

Projecting Newborn and Child Mortality to 2035: The Impact of Improving Coverage

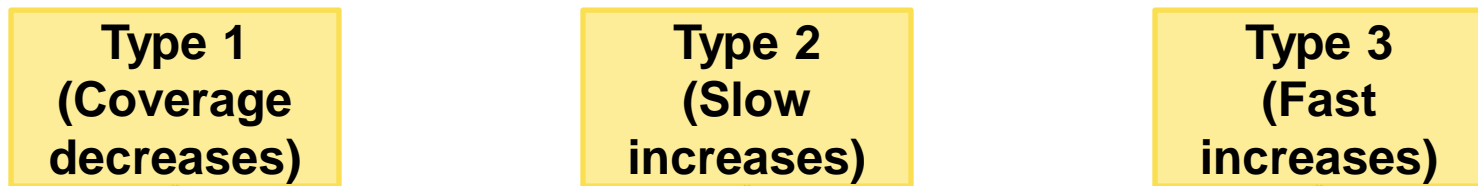
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The questions

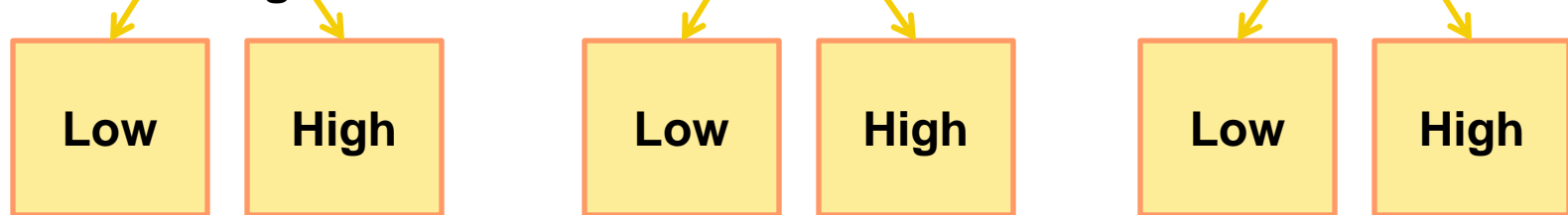
- Can we describe or explain the patterns of coverage change over the past 20 years?
 - *Are there differences by intervention or country? Which interventions have had the most dramatic increases in Coverage?*
- Using LiST and coverage change, can we look at attribution? Which interventions have contributed to gains in U5M?
- Based on LiST projections, what can be achieved by 2035? Is the U5M target of 20 deaths per 1,000 birth realistic for most countries?

The methods

Step 1: Account for differences in historical changes in coverage by **type of intervention**



Step 2: Account for differences in historical changes in coverage by level of **baseline coverage**



Step 3: Use country-specific historical data to **predict coverage changes** in the future, using a random effects variable to account for country differences

Model 1 **Model 2** **Model 3** **Model 4** **Model 5** **Model 6**

Step 4: Check predicted coverage values against measured data to **check** whether model is producing accurate results.

Step 5: Use predicted coverage values in LiST to **estimate lives saved** and reductions in under-five mortality

Two Projection Scenarios Using the Lives Saved Tool

- ***Historical trends*** - U5M in 2035 if country- and indicator-specific trends continue unchanged
- ***Best performer*** – U5M in 2035 if each country achieves the best rate of change observed since 2000 (within groups of countries and interventions)

THE RESULTS

Estimated annual change in coverage (%) per year, by intervention

Group 1: Decreases in coverage (mean -5.5)

Antimalarial treatment*	-8.6%
Skilled attendant at birth	-4.7%
Use of improved sanitation facilities	-3.3%

Group 3: Fast increases in coverage (mean 27.9)

Household ownership of ITN	18.5%
ITN use for pregnant women	25.9%
Use of insecticide-treated nets (ITN)	32.3%
Intermittent preventive treatment for malaria during pregnancy	35.0%

Estimated annual change in coverage (%) per year, by intervention (cont'd)

Group 2: Slow increases in coverage (mean 5.3)

Improved drinking water sources	0.6%	Early initiation of breastfeeding	5.3%
Institutional delivery	1.8%	Antenatal care (at least 1 visit)	5.4%
Care seeking for pneumonia	2.0%	Measles immunization coverage	5.5%
Hygienic disposal of stools	2.0%	Need for family planning satisfied	5.9%
Exclusive breastfeeding (1-5 m)	2.3%	DTP3	6.8%
ORS	2.4%	Vitamin A supplementation	7.9%
Antenatal care (4+ visits)	2.4%	Water connection in the home	8.4%
Exclusive breastfeeding (<6m)	2.5%	Caesarean section rate	8.7%
Neonatal tetanus protection	3.5%	Three doses of HiB	10.4%
Exclusive breastfeeding (0-1m)	3.6%	Postnatal care for mothers	10.5%
Contraceptive prevalence	4.6%	ACT for malaria	13.9%

Projections of U5M in 2035

U5M	2010	<i>LiST projections to 2035</i>	
		<i>Historical trends scenario</i>	<i>Best performer scenario</i>
< 20	4	9	15
21 - 30	4	6	17
31 - 40	6	7	21
41 - 50	3	15	9
51 – 100	32	29	12
>100	25	8	0
NMR			
< 11	3	10	67
11 – 20	15	44	7
21 – 30	24	16	0
>30	32	4	0

IMPLICATIONS

What have we learned from these analyses and projections?

- Strong progress towards MDGs, but pace insufficient for most countries to reach proposed targets in 2035.
- Gains dominated by rapid scale up and sustained high coverage levels for **selected** interventions (e.g., vaccines, Vitamin A, interventions for malaria and HIV/AIDS), especially in sub-Saharan African countries.
- Same fast rate of change needed for other, effective interventions to achieve long-term gains and 2035 targets

**How do we speed up coverage gains
for other interventions?**

How can we explain rapid gains in coverage for malaria and HIV interventions?

- ***Burden?***

- No. For for many countries HIV/AIDS is a much smaller burden than pneumonia or neonatal sepsis

- **Complexity of the intervention?**

- No. Increasing use of ARVs for children with HIV is more complex than providing ORS or Abs for pneumonia.

Focus and Financing

- Both malaria and HIV have had targeted support and country-level financing (GAVI, Global Fund, PEPFAR, RBM)
- Our findings show that similar coverage gains **CAN** be achieved for other interventions, because at least one country has been successful in scaling up each of the interventions.

Action implications:

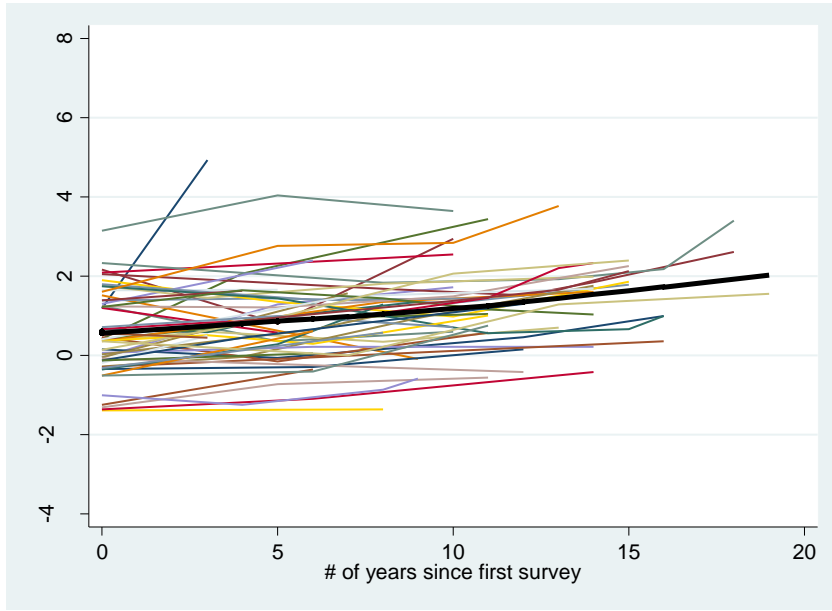
⇒ Focus.

⇒ Finance.



Coverage change by intervention for countries with ≥ 2 surveys since 1990, with best-fitting line as estimated using LOESS^{1,2}

1a: DPT3 (n=55 countries)



1b: Skilled attendant at birth (n=67 countries)

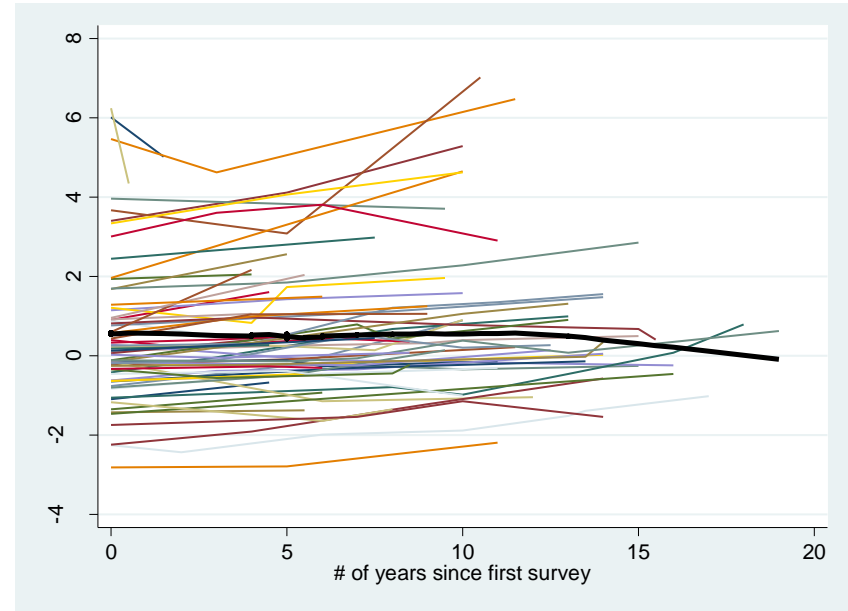


Figure notes:

¹ Plots for the remaining interventions are available in Webannex 3.

² The Y axis is shown as a logit of coverage to match the estimated slope from the logistic regression model. Translations from logit of probability to probability for various values of logit coverage are shown to the right.

Logit of coverage level	Coverage level
6	0.998
5	0.993
4	0.982
3	0.953
2	0.881
1	0.731
0	0.500
-1	0.269
-2	0.119