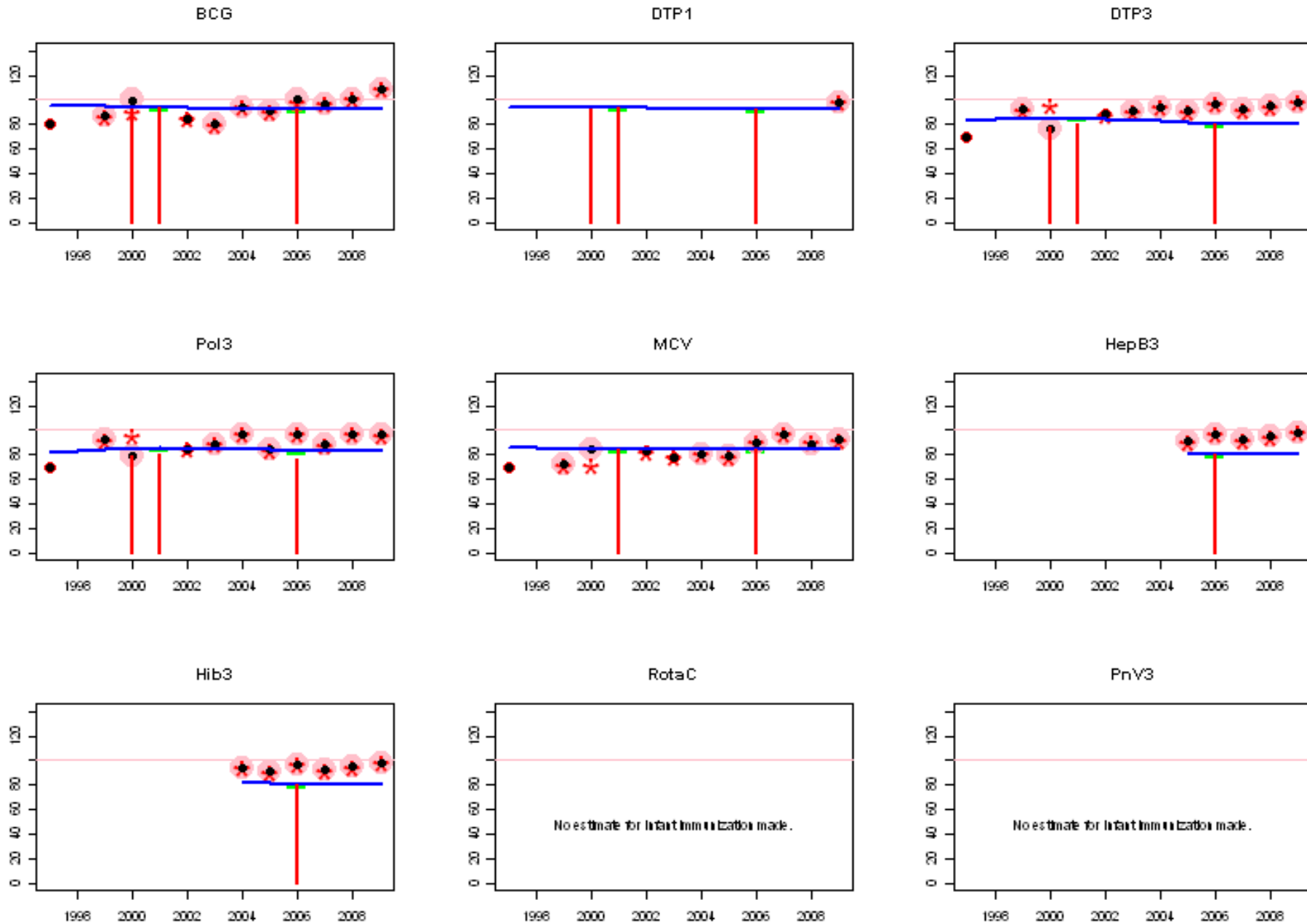
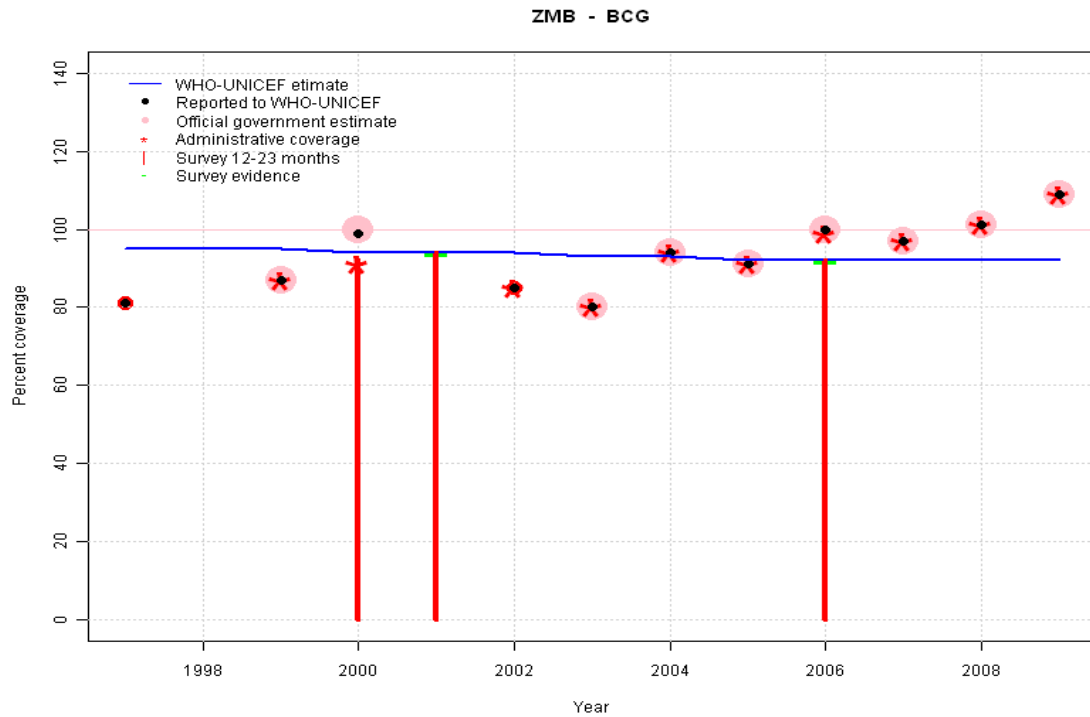


Zambia: WHO and UNICEF estimates of immunization coverage, 1997 - 2009



Zambia - BCG

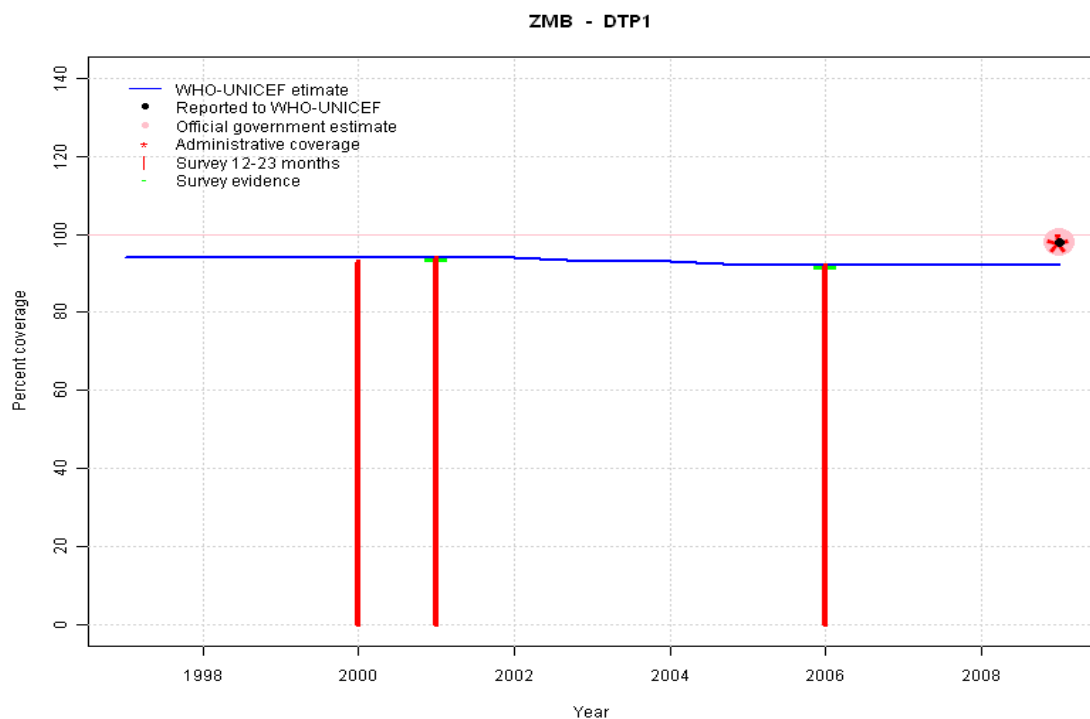


Description:

- 1997: Legacy estimate.
- 1998: Estimate based on working group decision to interpolated between 1997 and 2001.
- 1999: Estimate based on working group decision to interpolated between 1997 and 2001.
- 2000: Estimate based on working group decision to interpolated between 1997 and 2001. Survey results of 92 percent with sample size 221 ignored; sample size less than 300.
- 2001: DTP3 and Pol3 estimates are based on survey results. BCG estimates based on survey to maintain consistency
- 2002: Estimate interpolated between 2001 and 2006 estimates.
- 2003: Estimate interpolated between 2001 and 2006 estimates.
- 2004: Estimate interpolated between 2001 and 2006 estimates.
- 2005: Estimate interpolated between 2001 and 2006 estimates.
- 2006: DTP3 and Pol3 estimates are based on survey results. BCG estimates based on survey to maintain consistency
- 2007: Estimate extrapolated from 2006 level (92 percent).
- 2008: Estimate extrapolated from 2006 level (92 percent). 2008 reported data (101 percent) ignored; greater than 100 percent.
- 2009: Estimate extrapolated from 2006 level (92 percent). 2009 reported data (109 percent) ignored; greater than 100 percent.

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Estimate	95	95	95	94	94	94	93	93	92	92	92	92	92
Reported	81	NA	87	99	NA	85	80	94	91	100	97	101	109
Official	NA	NA	87	100	NA	NA	80	94	91	100	97	101	109
Administrative	NA	NA	87	91	NA	85	80	94	91	99	97	101	109
Survey	NA	NA	NA	NA	94	NA	NA	NA	NA	92	NA	NA	NA

Zambia - DTP1

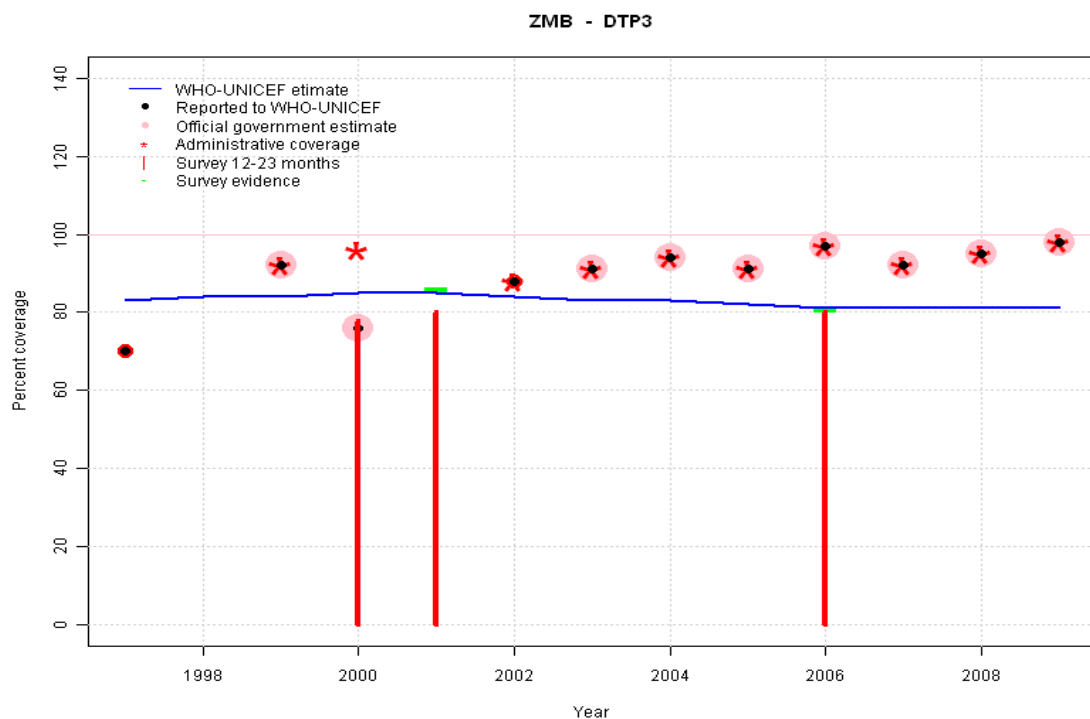


Description:

- 1997: Legacy estimate.
- 1998: Estimate based on working group decision to interpolated between 1997 and 2001.
- 1999: Estimate based on working group decision to interpolated between 1997 and 2001.
- 2000: Estimate based on working group decision to interpolated between 1997 and 2001. Survey results of 93 percent with sample size 221 ignored; sample size less than 300.
- 2001: Estimate is based on survey results.
- 2002: Estimate interpolated between 2001 and 2006 estimates.
- 2003: Estimate interpolated between 2001 and 2006 estimates.
- 2004: Estimate interpolated between 2001 and 2006 estimates.
- 2005: Estimate interpolated between 2001 and 2006 estimates.
- 2006: Estimate is based on survey results.
- 2007: Estimate extrapolated from 2006 level (92 percent).
- 2008: Estimate extrapolated from 2006 level (92 percent).
- 2009: Estimate extrapolated from 2006 level (92 percent).

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Estimate	94	94	94	94	94	94	93	93	92	92	92	92	92
Reported	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	98
Official	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	98
Administrative	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	98
Survey	NA	NA	NA	NA	94	NA	NA	NA	NA	92	NA	NA	NA

Zambia - DTP3



	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Estimate	83	84	84	85	85	84	83	83	82	81	81	81	81
Reported	70	NA	92	76	NA	88	91	94	91	97	92	95	98
Official	NA	NA	92	76	NA	NA	91	94	91	97	92	95	98
Administrative	NA	NA	92	96	NA	88	91	94	91	97	92	95	98
Survey	NA	NA	NA	NA	86	NA	NA	NA	NA	81	NA	NA	NA

Description:

1997: Legacy estimate.

1998: Estimate based on working group decision to interpolated between 1997 and 2001.

1999: Estimate based on working group decision to interpolated between 1997 and 2001.

2000: Estimate based on working group decision to interpolated between 1997 and 2001. Survey results of 78 percent with sample size 221 ignored; sample size less than 300.

2001: Estimate is based on survey results. Survey results (80 percent) adjusted for recall bias to 86 percent based on first dose card or history coverage (94 percent) and documented drop-out between first (78 percent) and third (71 percent) doses.

2002: Estimate interpolated between 2001 and 2006 estimates.

2003: Estimate interpolated between 2001 and 2006 estimates.

2004: Estimate interpolated between 2001 and 2006 estimates.

2005: Estimate interpolated between 2001 and 2006 estimates.

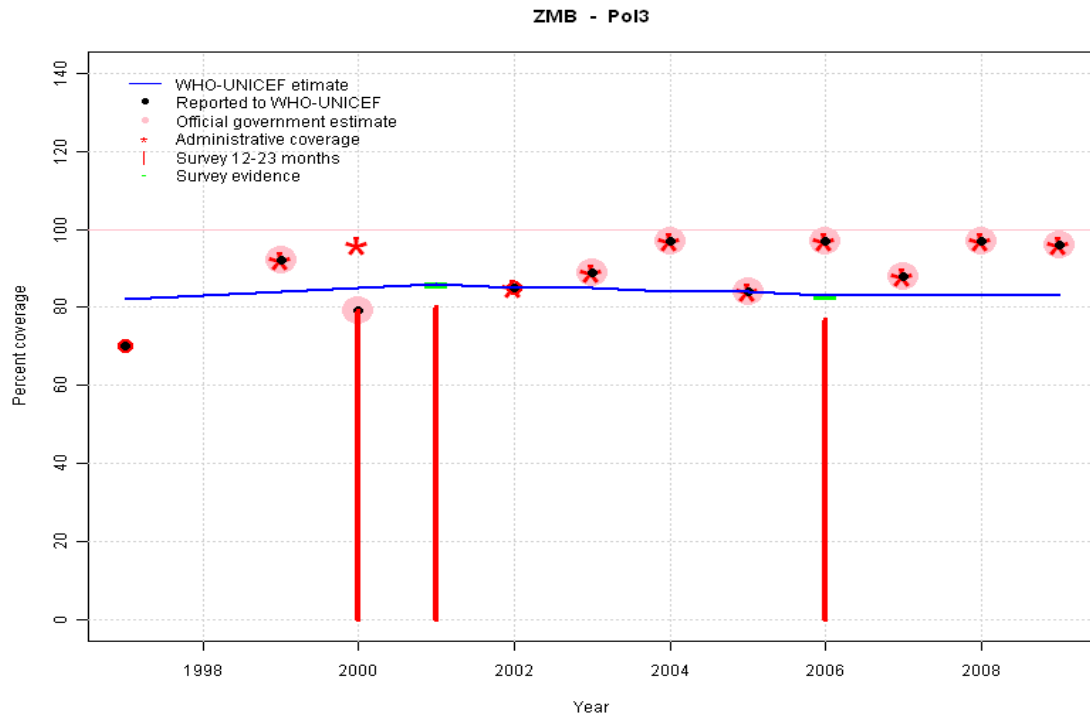
2006: Estimate based on survey results. Reported data (97 percent) not consistent with survey results (81 percent). Survey results (80 percent) adjusted for recall bias to 81 percent based on first dose card or history coverage (92 percent) and documented drop-out between first (76 percent) and third (67 percent) doses.

2007: Estimate extrapolated from 2006 level (81 percent).

2008: Estimate extrapolated from 2006 level (81 percent).

2009: Estimate extrapolated from 2006 level (81 percent).

Zambia - Pol3



	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Estimate	82	83	84	85	86	85	85	84	84	83	83	83	83
Reported	70	NA	92	79	NA	85	89	97	84	97	88	97	96
Official	NA	NA	92	79	NA	NA	89	97	84	97	88	97	96
Administrative	NA	NA	92	96	NA	85	89	97	84	97	88	97	96
Survey	NA	NA	NA	NA	86	NA	NA	NA	NA	83	NA	NA	NA

Description:

1997: Legacy estimate.

1998: Estimate based on working group decision to interpolated between 1997 and 2001.

1999: Estimate based on working group decision to interpolated between 1997 and 2001.

2000: Estimate based on working group decision to interpolated between 1997 and 2001. Survey results of 79 percent with sample size 221 ignored; sample size less than 300.

2001: Estimate is based on survey results. Survey results (80 percent) adjusted for recall bias to 86 percent based on first dose card or history coverage (96 percent) and documented drop-out between first (79 percent) and third (71 percent) doses.

2002: Estimate interpolated between 2001 and 2006 estimates.

2003: Estimate interpolated between 2001 and 2006 estimates.

2004: Estimate interpolated between 2001 and 2006 estimates.

2005: Estimate interpolated between 2001 and 2006 estimates. 2005 reported data (84 percent) inconsistent with data from other years.

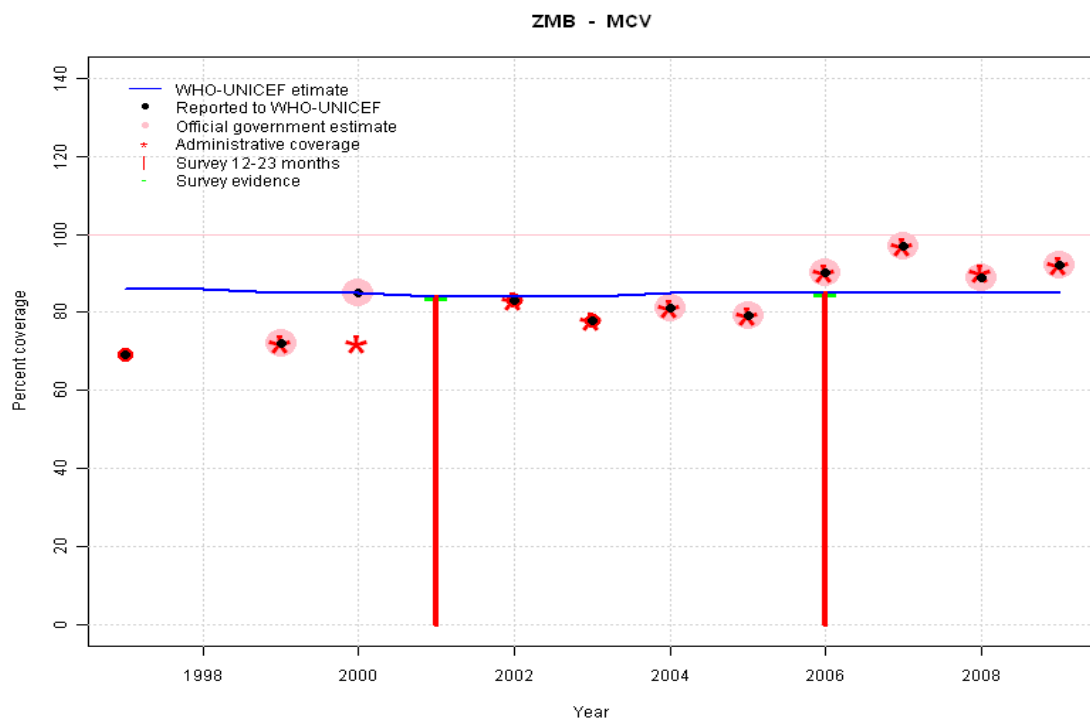
2006: Estimate based on survey results. Reported data (97 percent) not consistent with survey results (83 percent). Survey results (77 percent) adjusted for recall bias to 83 percent based on first dose card or history coverage (94 percent) and documented drop-out between first (77 percent) and third (68 percent) doses.

2007: Estimate extrapolated from 2006 level (83 percent).

2008: Estimate extrapolated from 2006 level (83 percent).

2009: Estimate extrapolated from 2006 level (83 percent).

Zambia - MCV



	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Estimate	86	86	85	85	84	84	84	85	85	85	85	85	85
Reported	69	NA	72	85	NA	83	78	81	79	90	97	89	92
Official	NA	NA	72	85	NA	NA	NA	81	79	90	97	89	92
Administrative	NA	NA	72	72	NA	83	78	81	79	90	97	90	92
Survey	NA	NA	NA	NA	84	NA	NA	NA	NA	85	NA	NA	NA

Description:

1997: Legacy estimate.

1998: Estimate based on working group decision to interpolated between 1997 and 2001.

1999: Estimate based on working group decision to interpolated between 1997 and 2001.

2000: Estimate based on working group decision to interpolated between 1997 and 2001.

2001: DTP3 and Pol3 estimates are based on survey results. MCV estimates based on survey to maintain consistency

2002: Estimate based on working group decision to interpolated between 2001 and 2006. Estimate trend is projected as linear to preserve consistency with other vaccines.

2003: Estimate based on working group decision to interpolated between 2001 and 2006. Estimate trend is projected as linear to preserve consistency with other vaccines.

2004: Estimate based on working group decision to interpolated between 2001 and 2006. Estimate trend is projected as linear to preserve consistency with other vaccines.

2005: Estimate based on working group decision to interpolated between 2001 and 2006. Estimate trend is projected as linear to preserve consistency with other vaccines.

2006: DTP3 and Pol3 estimates are based on survey results. MCV estimates based on survey to maintain consistency

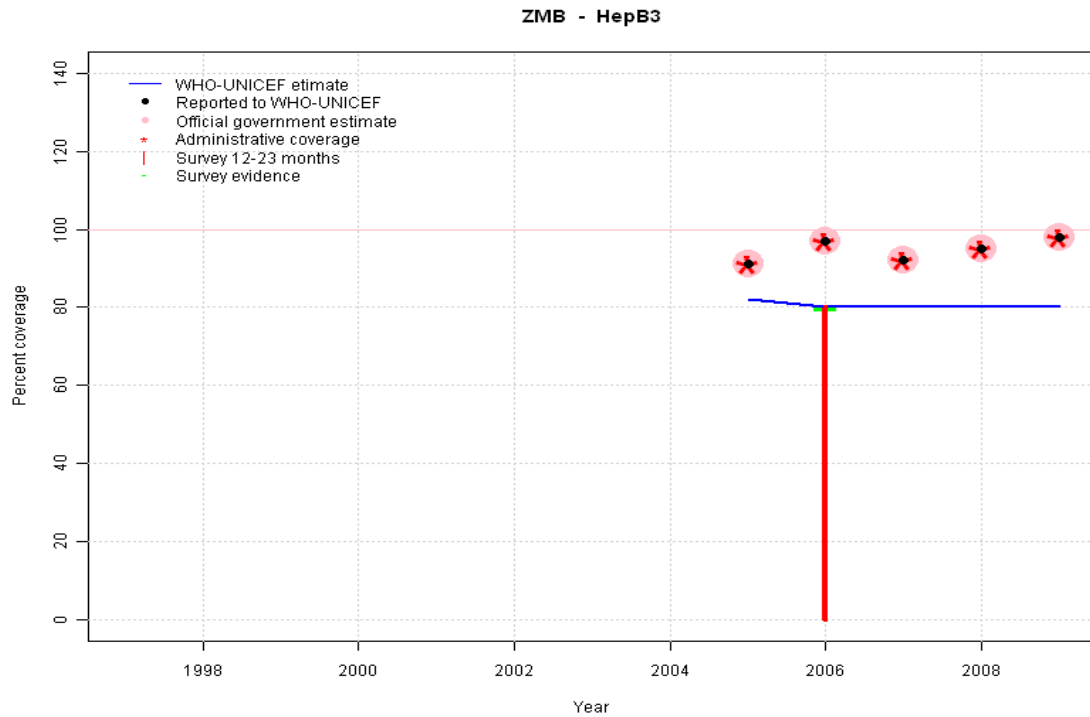
2007: Estimate extrapolated from 2006 level (85 percent).

2008: Estimate extrapolated from 2006 level (85 percent).

2009: Estimate extrapolated from 2006 level (85 percent).

Zambia - HepB3

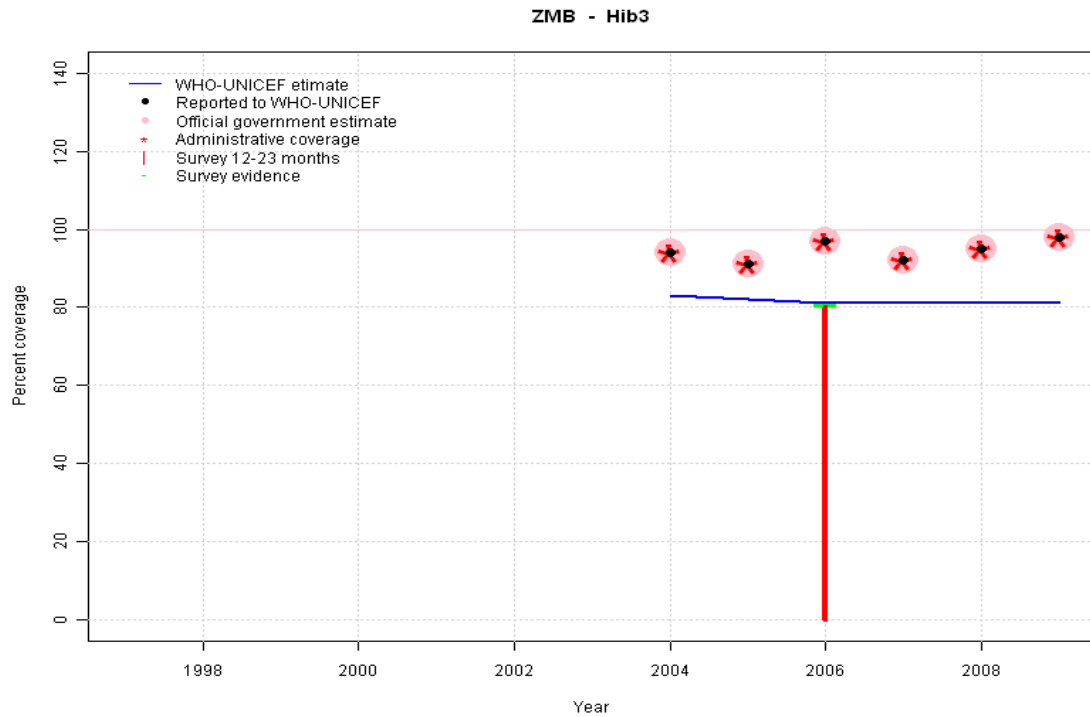
Description:



- 2005: Estimate based on DTP3 estimate. Hepatitis B vaccine given as pentavalent DTP-HepB-Hib. HepB introduced in 2005 Vaccine presentation is DTP-HepB-Hib.
- 2006: Estimate based on survey results. Reported data (97 percent) not consistent with survey results (80 percent). Hepatitis B vaccine given as pentavalent DTP-HepB-Hib.
- 2007: Estimate extrapolated from 2006 level (80 percent). Hepatitis B vaccine given as pentavalent DTP-HepB-Hib.
- 2008: Estimate extrapolated from 2006 level (80 percent). Hepatitis B vaccine given as pentavalent DTP-HepB-Hib.
- 2009: Estimate extrapolated from 2006 level (80 percent). Hepatitis B vaccine given as pentavalent DTP-HepB-Hib.

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Estimate	NA	NA	NA	NA	NA	NA	NA	NA	82	80	80	80	80
Reported	NA	NA	NA	NA	NA	NA	NA	NA	91	97	92	95	98
Official	NA	NA	NA	NA	NA	NA	NA	NA	91	97	92	95	98
Administrative	NA	NA	NA	NA	NA	NA	NA	NA	91	97	92	95	98
Survey	NA	NA	NA	NA	NA	NA	NA	NA	NA	80	NA	NA	NA

Zambia - Hib3

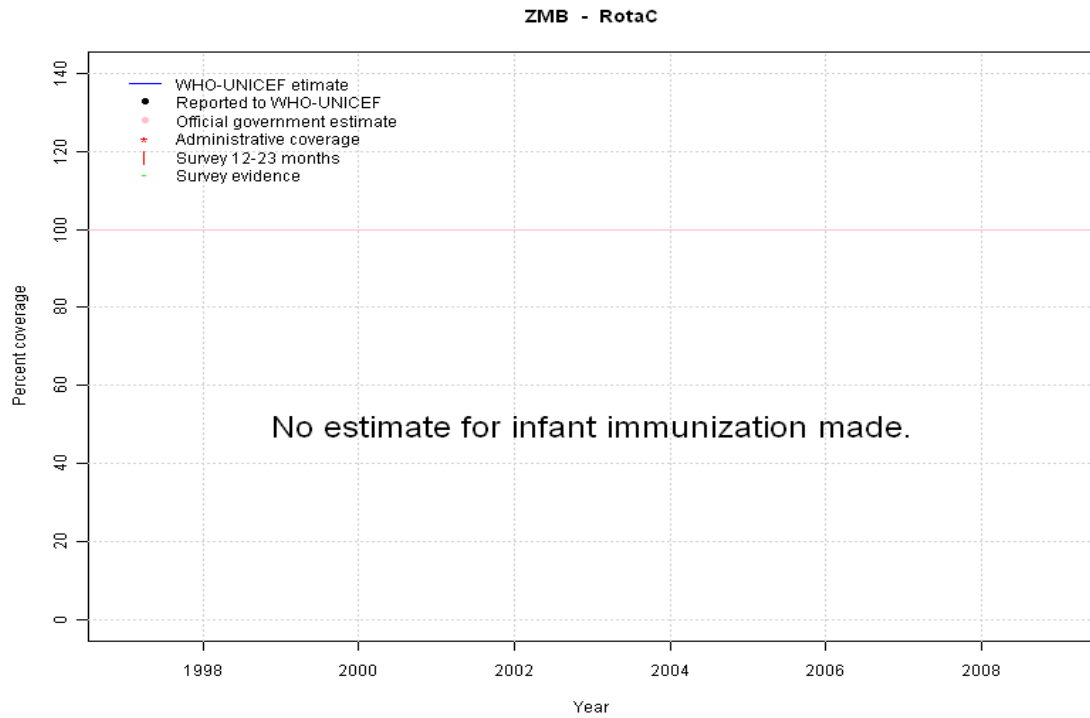


Description:

- 2004: Estimate based on DTP3 estimate. Hib vaccine given as pentavalent DTP-HepB-Hib. Hib introduced in 2004 Vaccine presentation is DTP-HepB-Hib.
- 2005: Estimate based on working group decision to interpolated between 2004 and 2006. Estimate is based on the DTP3 estimate. Hib vaccine given as pentavalent DTP-HepB-Hib.
- 2006: Estimate based on survey results. Reported data (97 percent) not consistent with survey results (81 percent). Survey results (80 percent) adjusted for recall bias to 81 percent based on first dose card or history coverage (92 percent) and documented drop-out between first (76 percent) and third (67 percent) doses. Hib vaccine given as pentavalent DTP-HepB-Hib.
- 2007: Estimate extrapolated from 2006 level (81 percent). Hib vaccine given as pentavalent DTP-HepB-Hib.
- 2008: Estimate extrapolated from 2006 level (81 percent). Hib vaccine given as pentavalent DTP-HepB-Hib.
- 2009: Estimate extrapolated from 2006 level (81 percent). Hib vaccine given as pentavalent DTP-HepB-Hib.

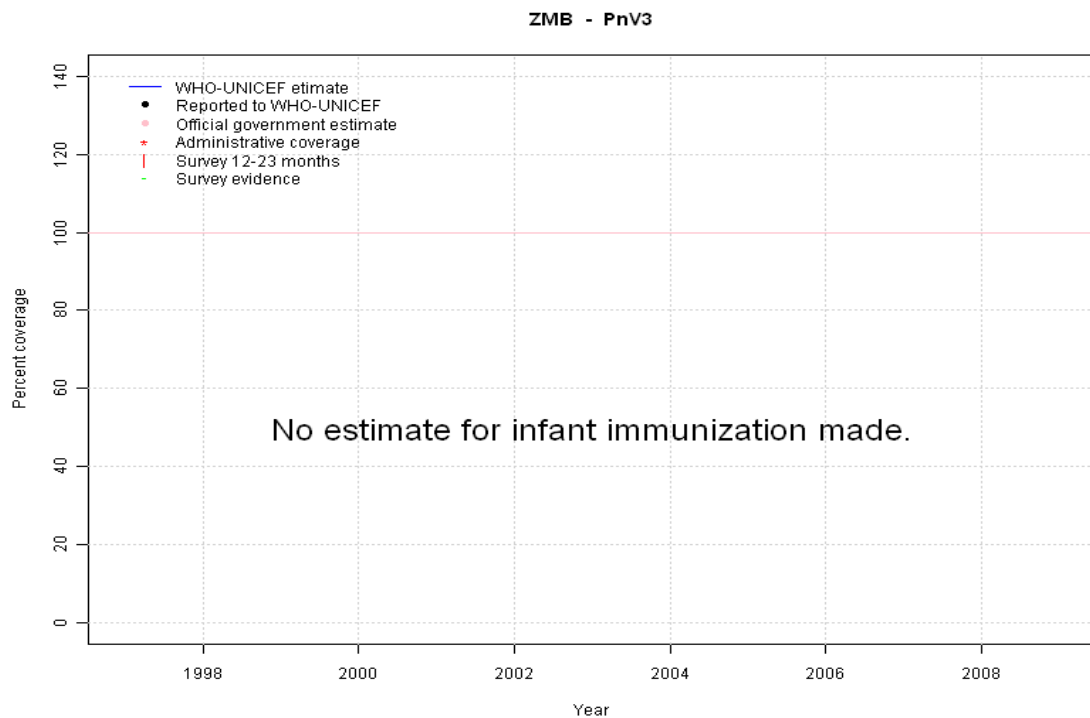
	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Estimate	NA	NA	NA	NA	NA	NA	NA	83	82	81	81	81	81
Reported	NA	NA	NA	NA	NA	NA	NA	94	91	97	92	95	98
Official	NA	NA	NA	NA	NA	NA	NA	94	91	97	92	95	98
Administrative	NA	NA	NA	NA	NA	NA	NA	94	91	97	92	95	98
Survey	NA	NA	NA	NA	NA	NA	NA	NA	NA	81	NA	NA	NA

Zambia - 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

Zambia - 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

Zambia - survey details

2006 Zambia Demographic and Health Survey 2007

Vaccine	Confirmation method	Coverage	Age cohort	Sample	Cards seen
BCG	C or H <12 months	90	12-23 m	1272	78
BCG	Card	76	12-23 m	1272	78
BCG	Card or History	92	12-23 m	1272	78
BCG	History	16	12-23 m	1272	78
DTP1	C or H <12 months	91	12-23 m	1272	78
DTP1	Card	76	12-23 m	1272	78
DTP1	Card or History	92	12-23 m	1272	78
DTP1	History	16	12-23 m	1272	78
DTP3	Card or History	80	12-23 m	1272	78
DTP3	Card	67	12-23 m	1272	78
DTP3	History	13	12-23 m	1272	78
DTP3	C or H <12 months	77	12-23 m	1272	78
HepB1	C or H <12 months	91	12-23 m	1272	78
HepB1	Card	76	12-23 m	1272	78
HepB1	Card or History	92	12-23 m	1272	78
HepB1	History	16	12-23 m	1272	78
HepB3	Card or History	80	12-23 m	1272	78
HepB3	Card	67	12-23 m	1272	78
HepB3	History	13	12-23 m	1272	78
HepB3	C or H <12 months	77	12-23 m	1272	78
Hib1	C or H <12 months	91	12-23 m	1272	78
Hib1	Card	76	12-23 m	1272	78
Hib1	Card or History	92	12-23 m	1272	78
Hib1	History	16	12-23 m	1272	78
Hib3	C or H <12 months	77	12-23 m	1272	78
Hib3	Card	67	12-23 m	1272	78
Hib3	Card or History	80	12-23 m	1272	78
Hib3	History	13	12-23 m	1272	78
MCV	C or H <12 months	69	12-23 m	1272	78
MCV	Card	70	12-23 m	1272	78
MCV	Card or History	85	12-23 m	1272	78
MCV	History	15	12-23 m	1272	78
Pol1	Card or History	94	12-23 m	1272	78
Pol1	History	16	12-23 m	1272	78
Pol1	Card	77	12-23 m	1272	78
Pol1	C or H <12 months	92	12-23 m	1272	78
Pol3	C or H <12 months	74	12-23 m	1272	78

Pol3	Card	68	12-23 m	1272	78
Pol3	Card or History	77	12-23 m	1272	78
Pol3	History	9	12-23 m	1272	78

2001 Zambia Demographic and Health Survey 2001-2002

Vaccine	Confirmation method	Coverage	Age cohort	Sample	Cards seen
BCG	History	16	12-23 m	1299	80
BCG	C or H <12 months	91	12-23 m	1299	80
BCG	Card	78	12-23 m	1299	80
BCG	Card or History	94	12-23 m	1299	80
DTP1	History	16	12-23 m	1299	80
DTP1	Card	78	12-23 m	1299	80
DTP1	C or H <12 months	92	12-23 m	1299	80
DTP1	Card or History	94	12-23 m	1299	80
DTP3	C or H <12 months	74	12-23 m	1299	80
DTP3	History	9	12-23 m	1299	80
DTP3	Card or History	80	12-23 m	1299	80
DTP3	Card	71	12-23 m	1299	80
MCV	History	14	12-23 m	1299	80
MCV	Card or History	84	12-23 m	1299	80
MCV	Card	70	12-23 m	1299	80
MCV	C or H <12 months	70	12-23 m	1299	80
Pol1	Card	79	12-23 m	1299	80
Pol1	Card or History	96	12-23 m	1299	80
Pol1	History	17	12-23 m	1299	80
Pol1	C or H <12 months	94	12-23 m	1299	80
Pol3	History	9	12-23 m	1299	80
Pol3	C or H <12 months	73	12-23 m	1299	80
Pol3	Card	71	12-23 m	1299	80
Pol3	Card or History	80	12-23 m	1299	80

2000 Zambia EPI Cluster Survey Report 2001

Vaccine	Confirmation method	Coverage	Age cohort	Sample	Cards seen
BCG	Card or History	92	12-23 m	221	83
DTP1	Card or History	93	12-23 m	221	83
DTP3	Card or History	78	12-23 m	221	83

Zambia - survey details

MCV	Card	85	12-23 m	221	83
Pol1	Card or History	92	12-23 m	221	83
Pol3	Card or History	79	12-23 m	221	83

1998 Zambia 1999 Multiple Indicator Cluster Suvey

Vaccine	Confirmation method	Coverage	Age cohort	Sample	Cards seen
BCG	Card	52	12-23 m	328	66
BCG	History	13	12-23 m	328	66

DTP1	Card	61	12-23 m	328	66
DTP1	History	21	12-23 m	328	66
DTP3	History	8	12-23 m	328	66
DTP3	Card	56	12-23 m	328	66
MCV	History	17	12-23 m	328	66
MCV	Card	57	12-23 m	328	66
Pol1	History	22	12-23 m	328	66
Pol1	Card	64	12-23 m	328	66
Pol3	History	17	12-23 m	328	66
Pol3	Card	59	12-23 m	328	66

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

http://www.childinfo.org/immunization_countryreports.html

http://www.who.int/immunization_monitoring/routine/immunization_coverage/en/index4.html

Zambia

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	66
1998	70
1999	74
2000	78
2001	85
2002	87
2003	89
2004	90
2005	91
2006	90
2007	89
2008	90
2009	90

¹ 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.