographic Disparities in Utilisation of Care in Five East African Countries. *PLoS One* 2016;**11**:e0162006.