New completion rate estimation method

A proposal for SDG 4 reporting

Technical Cooperation Group

Mexico City, 15 November 2018

Manos Antoninis
Global Education Monitoring Report

Target and indicator

Target 4.1

*By 2030, ensure that all girls and boys **complete** free, equitable and quality primary and secondary education leading to relevant and effective learning outcomes*

Thematic indicator 4.1.4

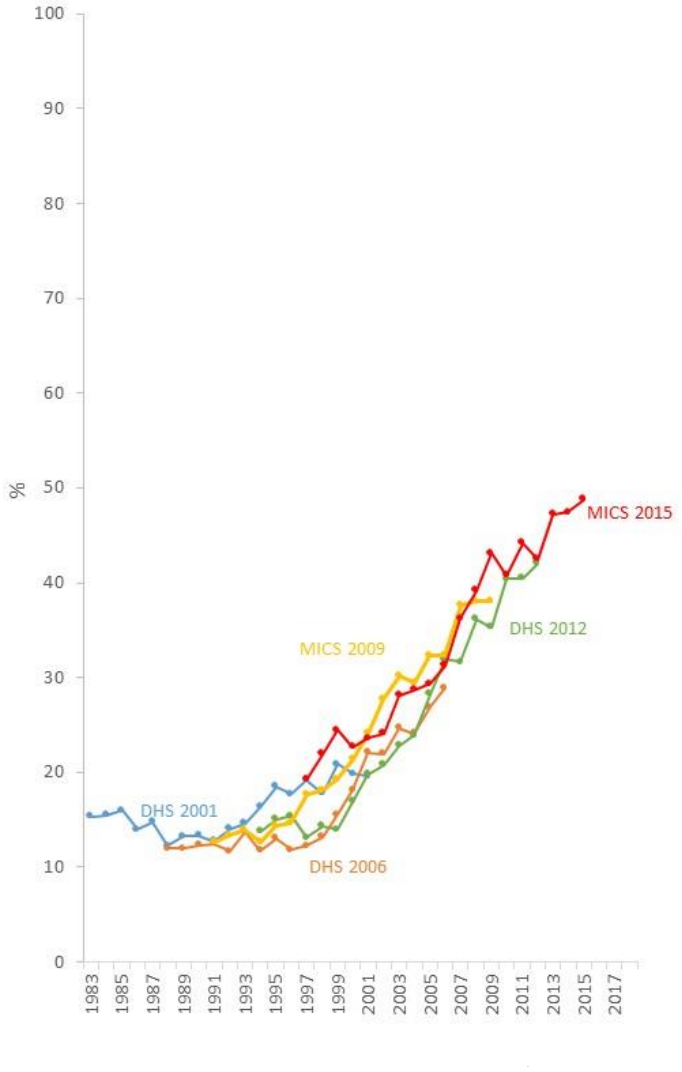
***Completion rate** (primary education, lower secondary education, upper secondary education)*

Global Education Monitoring Report

Monitoring completion

Multiple sources provide data

GEM Report proposes a new model to estimate completion rates:

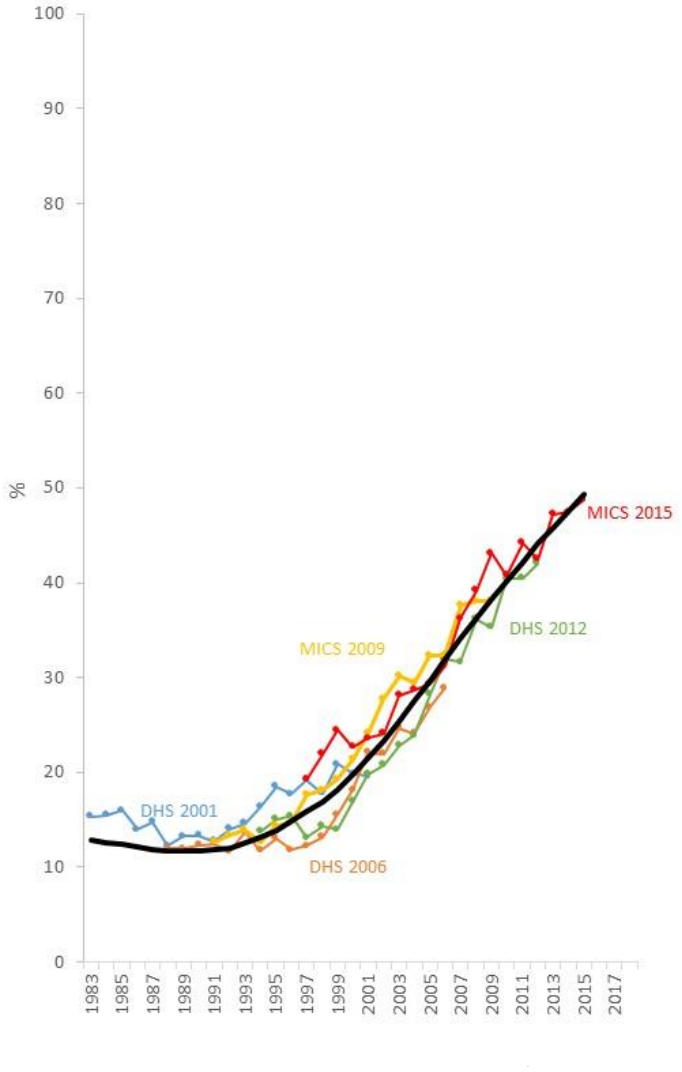


Monitoring completion

Multiple sources provide data

GEM Report proposes a new model to estimate completion rates:

▶ to use survey data efficiently



Monitoring completion

Multiple sources provide data

GEM Report proposes a new model to estimate completion rates:

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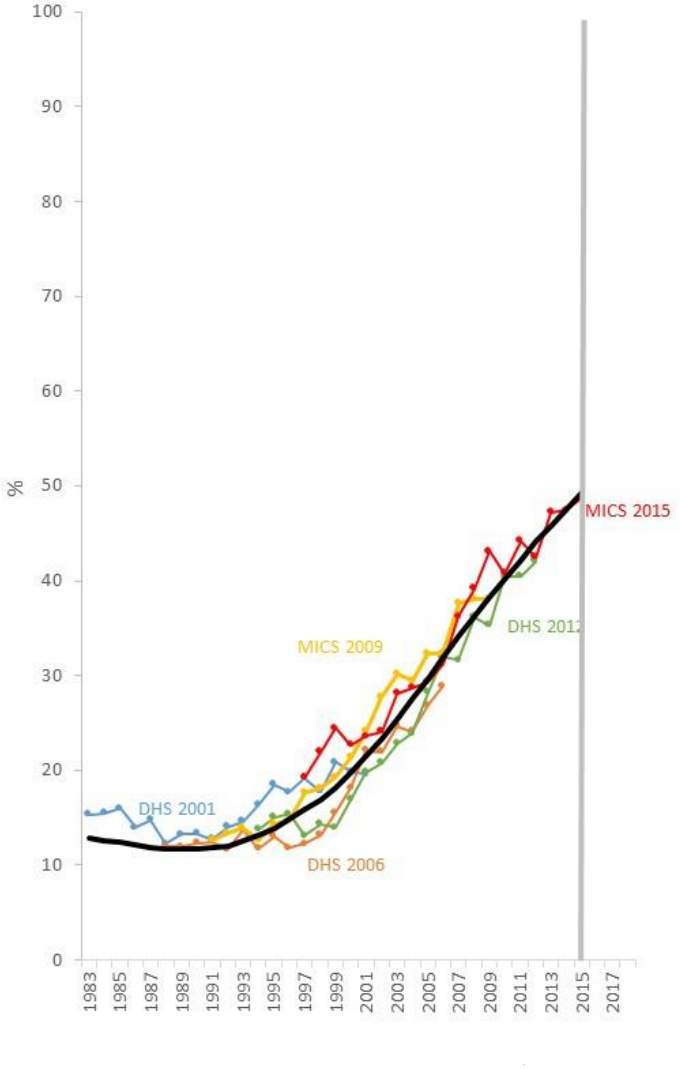
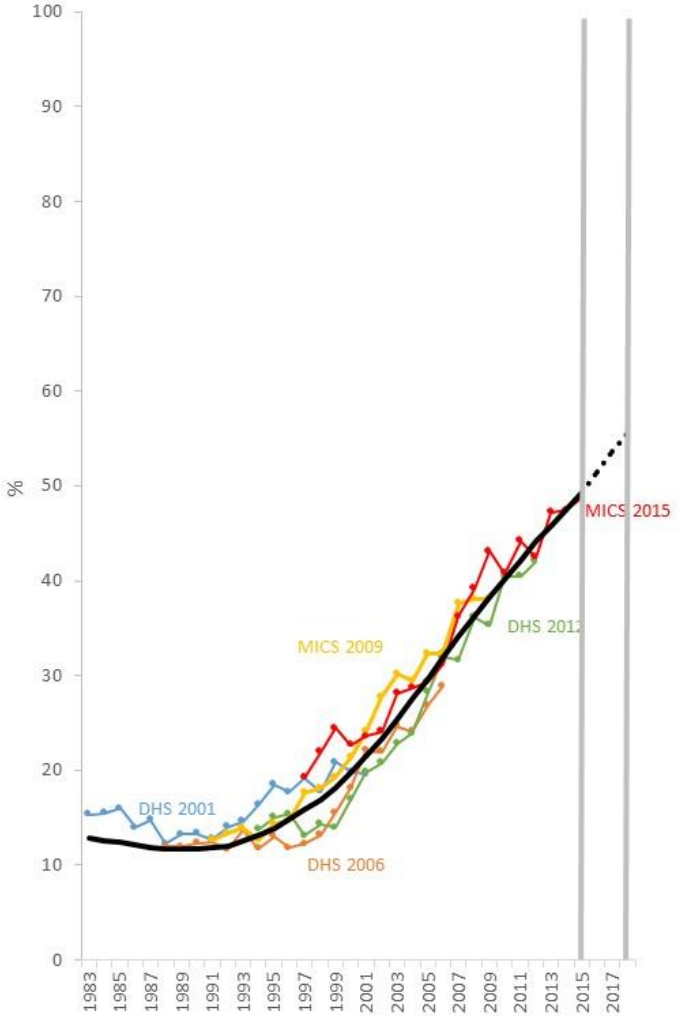


Monitoring completion

Multiple sources provide data

GEM Report proposes a new model to estimate completion rates:

▶ to use survey data efficiently
and
▶ project rates to most recent year



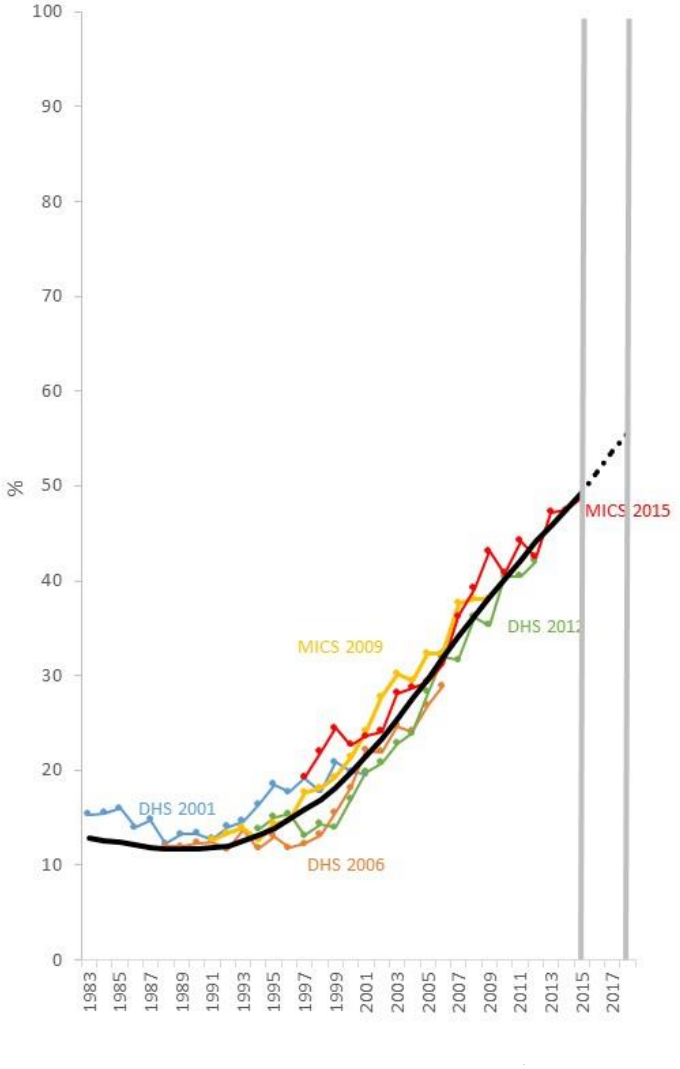
Monitoring completion

Multiple sources provide data

GEM Report proposes a new model to estimate completion rates:

▶ to use survey data efficiently
and
▶ project rates to most recent year

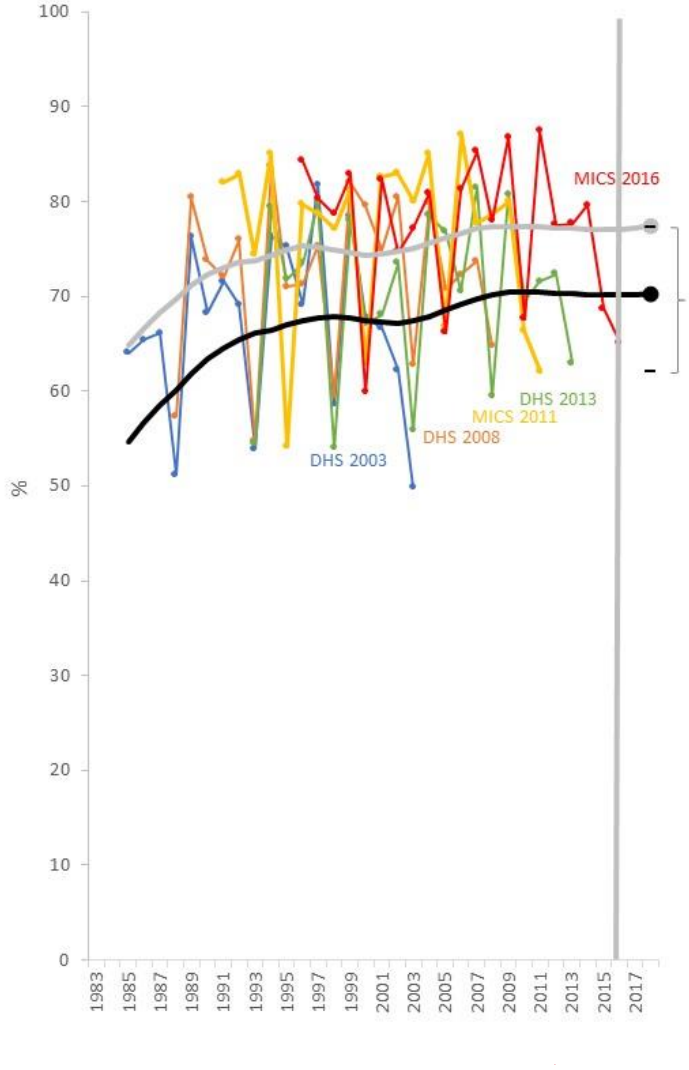
In **Mali**, the last survey is from 2015 but the model projects the primary completion rate to 56% in 2018



Challenges

In many countries:

- Late completion

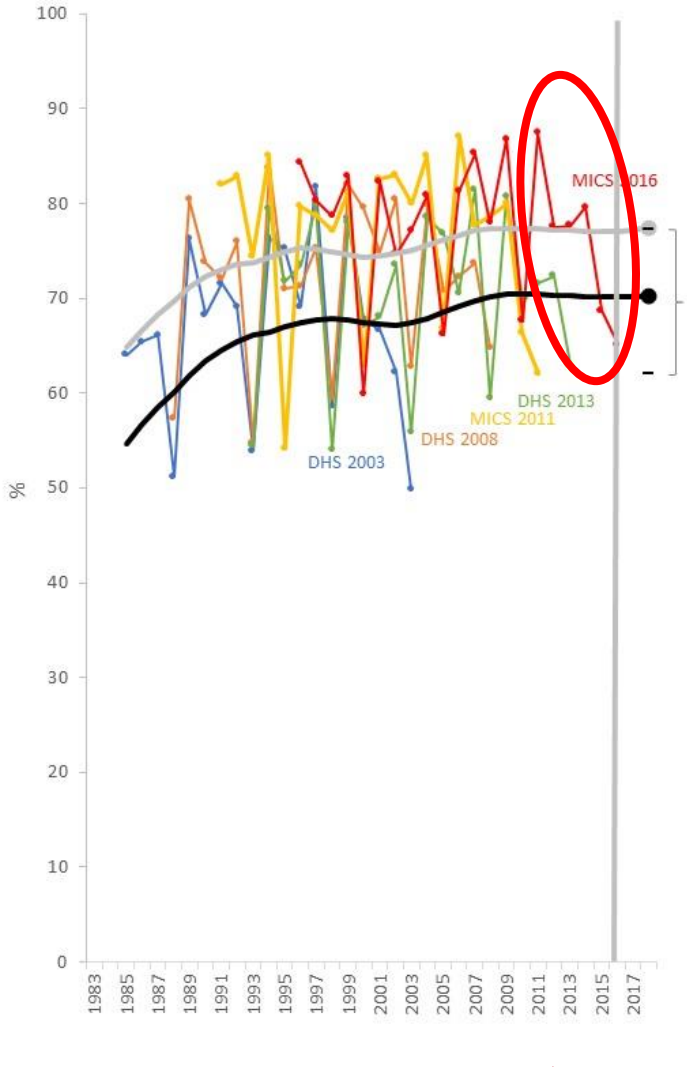


Challenges

In many countries:

▶ Late completion

In **Nigeria**, there is a 7 percentage point gap in completion rates between 14-16 year olds and the full cohort



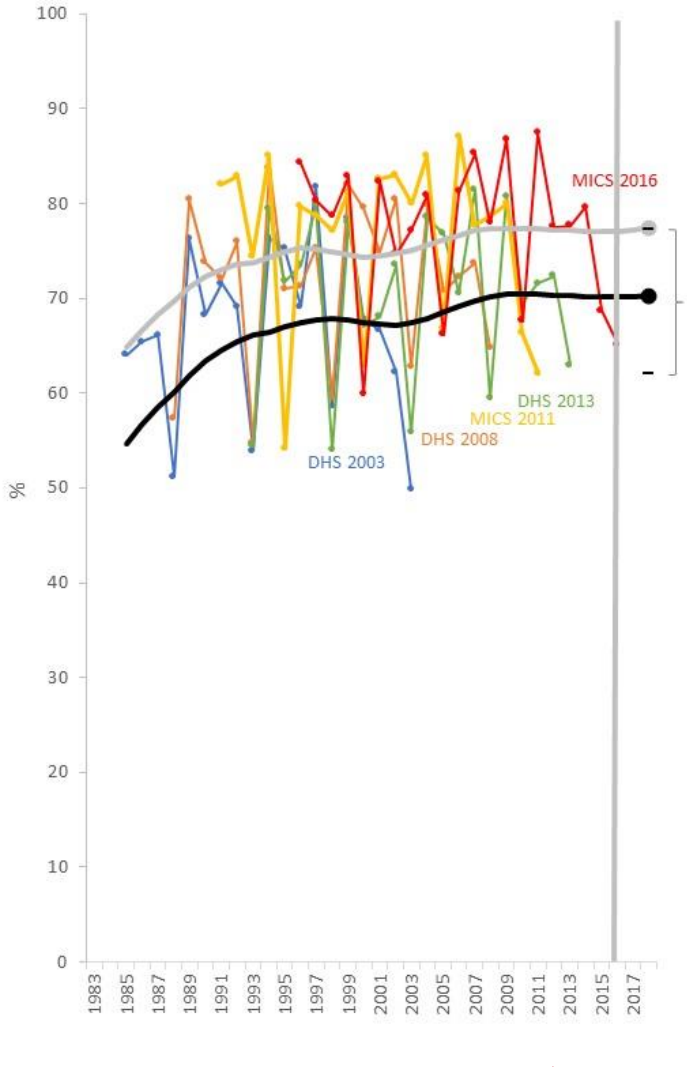
Challenges

In many countries

- Late completion

In **Nigeria**, there is a 7 percentage point gap in completion rates between 14-16 year olds and the full cohort

- Age lumping
- Survey bias

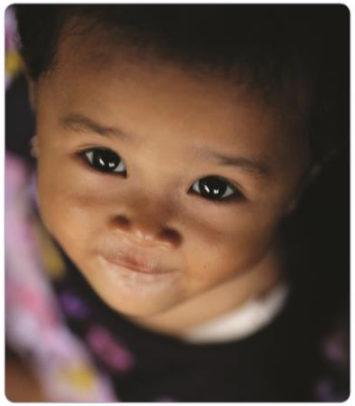


Faced with similar challenges, health developed similar models

Levels & Trends in **Child Mortality**

Report 2018

Estimates developed by the UN Inter-agency Group for Child Mortality Estimation



unicef | World Health Organization | WORLD BANK GROUP | United Nations

STATISTICAL TABLE

Country, regional and global estimates of mortality among children under age 5 and children aged 5–14

Country	Under-five mortality rate (U5MR) with 95 per cent uncertainty interval (deaths per 1,000 live births)									Number of under-five deaths with 95 per cent uncertainty interval (thousands)*					
	1990			2017			Annual rate of reduction (ARR) (per cent) 1990-2017			1990			2017		
	U5MR	Lower bound	Upper bound	U5MR	Lower bound	Upper bound	ARR	Lower bound	Upper bound	Under-five deaths	Lower bound	Upper bound	Under-five deaths	Lower bound	Upper bound
Afghanistan	175	160	197	68	57	85	3.5	2.6	4.5	167	98	116	77	59	96
Albania	40	36	45	9	8	9	5.6	5.1	6.1	3	3	4	0	0	0
Algeria	50	46	53	24	23	25	2.7	2.4	3.0	41	38	44	22	21	23
Andorra	9	5	14	3	2	5	3.5	0.9	6.1	0	0	0	0	0	0
Angola	224	199	251	81	39	146	3.8	1.6	6.5	137	122	154	96	47	172
Antigua and Barbuda	26	19	37	7	6	10	4.2	3.0	6.3	0	0	0	0	0	0
Argentina	29	28	29	10	10	11	3.8	3.5	4.1	20	20	21	8	7	8
Armenia	50	45	55	13	10	17	5.1	4.0	6.1	4	3	4	0	0	1
Australia	9	9	9	4	3	4	3.6	3.3	3.8	2	2	2	1	1	1
Austria	10	9	10	4	3	4	3.6	3.3	3.9	1	1	1	0	0	0
Azerbaijan	95	86	105	23	16	33	5.3	3.9	6.7	19	16	21	4	3	6
Bahamas	24	22	25	7	6	9	4.4	3.5	5.3	0	0	0	0	0	0
Bahrain	23	22	24	7	6	9	4.3	3.6	4.9	0	0	0	0	0	0
Bangladesh	144	140	148	32	29	36	5.5	5.1	5.9	532	517	548	100	90	110
Barbados	10	17	19	12	10	16	1.4	0.3	2.4	0	0	0	0	0	0
Belarus	15	15	16	4	4	4	5.2	5.0	5.4	2	2	2	0	0	0
Belgium	10	10	10	4	3	4	3.6	3.3	4.0	1	1	1	0	0	1
Belize	39	34	44	14	13	16	3.7	3.0	4.3	0	0	0	0	0	0
Benin	178	167	190	98	74	130	2.2	1.0	3.2	39	36	42	39	29	56
Bhutan	128	113	147	31	21	44	5.3	3.8	6.8	3	2	3	0	0	1
Bolivia (Plurinational State of)	126	117	131	35	23	53	4.7	3.3	6.2	29	20	31	9	6	13
Bosnia and Herzegovina	18	18	19	6	5	7	4.3	3.8	4.8	1	1	1	0	0	0
Botswana	51	45	58	38	17	73	1.2	1.4	4.2	2	2	3	2	1	4
Brazil	63	59	68	15	13	17	5.4	4.9	5.8	235	220	252	43	39	48
Brunei Darussalam	13	13	14	11	9	12	0.8	0.3	1.5	0	0	0	0	0	0
Bulgaria	18	18	19	8	7	8	3.3	3.1	3.6	2	2	2	0	0	1
Burkina Faso	200	188	213	81	61	107	3.3	2.3	4.4	80	75	85	58	44	77
Burundi	175	158	191	61	42	87	3.9	2.5	5.3	46	42	50	27	19	38
Cabo Verde	63	61	65	17	15	20	4.7	4.3	5.2	1	1	1	0	0	0
Cambodia	116	108	125	29	17	50	5.1	3.1	7.1	44	41	47	11	6	18
Cameroon	139	130	149	84	62	112	1.9	0.8	3.0	70	65	75	71	52	94
Canada	8	8	8	5	5	6	1.8	1.5	2.0	3	3	3	2	2	2
Central African Republic	176	158	195	122	77	194	1.4	0.4	3.1	21	19	23	20	13	32
Chad	213	198	229	123	100	150	2.0	1.3	2.8	68	56	65	76	61	92
Chile	19	19	20	7	7	8	3.5	3.0	4.0	6	5	6	2	2	2
China	54	50	59	9	8	11	6.5	5.9	7.1	1,398	1,291	1,526	156	136	179
Colombia	35	33	38	15	11	20	3.2	2.2	4.3	32	30	34	11	8	14
Comoros	125	111	139	60	36	138	2.2	0.5	4.6	2	2	2	2	1	4
Congo	90	79	102	48	31	73	2.4	0.7	4.0	8	7	9	8	5	13
Cook Islands	25	22	28	8	5	12	4.4	2.6	6.2	0	0	0	0	0	0
Costa Rica	17	16	17	9	7	12	2.3	1.4	3.2	1	1	1	1	0	1
Côte d'Ivoire	157	142	162	89	70	113	2.0	1.1	2.9	77	72	83	77	60	97
Croatia	13	13	13	5	4	5	3.8	3.3	4.1	1	1	1	0	0	0

FIGURE 1

Child mortality declined by more than half for children under 5 years of age and children aged 5–14 years since 1990

Global mortality rates and deaths by age, 1990-2017

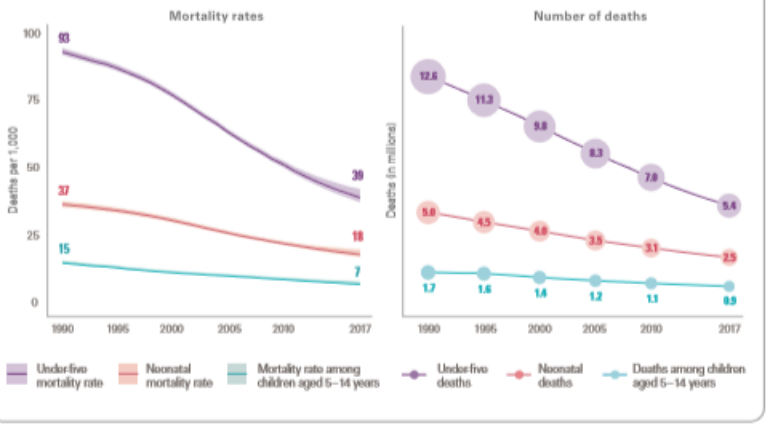
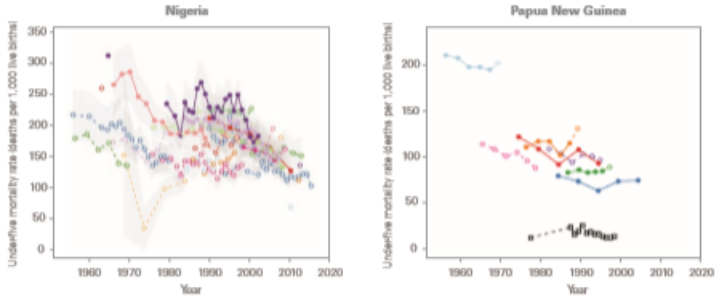


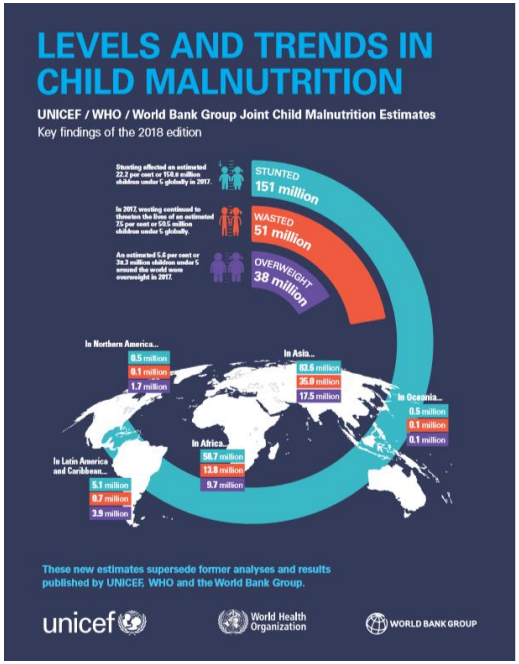
FIGURE 7

Empirical under-five mortality data in Nigeria and Papua New Guinea

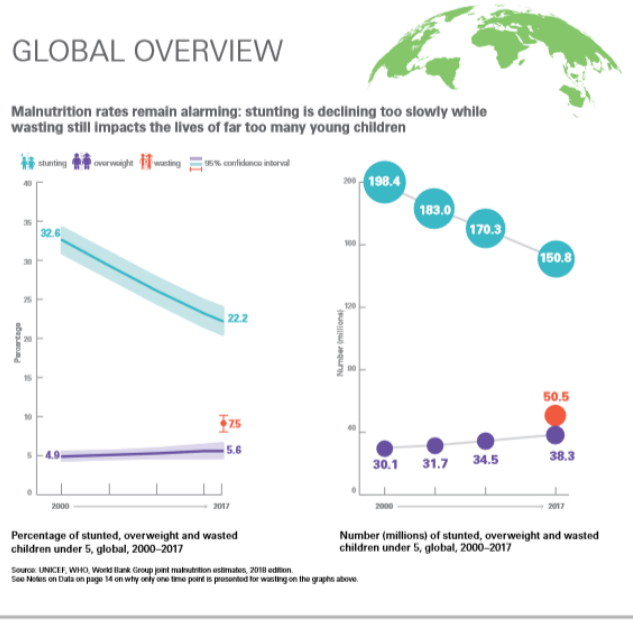


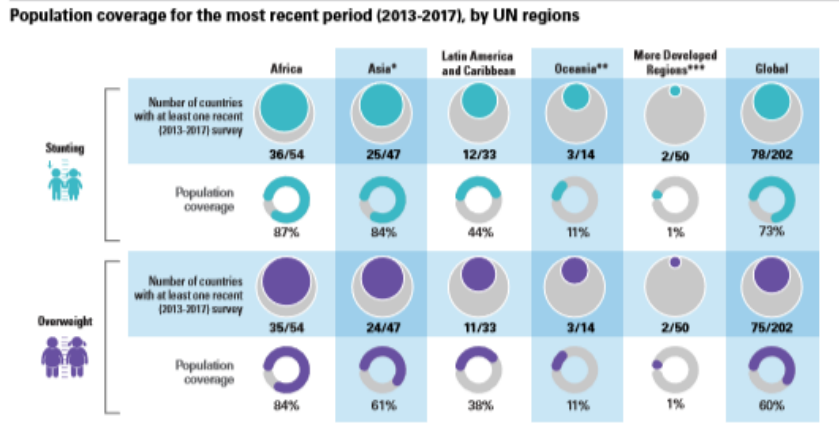
Note: All data available for the country are shown as coloured points, with observations from the same data series joined by lines, and each colour identifying different data sources. Grey bands in the left plot represent the standard errors of the observations where available or applicable. Series considered but not included in the statistical model due to substantial non-sampling errors or omission appear with dashed lines.

Faced with similar challenges, nutrition developed similar models



	Stunting 2000	Stunting 2017		Overweight 2000	Overweight 2017		Wasting and Severe Wasting 2017	2017
	% stunted (moderate and severe)	% stunted (moderate and severe)	Income	% overweight (moderate and severe)	% overweight (moderate and severe)	Income	% wasted (moderate and severe)	% wasted (severe)
Global	**32.6 [30.9–34.2]**	**22.2 [20.5–24.0]**		**4.9 [4.4–5.5]**	**5.6 [4.7–6.6]**		**7.5 [6.4–8.5]**	**2.4 [1.9–2.9]**
United Nations								
Less Developed Regions	35.9 [34.2–37.7]	24.3 [22.4–26.2]		4.5 [4.0–5.0]	5.1 [4.2–6.0]		8.1 [7.0–9.3]	2.7 [2.1–3.3]
Africa	38.3 [36.0–40.6]	30.3 [28.0–32.6]		5.8 [5.1–6.5]	5.0 [3.7–6.3]		7.1 [6.0–8.2]	2.1 [1.7–2.5]
Eastern Africa	45.7 [41.2–50.2]	35.6 [31.9–39.5]		4.7 [3.7–5.9]	4.4 [3.0–5.4]		6.0 [4.3–8.4]	1.5 [1.1–2.1]
Middle Africa	46.7 [34.7–45.9]	32.1 [27.3–37.4]		4.4 [2.9–6.6]	4.7 [3.5–6.4]		7.1 [5.5–9.2]	2.0 [1.4–2.8]
Northern Africa	23.4 [17.6–31.5]	17.2 [11.4–25.5]		8.2 [6.6–10.3]	10.2 [4.5–21.8]		8.1 [4.5–14.4]	3.2 [1.5–6.4]
Southern Africa	33.1 [29.0–37.5]	29.1 [25.6–32.9]		10.3 [7.3–14.7]	13.7 [9.9–18.7]		4.0 [2.7–5.8]	0.8 [0.6–1.0]
Western Africa	36.9 [33.9–40.1]	29.9 [25.7–34.4]		3.2 [2.4–4.1]	2.4 [1.9–3.1]		8.1 [7.1–9.3]	2.1 [1.6–2.7]
Asia[2]	30.1 [25.6–40.7]	22.2 [20.2–25.1]		3.9 [3.3–4.6]	4.8 [3.5–6.7]		9.7 [7.8–11.6]	3.4 [2.4–4.7]
Central Asia	28.0 [21.3–35.7]	11.8 [9.2–15.0]		8.9 [5.3–14.6]	10.7 [6.0–18.1]		3.7 [3.1–4.3]	1.4 [0.9–2.0]
Eastern Asia	19.2 [17.8–20.6]	5.3 [4.9–5.8]		6.2 [5.5–7.0]	5.2 [4.4–6.3]		1.8 [1.7–1.9]	0.4 [0.4–0.5]
Southern Asia	49.6 [45.2–54.1]	33.3 [28.1–38.9]		2.5 [1.6–4.0]	3.1 [1.6–5.7]		15.3 [11.9–19.7]	5.0 [3.8–6.6]
South-eastern Asia	38.4 [32.6–44.5]	25.7 [19.6–32.9]		3.2 [2.5–3.9]	2.3 [1.9–13.3]		8.7 [6.4–11.8]	4.3 [1.6–10.9]
Western Asia	22.3 [16.1–32.4]	15.3 [7.9–27.3]		6.7 [4.8–9.2]	8.2 [3.1–19.7]		3.9 [1.7–11.6]	1.1 [0.3–3.9]
Latin American and Caribbean	10.9 [10.4–20.4]	9.0 [6.5–12.7]		6.8 [5.8–7.8]	7.3 [6.5–8.0]		1.3 [0.9–1.7]	0.3 [0.2–0.4]
Caribbean	15.0 [7.5–28.0]	8.0 [3.6–16.8]		5.3 [4.0–6.8]	7.2 [4.3–11.9]		3.2 [1.9–5.3]	1.2 [0.7–1.8]
Central America	22.9 [16.9–32.6]	14.1 [9.3–20.8]		5.7 [4.6–7.1]	6.4 [5.0–7.9]		0.9 [0.7–1.1]	0.2 [0.2–0.3]
South America	13.8 [10.3–18.2]	7.5 [4.4–12.7]		7.5 [6.2–9.1]	7.7 [6.7–8.9]		1.3 [0.8–2.2]	0.3 [0.2–0.4]
Oceania[3]	36.8 [19.8–57.9]	38.1 [21.3–58.2]		4.7 [3.3–6.6]	8.7 [5.5–13.6]		9.2 [5.8–14.3]	3.3 [1.4–7.8]
More Developed Regions								
Australia and New Zealand[4]	0.8			7.8				
Europe								
Northern America[4]	3.0	2.3		6.6 [6.4–7.0]	7.9 [7.6–8.3]		0.5	0.0
UNICEF								
East Asia and Pacific	24.5 [17.2–33.8]	9.0 [4.2–18.2]		5.2 [3.6–7.2]	5.7 [4.4–7.3]		3.0 [1.5–6.2]	0.9 [0.3–2.5]
Europe and Central Asia								
Eastern Europe and Central Asia	18.6 [14.8–23.2]	8.5 [6.8–10.7]		8.2 [5.9–11.5]	14.8 [12.3–17.8]		1.7 [0.8–3.3]	0.6 [0.2–1.4]
Western Europe								
Latin America and Caribbean	10.9 [10.4–20.4]	9.0 [6.5–12.7]		6.8 [5.8–7.8]	7.3 [6.5–8.0]		1.3 [0.9–1.7]	0.3 [0.2–0.4]
Middle East and North Africa	27.3 [17.3–39.7]	15.0 [9.2–23.5]		8.3 [6.4–12.3]	10.9 [8.0–19.1]		7.6 [5.0–11.5]	3.2 [1.9–5.5]
North America	3.0	2.3		6.6 [6.4–7.0]	7.9 [7.6–8.3]		0.5	0.0
South Asia	51.3 [49.7–53.0]	35.0 [32.5–37.6]		2.5 [1.5–4.0]	3.0 [1.7–5.4]		15.9 [13.2–19.1]	5.1 [4.0–6.6]
Sub-Saharan Africa	43.2 [39.9–46.5]	34.1 [32.1–36.2]		4.4 [3.7–5.3]	3.5 [2.8–4.4]		7.5 [6.2–9.1]	2.2 [1.7–2.9]
East and Southern Africa	45.3 [39.7–51.1]	34.1 [31.9–36.3]		4.5 [3.4–6.0]	4.3 [3.0–6.1]		6.3 [4.5–8.6]	1.7 [1.2–2.4]
West and Central Africa	41.1 [37.8–44.4]	33.7 [30.5–37.1]		4.3 [3.3–5.6]	3.0 [2.5–3.7]		9.0 [8.1–10.1]	2.7 [2.3–3.5]
WHO								
African Region	42.6 [38.9–46.4]	33.6 [31.0–36.3]		4.6 [3.8–5.5]	3.7 [2.8–4.7]		7.0 [5.7–8.6]	2.0 [1.5–2.7]
Region of the Americas	11.0 [5.5–20.5]	6.3 [3.4–11.5]		6.9 [6.2–7.6]	7.2 [6.6–8.0]		0.9 [0.6–1.4]	0.1 [0.0–0.5]
South-East Asia Region	49.6 [45.2–53.4]	33.8 [28.3–38.6]		2.4 [1.5–4.1]	3.4 [1.6–7.3]		15.2 [12.0–19.1]	5.0 [3.7–6.6]
Eastern Mediterranean Region	33.7 [24.5–44.4]	24.8 [15.5–36.5]		6.1 [4.3–8.7]	6.8 [4.2–10.7]		9.1 [7.1–11.7]	3.9 [2.9–5.2]
European Region								
Western Pacific Region	20.8 [17.0–25.2]	6.9 [4.1–11.2]		5.5 [4.1–7.4]	5.3 [4.0–6.9]		2.3 [1.5–3.4]	0.5 [0.3–0.8]
World Bank Income								
Low income	47.0 [43.1–50.9]	35.2 [32.9–37.6]		3.5 [2.6–4.6]	3.2 [2.4–4.2]		7.4 [5.9–9.3]	2.0 [1.5–2.6]
Middle income	31.4 [31.9–38.9]	22.4 [19.5–25.3]		4.7 [4.0–5.4]	5.0 [3.5–6.5]		8.0 [5.2–10.8]	2.7 [1.7–3.6]
Lower middle income	45.5 [40.1–51.0]	31.5 [27.3–36.0]		3.3 [2.4–4.6]	3.9 [2.3–6.6]		11.5 [7.8–16.6]	3.9 [2.7–5.6]
Upper middle income	18.5 [16.4–20.8]	6.4 [4.6–8.8]		6.9 [6.3–7.6]	6.9 [5.3–9.1]		1.9 [1.6–2.2]	0.5 [0.4–0.6]
High income	3.4 [2.2–5.2]	2.5 [1.7–3.6]		5.4 [3.9–7.6]	6.1 [3.9–9.4]		0.7 [0.4–1.5]	0.0 [0.0–0.1]
World Bank Regions								
East Asia and Pacific	24.6 [19.4–29.8]	12.2 [7.9–16.4]		4.8 [4.5–5.2]	6.0 [4.0–7.9]		4.0 [2.5–5.6]	1.6 [0.1–3.2]
Europe and Central Asia								
Latin America and Caribbean	16.9 [13.4–20.4]	9.0 [6.5–12.7]		6.8 [5.8–7.8]	7.3 [6.5–8.0]		1.3 [0.9–1.7]	0.3 [0.2–0.4]
Middle East and North Africa	22.8 [12.2–29.6]	15.0 [9.2–23.5]		8.3 [6.4–12.3]	10.9 [8.0–19.1]		7.6 [5.0–11.5]	3.2 [1.9–5.5]
North America[4]	3.0	2.3		6.6 [6.4–7.0]	7.9 [7.6–8.3]		0.5	0.0
South Asia	51.3 [49.7–53.0]	35.0 [32.5–37.6]		2.5 [1.5–4.0]	3.0 [1.7–5.4]		15.9 [13.2–19.1]	5.1 [4.0–6.6]
Sub-Saharan Africa	43.2 [39.9–46.5]	34.1 [32.1–36.2]		4.4 [3.7–5.3]	3.5 [2.8–4.4]		7.5 [6.2–9.1]	2.2 [1.7–2.9]





Next steps and recommendations

In terms of development

- Further refine methodology
- Analyse data from more countries and more data sets
- Expand analysis to lower and upper secondary education
- Produce regional and global averages

In terms of use

- Consider endorsing the idea of using projections
- Propose it as second global indicator for target 4.1
- Combine it with global indicator 4.1.1

Global Education Monitoring Report