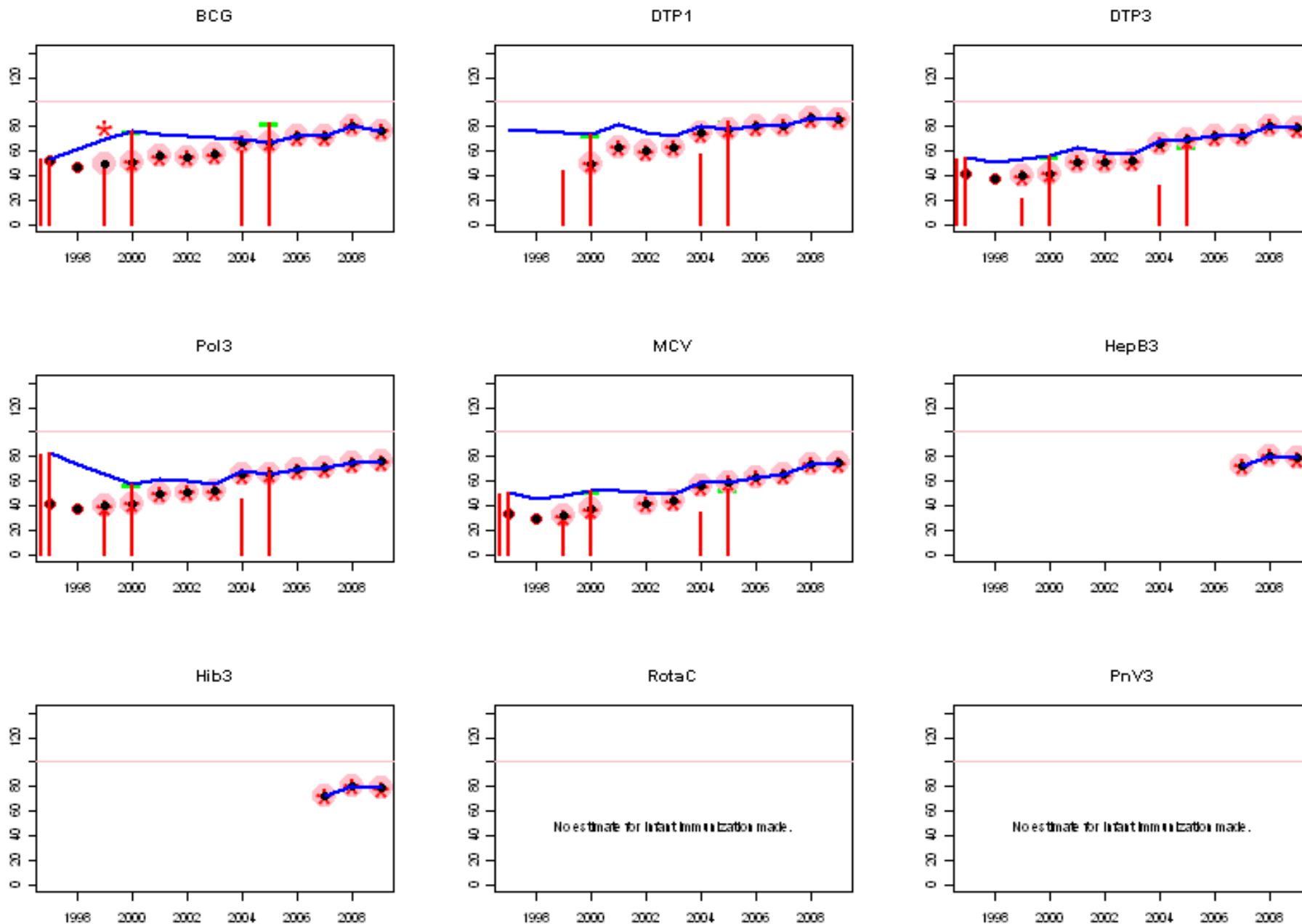
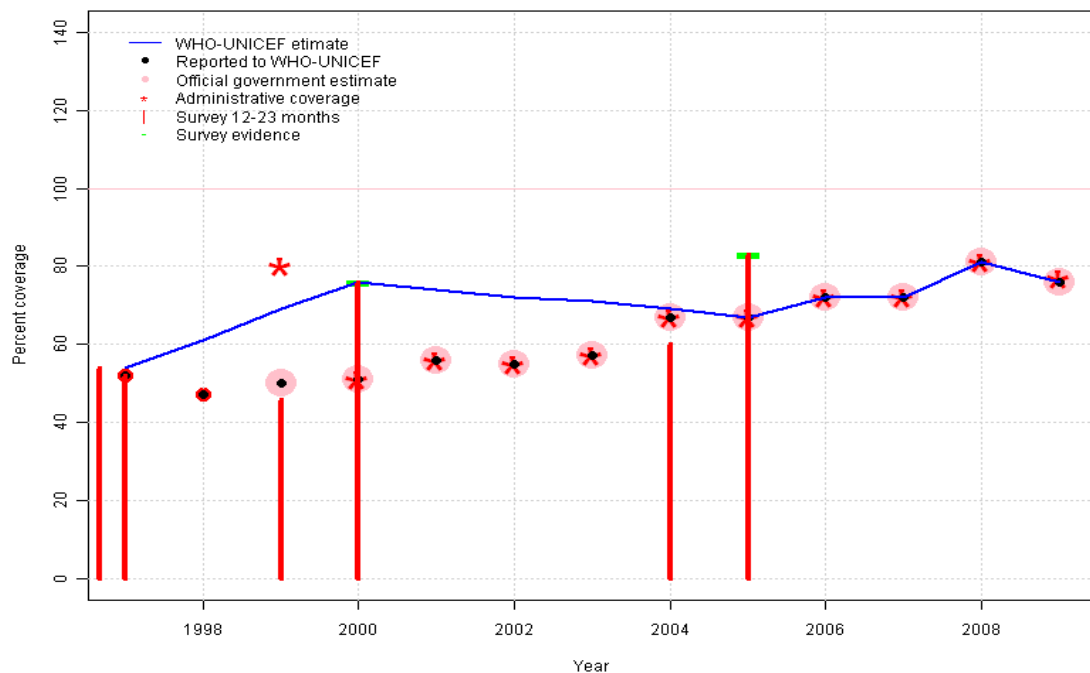


# Ethiopia: WHO and UNICEF estimates of immunization coverage, 1997 - 2009



# Ethiopia - BCG

ETH - BCG

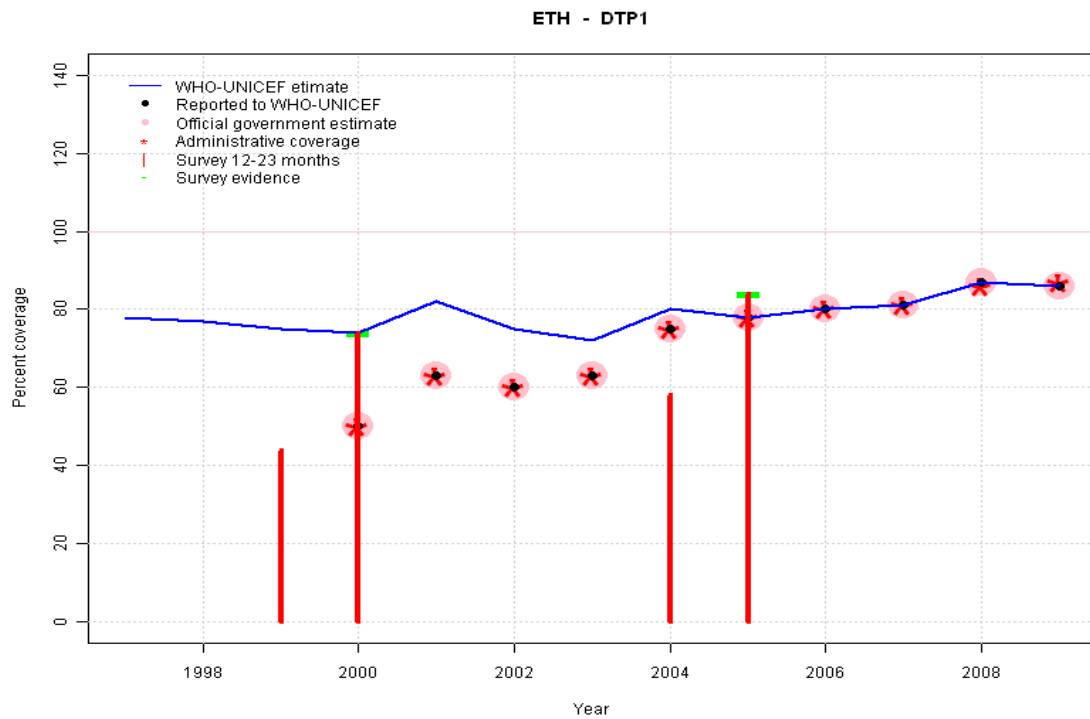


	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Estimate	54	61	69	76	74	72	71	69	67	72	72	81	76
Reported	52	47	50	51	56	55	57	67	67	72	72	81	76
Official	NA	NA	50	51	56	55	57	67	67	72	72	81	76
Administrative	NA	NA	80	51	56	55	57	67	67	72	72	81	77
Survey	NA	NA	NA	76	NA	NA	NA	NA	83	NA	NA	NA	NA

## Description:

- 1997: Legacy estimate. Survey results of 54 percent with sample size 0 ignored; sample size less than 300. Survey results of 52 percent with sample size 0 ignored; sample size less than 300.
- 1998: Estimate interpolated between 1997 and 2000 estimates.
- 1999: Estimate interpolated between 1997 and 2000 estimates. Survey results of 46 percent ignored by working group. Survey results inconsistent with other data.
- 2000: Estimate based on survey results. Reported data (51 percent) not consistent with survey results (76 percent).
- 2001: Estimate interpolated between 2000 and 2005 estimates.
- 2002: Estimate interpolated between 2000 and 2005 estimates.
- 2003: Estimate interpolated between 2000 and 2005 estimates.
- 2004: Estimate interpolated between 2000 and 2005 estimates. Survey results of 60 percent ignored by working group. Survey results inconsistent with other data.
- 2005: Reported data confirmed by survey for all other antigens.
- 2006: Estimate based on reported data.
- 2007: Estimate based on reported data.
- 2008: Estimate based on reported data.
- 2009: Estimate based on reported data.

# Ethiopia - DTP1



## Description:

1997: Legacy estimate.

1998: Estimate interpolated between 1997 and 2000 estimates.

1999: Estimate interpolated between 1997 and 2000 estimates. Survey results of 44 percent ignored by working group. Survey results inconsistent with other data.

2000: Estimate based on survey results. Reported data (50 percent) not consistent with survey results (74 percent).

2001: Reported data (63 percent) calibrated to 2000 and 2005 levels.

2002: Reported data (60 percent) calibrated to 2000 and 2005 levels.

2003: Reported data (63 percent) calibrated to 2000 and 2005 levels.

2004: Reported data (75 percent) calibrated to 2000 and 2005 levels. Survey results of 58 percent ignored by working group. Survey results inconsistent with other data.

2005: Estimate based on reported data (78 percent) confirmed by survey (84 percent).

2006: Estimate based on reported data.

2007: Estimate based on reported data.

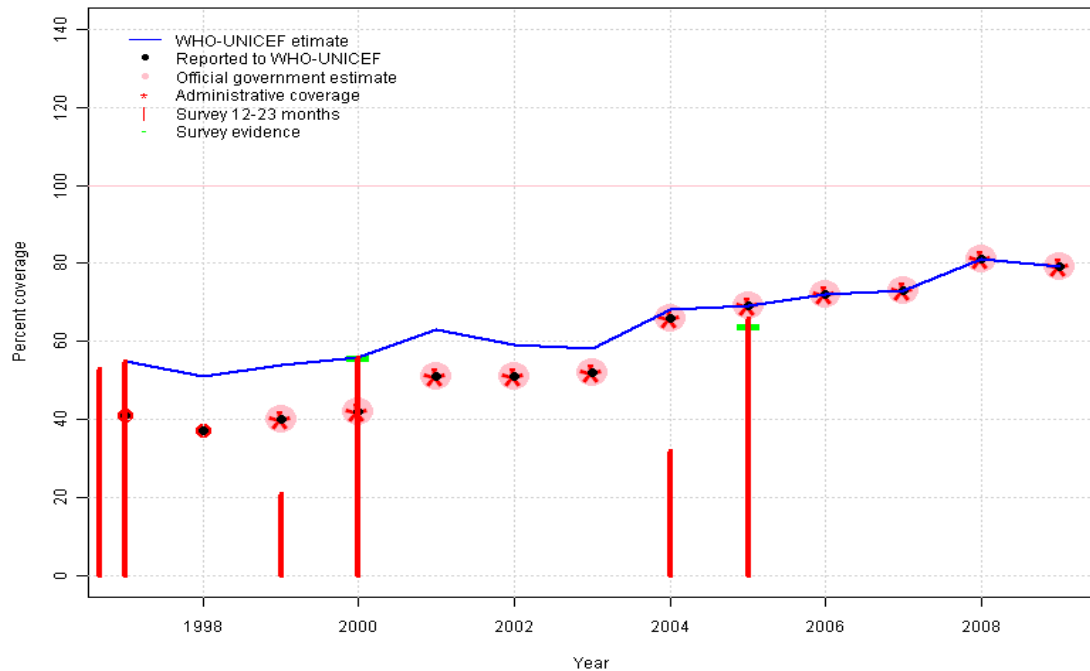
2008: Estimate based on reported data.

2009: Estimate based on reported data.

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Estimate	78	77	75	74	82	75	72	80	78	80	81	87	86
Reported	NA	NA	NA	50	63	60	63	75	78	80	81	87	86
Official	NA	NA	NA	50	63	60	63	75	78	80	81	87	86
Administrative	NA	NA	NA	50	63	60	63	75	78	80	81	86	87
Survey	NA	NA	NA	74	NA	NA	NA	NA	84	NA	NA	NA	NA

# Ethiopia - DTP3

ETH - DTP3



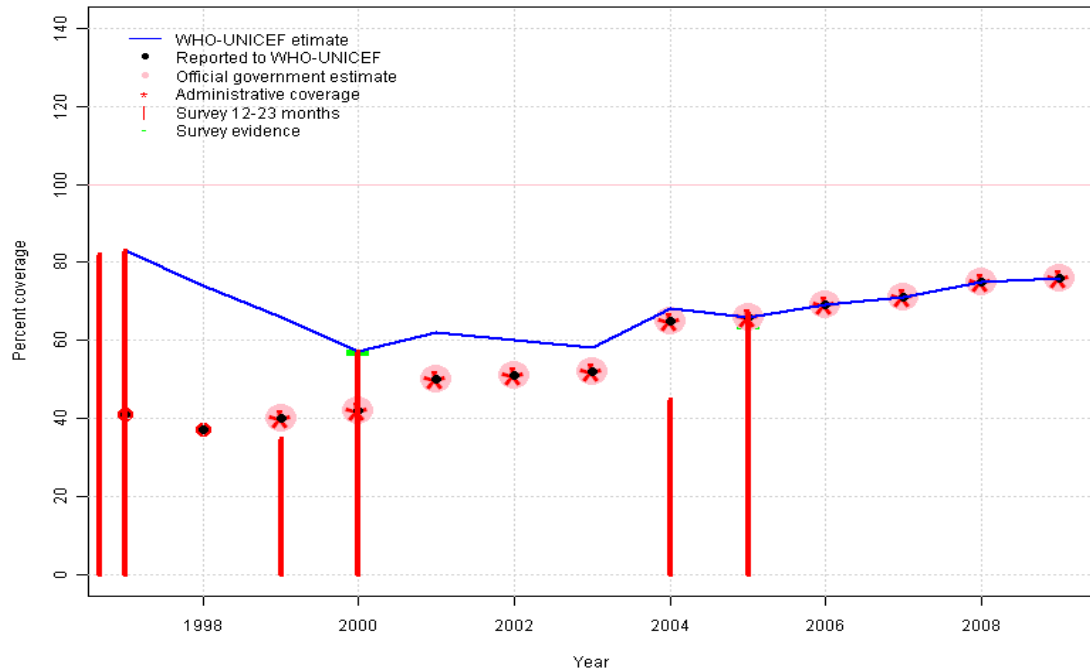
## Description:

- 1997: Legacy estimate. Survey results of 53 percent with sample size 0 ignored; sample size less than 300. Survey results of 55 percent with sample size 0 ignored; sample size less than 300.
- 1998: Reported data (37 percent) calibrated to 1997 and 2000 levels.
- 1999: Reported data (40 percent) calibrated to 1997 and 2000 levels. Survey results of 21 percent ignored by working group. Survey results inconsistent with other data.
- 2000: Estimate based on survey results. Reported data (42 percent) not consistent with survey results (56 percent).
- 2001: Reported data (51 percent) calibrated to 2000 and 2005 levels.
- 2002: Reported data (51 percent) calibrated to 2000 and 2005 levels.
- 2003: Reported data (52 percent) calibrated to 2000 and 2005 levels.
- 2004: Reported data (66 percent) calibrated to 2000 and 2005 levels. Survey results of 32 percent ignored by working group. Survey results inconsistent with other data.
- 2005: Estimate based on reported data (69 percent) confirmed by survey (64 percent). Survey results (66 percent) adjusted for recall bias to 64 percent based on first dose card or history coverage (84 percent) and documented drop-out between first (54 percent) and third (41 percent) doses.
- 2006: Estimate based on reported data.
- 2007: Estimate based on reported data.
- 2008: Estimate based on reported data.
- 2009: Estimate based on reported data.

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Estimate	55	51	54	56	63	59	58	68	69	72	73	81	79
Reported	41	37	40	42	51	51	52	66	69	72	73	81	79
Official	NA	NA	40	42	51	51	52	66	69	72	73	81	79
Administrative	NA	NA	40	42	51	51	52	66	69	72	73	81	79
Survey	NA	NA	NA	56	NA	NA	NA	NA	64	NA	NA	NA	NA

# Ethiopia - Pol3

ETH - Pol3



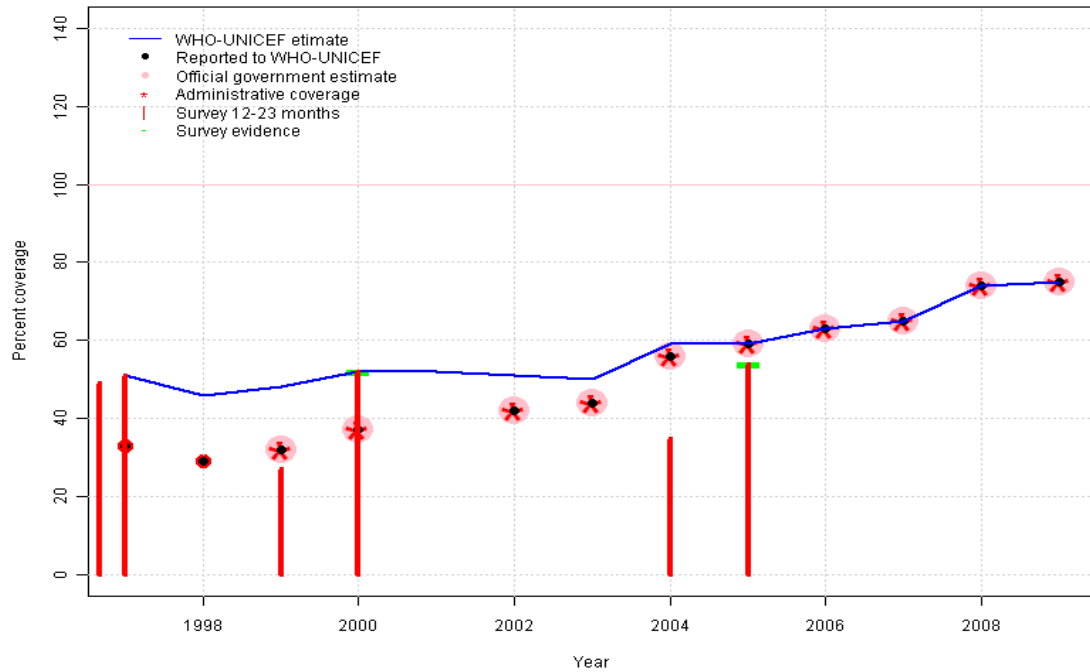
## Description:

- 1997: Legacy estimate. Survey results of 82 percent with sample size 0 ignored; sample size less than 300. Survey results of 83 percent with sample size 0 ignored; sample size less than 300.
- 1998: Estimate interpolated between 1997 and 2000 estimates.
- 1999: Estimate interpolated between 1997 and 2000 estimates. Survey results of 35 percent ignored by working group. Survey results inconsistent with other data.
- 2000: Estimate based on survey results. Reported data (42 percent) not consistent with survey results (57 percent).
- 2001: Reported data (50 percent) calibrated to 2000 and 2005 levels.
- 2002: Reported data (51 percent) calibrated to 2000 and 2005 levels.
- 2003: Reported data (52 percent) calibrated to 2000 and 2005 levels.
- 2004: Reported data (65 percent) calibrated to 2000 and 2005 levels. Survey results of 45 percent ignored by working group. Survey results inconsistent with other data.
- 2005: Estimate based on reported data (66 percent) confirmed by survey (64 percent). Survey results (67 percent) adjusted for recall bias to 64 percent based on first dose card or history coverage (83 percent) and documented drop-out between first (52 percent) and third (40 percent) doses.
- 2006: Estimate based on reported data.
- 2007: Estimate based on reported data.
- 2008: Estimate based on reported data.
- 2009: Estimate based on reported data.

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Estimate	83	74	66	57	62	60	58	68	66	69	71	75	76
Reported	41	37	40	42	50	51	52	65	66	69	71	75	76
Official	NA	NA	40	42	50	51	52	65	66	69	71	75	76
Administrative	NA	NA	40	42	50	51	52	65	66	69	71	75	76
Survey	NA	NA	NA	57	NA	NA	NA	NA	64	NA	NA	NA	NA

# Ethiopia - MCV

ETH - MCV



## Description:

- 1997: Legacy estimate. Survey results of 49 percent with sample size 0 ignored; sample size less than 300. Survey results of 51 percent with sample size 0 ignored; sample size less than 300.
- 1998: Reported data (29 percent) calibrated to 1997 and 2000 levels.
- 1999: Reported data (32 percent) calibrated to 1997 and 2000 levels. Survey results of 27 percent ignored by working group. Survey results inconsistent with other data.
- 2000: Estimate based on survey results. Reported data (37 percent) not consistent with survey results (52 percent).
- 2001: Reported data (40 percent) calibrated to 2000 and 2005 levels. Missing or ignored reported value estimated by interpolation between reported values of 37 percent in 2000 and 42 percent in 2002.
- 2002: Reported data (42 percent) calibrated to 2000 and 2005 levels.
- 2003: Reported data (44 percent) calibrated to 2000 and 2005 levels.
- 2004: Reported data (56 percent) calibrated to 2000 and 2005 levels. Survey results of 35 percent ignored by working group. Survey results inconsistent with other data.
- 2005: Estimate based on reported data (59 percent) confirmed by survey (54 percent).
- 2006: Estimate based on reported data.
- 2007: Estimate based on reported data.
- 2008: Estimate based on reported data.
- 2009: Estimate based on reported data.

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Estimate	51	46	48	52	52	51	50	59	59	63	65	74	75
Reported	33	29	32	37	NA	42	44	56	59	63	65	74	75
Official	NA	NA	32	37	NA	42	44	56	59	63	65	74	75
Administrative	NA	NA	32	37	NA	42	44	56	59	63	65	74	75
Survey	NA	NA	NA	52	NA	NA	NA	NA	54	NA	NA	NA	NA

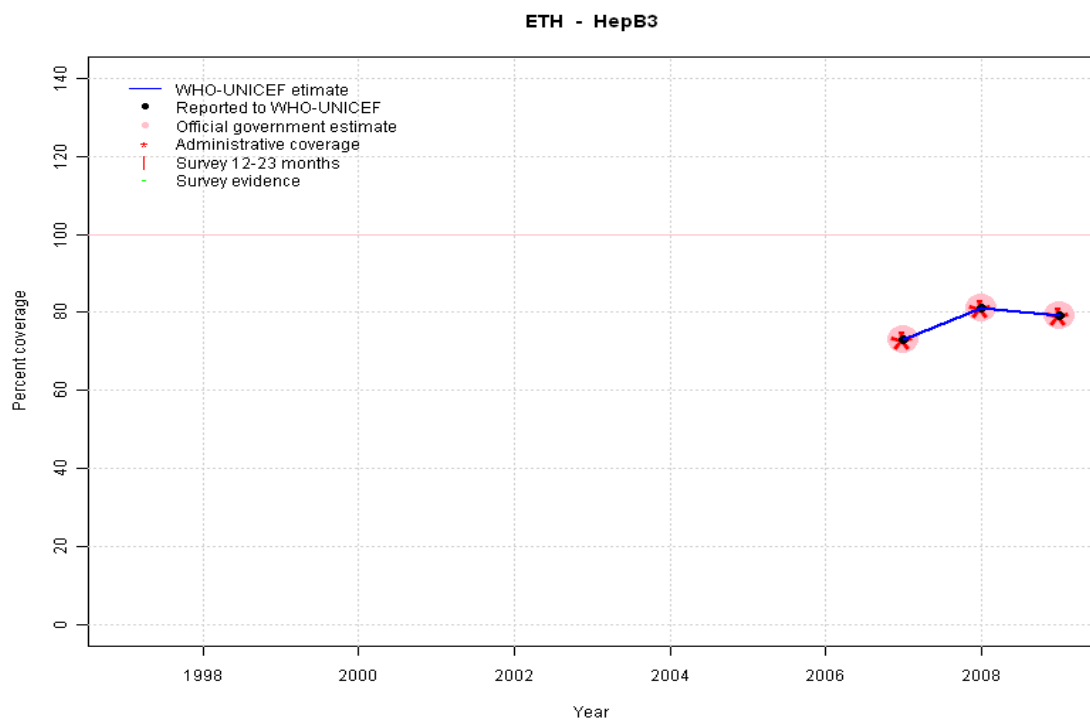
# Ethiopia - HepB3

## Description:

2007: Estimate based on reported data. HepB introduced in 2007 Vaccine presentation is DTP-HepB-Hib.

2008: Estimate based on reported data.

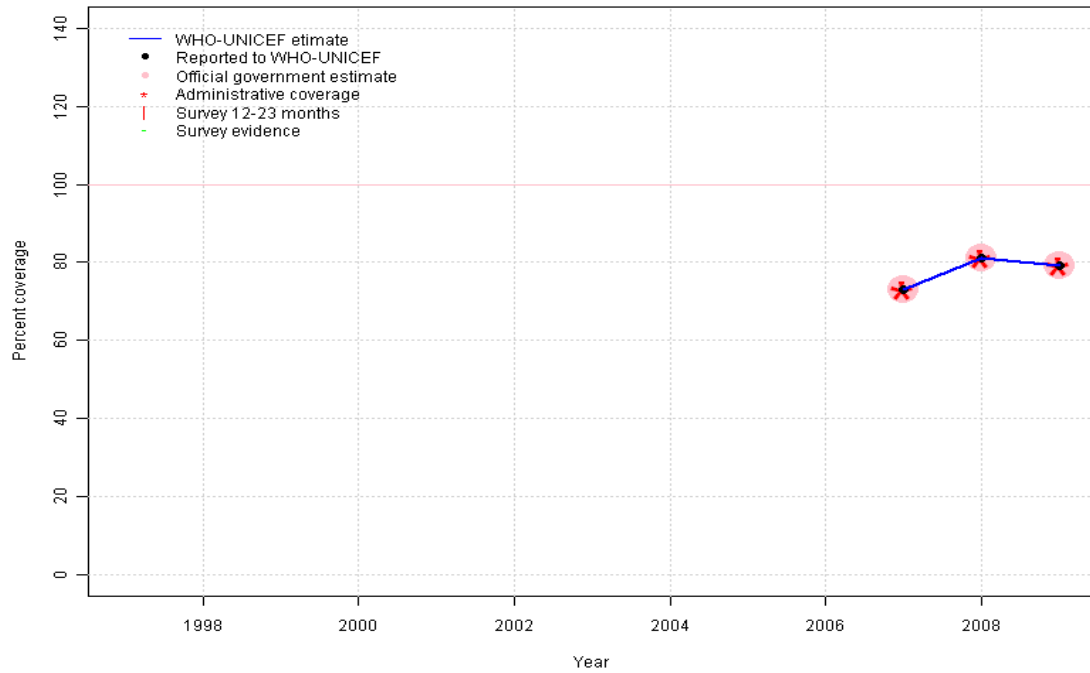
2009: Estimate based on reported data.



	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Estimate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	73	81	79
Reported	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	73	81	79
Official	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	73	81	79
Administrative	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	73	81	79
Survey	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

# Ethiopia - Hib3

ETH - Hib3



## Description:

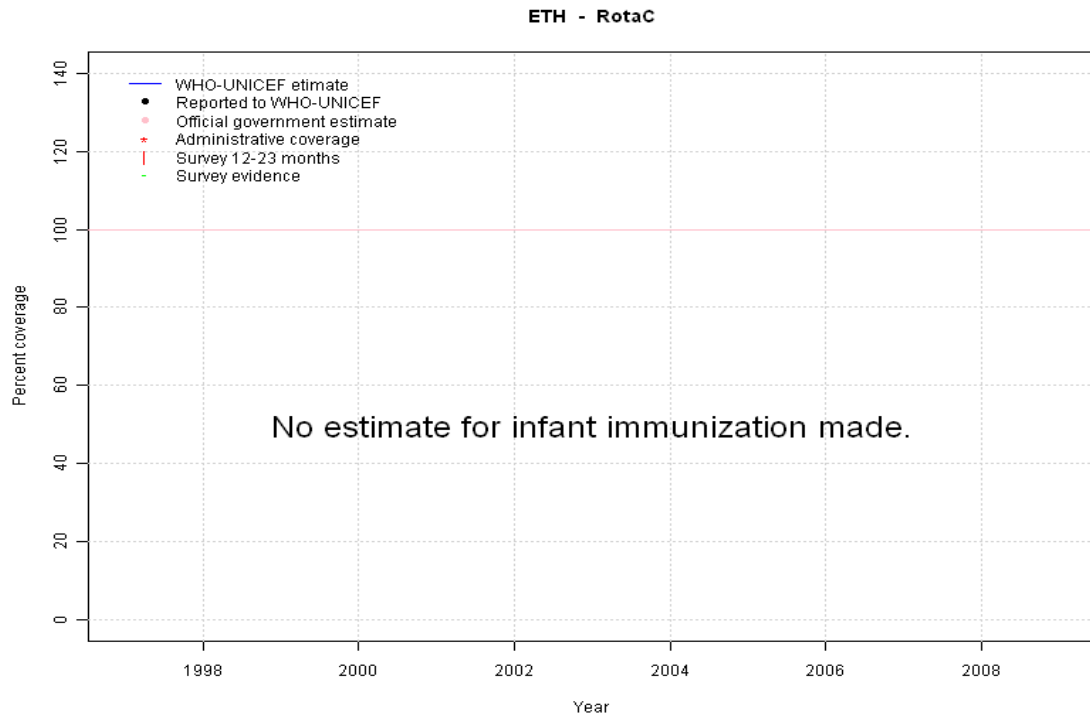
2007: Estimate based on reported data. Hib introduced in 2007 Vaccine presentation is DTP-HepB-Hib.

2008: Estimate based on reported data.

2009: Estimate based on reported data.

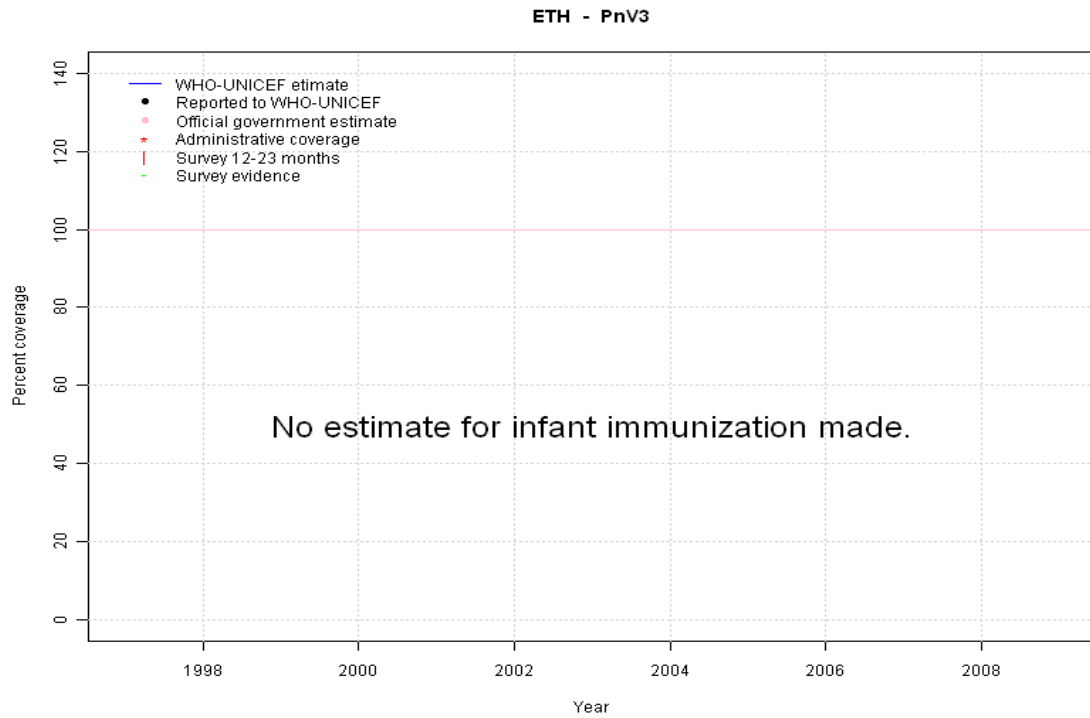
	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Estimate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	73	81	79
Reported	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	73	81	79
Official	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	73	81	79
Administrative	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	73	81	79
Survey	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

# Ethiopia - RotaC



	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Estimate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Reported	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Official	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Administrative	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Survey	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

# Ethiopia - PnV3



	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Estimate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Reported	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Official	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Administrative	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Survey	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

# Ethiopia - survey details

## 2005 EPI Coverage Cluster Sampling Survey 2006 Ethiopia

Vaccine	Confirmation method	Coverage	Age cohort	Sample	Cards seen
BCG	Card	58	12-23 m	6903	60
BCG	Card or History	83	12-23 m	6903	60
DTP1	Card or History	84	12-23 m	6903	60
DTP1	Card	54	12-23 m	6903	60
DTP3	Card or History	66	12-23 m	6903	60
DTP3	Card	41	12-23 m	6903	60
MCV	Card or History	54	12-23 m	6903	60
MCV	Card	27	12-23 m	6903	60
Pol1	Card	52	12-23 m	6903	60
Pol1	Card or History	83	12-23 m	6903	60
Pol3	Card	40	12-23 m	6903	60
Pol3	Card or History	67	12-23 m	6903	60

## 2004 Ethiopia Demographic and Health Survey 2005

Vaccine	Confirmation method	Coverage	Age cohort	Sample	Cards seen
BCG	Card	33	12-23 m	1877	37
BCG	History	27	12-23 m	1877	37
BCG	C or H <12 months	57	12-23 m	1877	37
BCG	Card or History	60	12-23 m	1877	37
DTP1	Card	36	12-23 m	1877	37
DTP1	C or H <12 months	55	12-23 m	1877	37
DTP1	Card or History	58	12-23 m	1877	37
DTP1	History	22	12-23 m	1877	37
DTP3	History	7	12-23 m	1877	37
DTP3	Card or History	32	12-23 m	1877	37
DTP3	Card	25	12-23 m	1877	37
DTP3	C or H <12 months	29	12-23 m	1877	37
MCV	Card or History	35	12-23 m	1877	37
MCV	Card	22	12-23 m	1877	37
MCV	C or H <12 months	28	12-23 m	1877	37
MCV	History	13	12-23 m	1877	37
Pol1	C or H <12 months	70	12-23 m	1877	37
Pol1	Card	36	12-23 m	1877	37
Pol1	History	38	12-23 m	1877	37

Pol1	Card or History	74	12-23 m	1877	37
Pol3	Card	25	12-23 m	1877	37
Pol3	Card or History	45	12-23 m	1877	37
Pol3	C or H <12 months	41	12-23 m	1877	37
Pol3	History	20	12-23 m	1877	37

## 2000 National EPI Coverage Survey, Ethiopia 2000, 2001

Vaccine	Confirmation method	Coverage	Age cohort	Sample	Cards seen
BCG	Card or History	76	12-23 m	3564	52
DTP1	Card or History	74	12-23 m	3564	52
DTP3	Card or History	56	12-23 m	3564	52
MCV	Card or History	52	12-23 m	3564	52
Pol1	Card or History	74	12-23 m	3564	52
Pol3	Card or History	57	12-23 m	3564	52

## 1999 Ethiopia Demographic and Health Survey 2000, 2001

Vaccine	Confirmation method	Coverage	Age cohort	Sample	Cards seen
BCG	History	22	12-23 m	2143	27
BCG	C or H <12 months	41	12-23 m	2143	27
BCG	Card or History	46	12-23 m	2143	27
BCG	Card	24	12-23 m	2143	27
BCG	C or H <12 months	43	24-35 m	2084	21
BCG	C or H <12 months	43	36-47 m	2260	14
BCG	C or H <12 months	40	48-59 m	2080	12
DTP1	Card	26	12-23 m	2143	27
DTP1	Card or History	44	12-23 m	2143	27
DTP1	C or H <12 months	40	12-23 m	2143	27
DTP1	History	18	12-23 m	2143	27
DTP1	C or H <12 months	41	24-35 m	2084	21
DTP1	C or H <12 months	39	36-47 m	2260	14
DTP1	C or H <12 months	36	48-59 m	2080	12
DTP3	History	4	12-23 m	2143	27
DTP3	C or H <12 months	18	12-23 m	2143	27
DTP3	Card	16	12-23 m	2143	27
DTP3	Card or History	21	12-23 m	2143	27

# Ethiopia - survey details

DTP3	C or H <12 months	21	24-35 m	2084	21
DTP3	C or H <12 months	22	36-47 m	2260	14
DTP3	C or H <12 months	19	48-59 m	2080	12
MCV	Card or History	27	12-23 m	2143	27
MCV	C or H <12 months	21	12-23 m	2143	27
MCV	Card	17	12-23 m	2143	27
MCV	History	10	12-23 m	2143	27
MCV	C or H <12 months	22	24-35 m	2084	21
MCV	C or H <12 months	20	36-47 m	2260	14
MCV	C or H <12 months	25	48-59 m	2080	12
Pol1	History	56	12-23 m	2143	27
Pol1	C or H <12 months	74	12-23 m	2143	27
Pol1	Card	26	12-23 m	2143	27
Pol1	Card or History	83	12-23 m	2143	27
Pol1	C or H <12 months	72	24-35 m	2084	21
Pol1	C or H <12 months	71	36-47 m	2260	14
Pol1	C or H <12 months	67	48-59 m	2080	12
Pol3	History	16	12-23 m	2143	27
Pol3	Card or History	35	12-23 m	2143	27
Pol3	Card	18	12-23 m	2143	27
Pol3	C or H <12 months	30	12-23 m	2143	27
Pol3	C or H <12 months	40	24-35 m	2084	21
Pol3	C or H <12 months	43	36-47 m	2260	14
Pol3	C or H <12 months	39	48-59 m	2080	12

1997 Ethiopia, Report on the 1998 Health and Nutrition Survey, 1999

Vaccine	Confirmation method	Coverage	Age cohort	Sample	Cards seen
BCG	Card or History	52	12-23 m	0	0
BCG	Card or History	54	24-35 m	0	0
BCG	Card or History	53	36-47 m	0	0
BCG	Card or History	51	48-59 m	0	0
DTP3	Card or History	53	12-23 m	0	0
DTP3	Card or History	55	24-35 m	0	0
DTP3	Card or History	53	36-47 m	0	0
DTP3	Card or History	52	48-59 m	0	0
MCV	Card or History	49	12-23 m	0	0
MCV	Card or History	51	24-35 m	0	0
MCV	Card or History	51	36-47 m	0	0
MCV	Card or History	50	48-59 m	0	0
Pol3	Card or History	82	12-23 m	0	0
Pol3	Card or History	83	24-35 m	0	0
Pol3	Card or History	81	36-47 m	0	0
Pol3	Card or History	79	48-59 m	0	0

Further information and estimates for 1980-1996 are available at:

[http://www.childinfo.org/immunization\\_countryreports.html](http://www.childinfo.org/immunization_countryreports.html)

[http://www.who.int/immunization\\_monitoring/routine/immunization\\_coverage/en/index4.html](http://www.who.int/immunization_monitoring/routine/immunization_coverage/en/index4.html)

## Ethiopia

### WHO/UNICEF Estimates of Protection at Birth (PAB) against tetanus

In countries where tetanus is recommended for girls and women coverage is usually reported as "TT2+", i.e. the proportion of (pregnant) women who have received their second or superior TT dose in a given year. TT2 + coverage, however, can under-represent the actual proportion of births that are protected against tetanus as it does not include women who have previously received protective doses, women who received one dose without documentation of previous doses, and women who received doses in TT (or Td) supplemental immunization activities (SIA). In addition, girls who have received DTP in their childhood and are entering childbearing age, may be protected with TT booster doses.

WHO and UNICEF have developed a model that takes into account the above scenarios, and calculates the proportion of births in a given year that can be considered as having been protected against tetanus - "Protection at Birth".

In this model, annual cohorts of women are followed from infancy through their life. A proportion receive DTP in infancy (estimated based on the WHO-UNICEF estimates of DTP3 coverage). In addition some of these women also receive TT through routine services when they are pregnant and may also receive TT during SIAs. The model also adjusts reported data, taking into account coverage patterns in other years, and/or results available through surveys. The duration of protection is then calculated, based on WHO estimates of the duration of protection by doses ever received. The proportion of births that are protected against tetanus as a result of maternal immunization reflects the tetanus immunization received by the mother throughout her life rather than simply the TT immunizations received during the current pregnancy.

Year	PAB coverage estimate (%)
1997	51
1998	42
1999	48
2000	54
2001	60
2002	67
2003	71
2004	77
2005	80
2006	82
2007	83
2008	84
2009	88

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<sup>1</sup> This model is described in: Griffiths U., Wolfson L., Quddus A., Younus M., Hafiz R.. Incremental cost-effectiveness of supplementary immunization activities to prevent neo-natal tetanus in Pakistan. Bulletin of the World Health Organization 2004; 82:643-651.