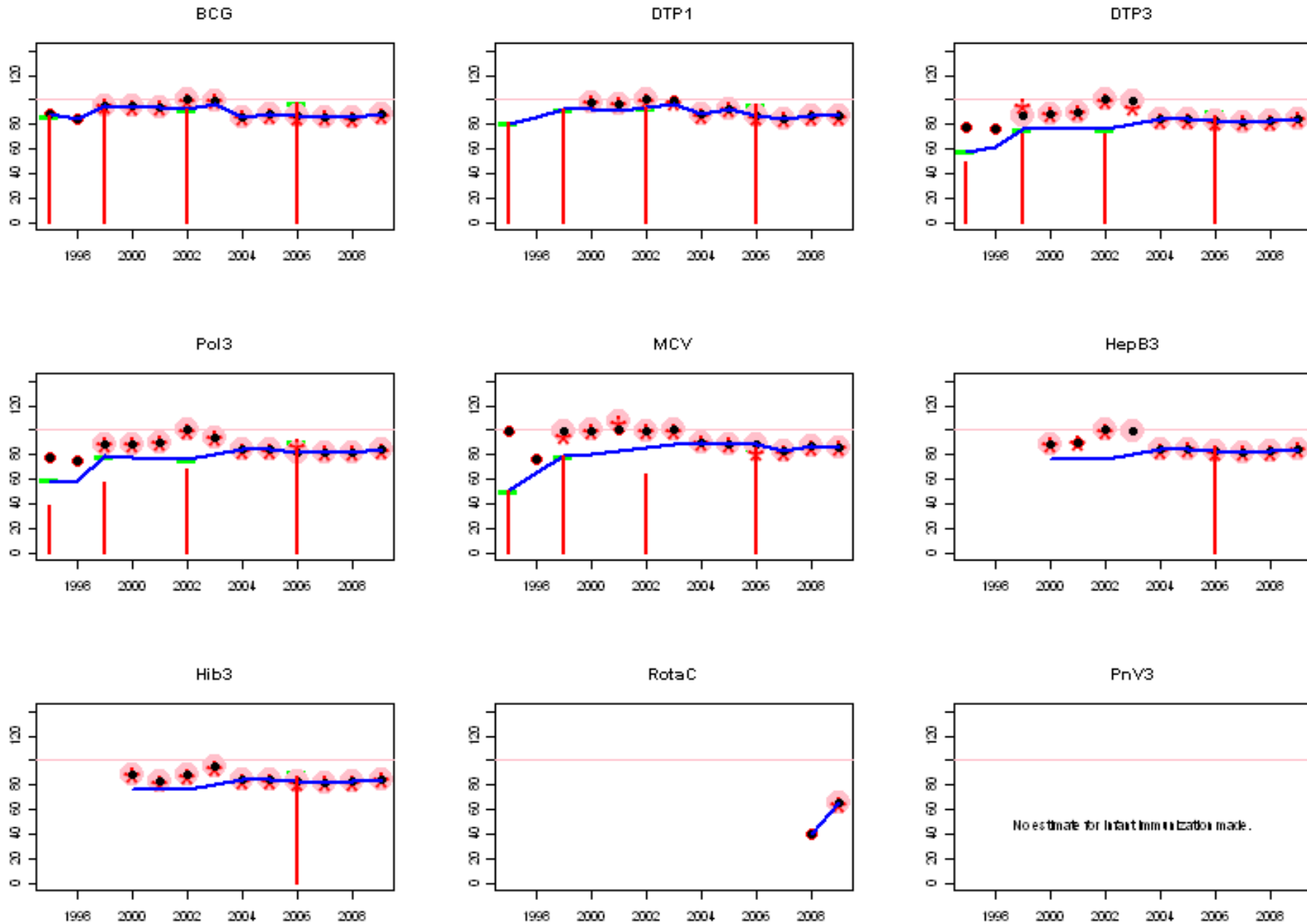
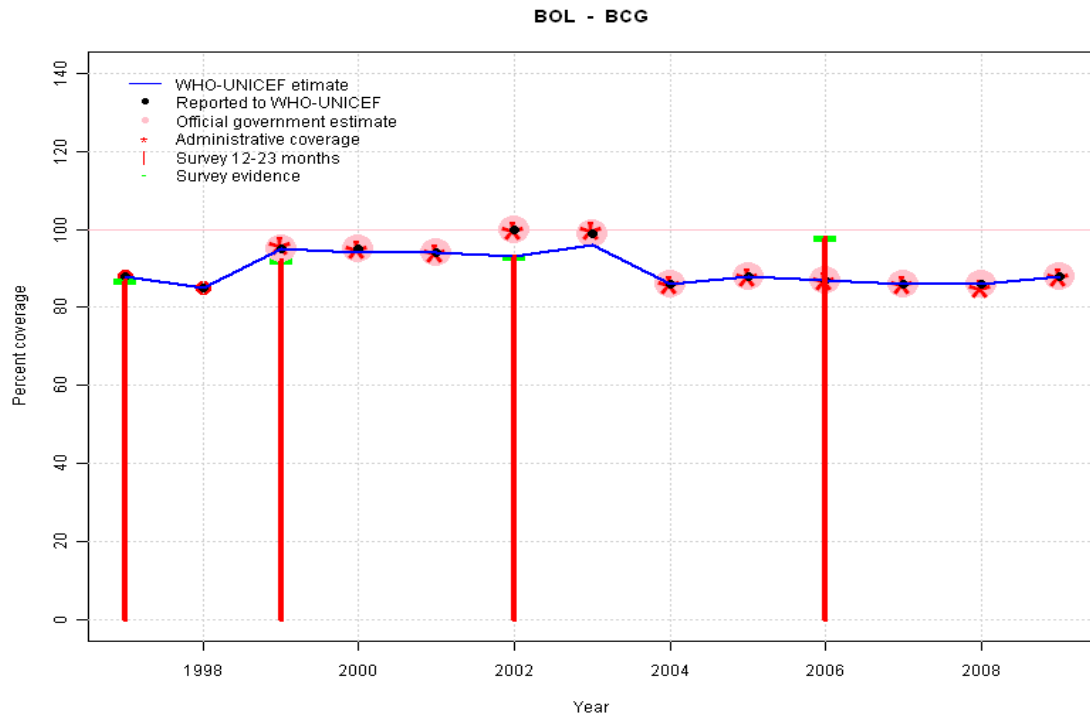


Bolivia: WHO and UNICEF estimates of immunization coverage, 1997 - 2009



# Bolivia - BCG

## Description:

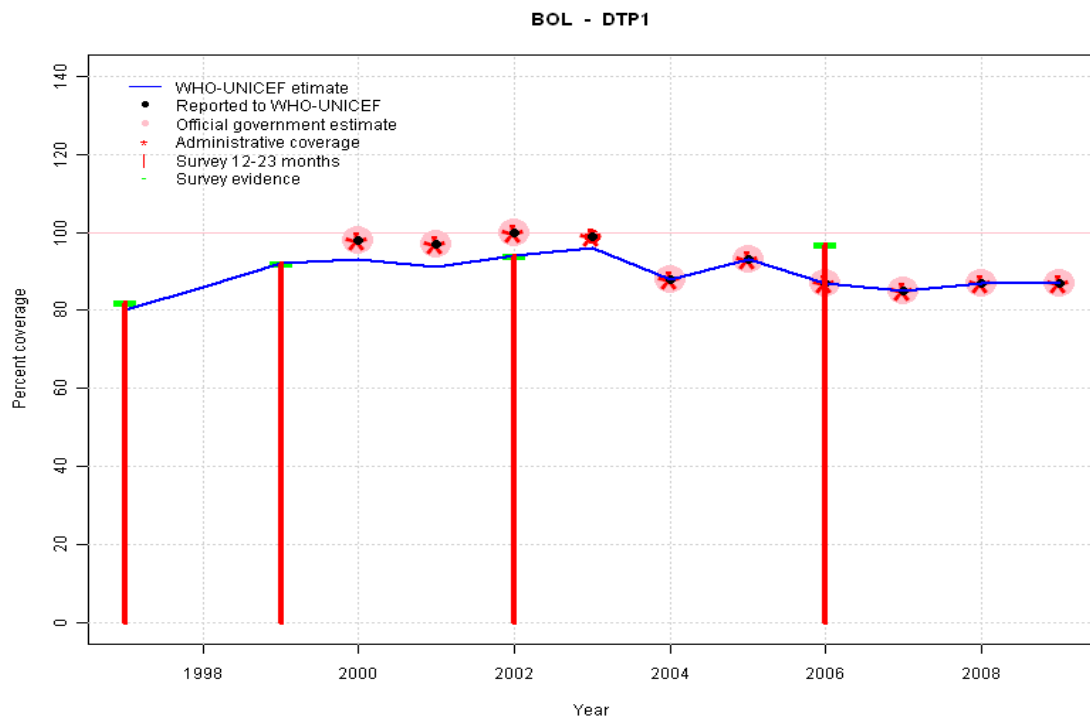


- 1997: Legacy estimate.
- 1998: Estimate based on reported data.
- 1999: Estimate based on reported data (95 percent) confirmed by survey (92 percent).
- 2000: Estimate interpolated between 1999 and 2002 estimates.
- 2001: Estimate interpolated between 1999 and 2002 estimates.
- 2002: Estimate based on survey results.
- 2003: Reported data (99 percent) calibrated to 2002 and 2004 levels.
- 2004: Estimate based on nationally reported data.
- 2005: Estimate based on reported data.
- 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	88	85	95	94	94	93	96	86	88	87	86	86	88
Reported	88	85	95	95	94	100	99	86	88	87	86	86	88
Official	NA	NA	95	95	94	100	99	86	88	87	86	86	88
Administrative	NA	NA	96	95	94	100	100	86	88	87	86	85	88
Survey	87	NA	92	NA	NA	93	NA	NA	NA	98	NA	NA	NA

# Bolivia - DTP1

## Description:



- 1997: Legacy estimate.
- 1998: Estimate interpolated between 1997 and 1999 estimates.
- 1999: Estimate based on survey results.
- 2000: Reported data (98 percent) calibrated to 1999 and 2002 levels.
- 2001: Reported data (97 percent) calibrated to 1999 and 2002 levels.
- 2002: Estimate based on survey results.
- 2003: Reported data (99 percent) calibrated to 2002 and 2004 levels.
- 2004: Estimate based on nationally reported data.
- 2005: Estimate based on reported data.
- 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	80	86	92	93	91	94	96	88	93	87	85	87	87
Reported	NA	NA	NA	98	97	100	99	88	93	87	85	87	87
Official	NA	NA	NA	98	97	100	NA	88	93	87	85	87	87
Administrative	NA	NA	NA	98	97	100	99	88	93	87	85	87	87
Survey	82	NA	92	NA	NA	94	NA	NA	NA	97	NA	NA	NA

# Bolivia - DTP3

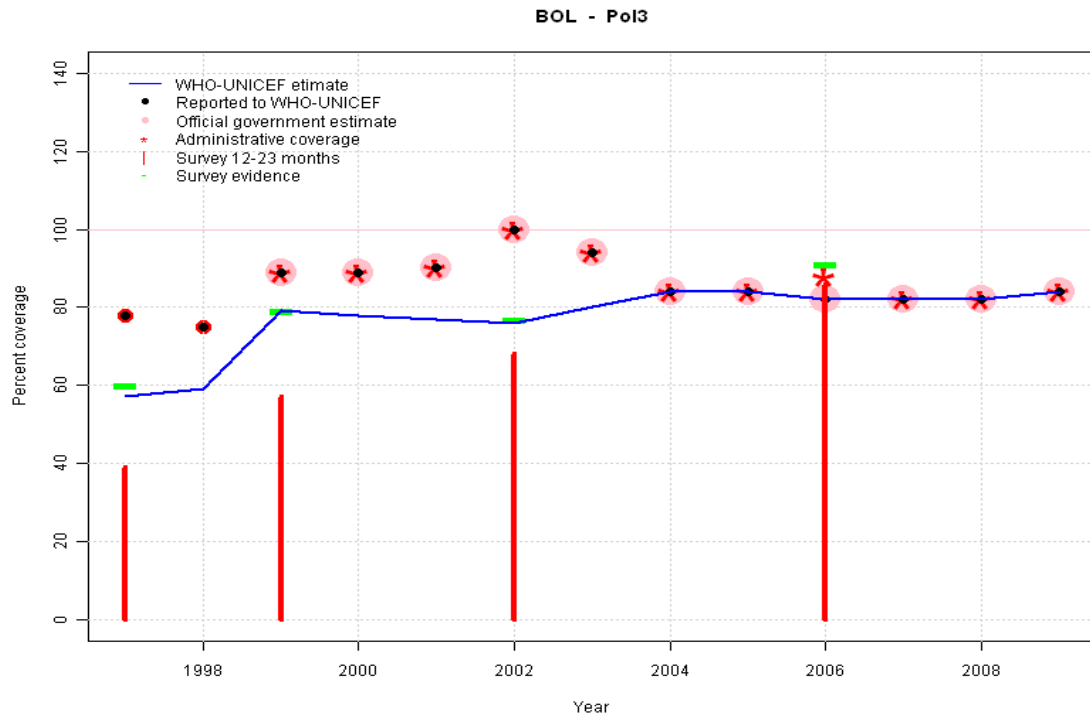


	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Estimate	58	61	77	77	77	77	81	84	85	83	82	83	85
Reported	78	76	87	89	90	100	99	84	85	83	82	83	85
Official	NA	NA	87	89	90	100	99	84	85	83	82	83	85
Administrative	NA	NA	96	89	90	100	95	84	84	83	82	83	85
Survey	59	NA	77	NA	NA	77	NA	NA	NA	91	NA	NA	NA

## Description:

- 1997: Legacy estimate. Survey results (49 percent) adjusted for recall bias to 59 percent based on first dose card or history coverage (82 percent) and documented drop-out between first (39 percent) and third (28 percent) doses.
- 1998: Reported data (76 percent) calibrated to 1997 and 1999 levels.
- 1999: Estimate based on survey results. Survey results (72 percent) adjusted for recall bias to 77 percent based on first dose card or history coverage (92 percent) and documented drop-out between first (49 percent) and third (41 percent) doses.
- 2000: Estimate interpolated between 1999 and 2002 estimates.
- 2001: Estimate interpolated between 1999 and 2002 estimates.
- 2002: Estimate based on survey results. Survey results (72 percent) adjusted for recall bias to 77 percent based on first dose card or history coverage (94 percent) and documented drop-out between first (77 percent) and third (63 percent) doses.
- 2003: Estimate interpolated between 2002 and 2004 estimates.
- 2004: Estimate based on nationally reported data.
- 2005: Estimate based on reported data.
- 2006: Survey results (86 percent) adjusted for recall bias to 91 percent based on first dose card or history coverage (97 percent) and documented drop-out between first (75 percent) and third (70 percent) doses.
- 2007: Estimate based on reported data.
- 2008: Estimate based on reported data.
- 2009: Estimate based on reported data.

# Bolivia - Pol3



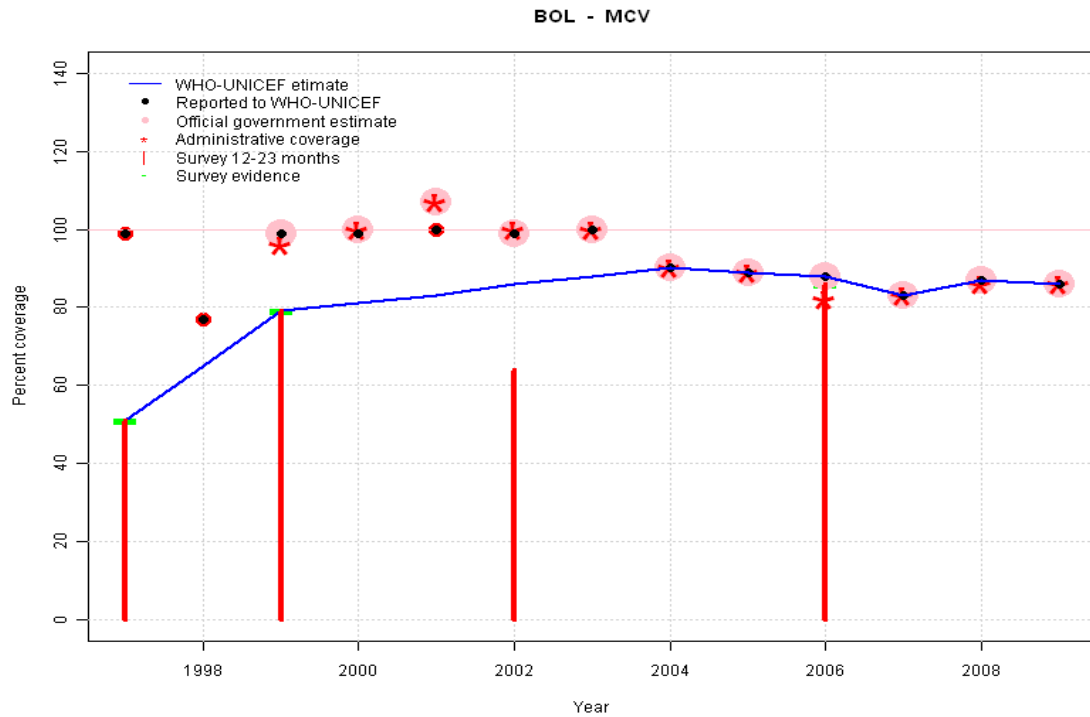
	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Estimate	57	59	79	78	77	76	80	84	84	82	82	82	84
Reported	78	75	89	89	90	100	94	84	84	82	82	82	84
Official	NA	NA	89	89	90	100	94	84	84	82	82	82	84
Administrative	NA	NA	89	89	90	100	94	84	84	88	82	82	84
Survey	60	NA	79	NA	NA	77	NA	NA	NA	91	NA	NA	NA

## Description:

- 1997: Legacy estimate. Survey results (39 percent) adjusted for recall bias to 60 percent based on first dose card or history coverage (84 percent) and documented drop-out between first (39 percent) and third (28 percent) doses.
- 1998: Reported data (75 percent) calibrated to 1997 and 1999 levels.
- 1999: Estimate based on survey results. Survey results (57 percent) adjusted for recall bias to 79 percent based on first dose card or history coverage (92 percent) and documented drop-out between first (49 percent) and third (42 percent) doses.
- 2000: Estimate interpolated between 1999 and 2002 estimates.
- 2001: Estimate interpolated between 1999 and 2002 estimates.
- 2002: Estimate based on survey results. Survey results (68 percent) adjusted for recall bias to 77 percent based on first dose card or history coverage (94 percent) and documented drop-out between first (77 percent) and third (63 percent) doses.
- 2003: Estimate interpolated between 2002 and 2004 estimates.
- 2004: Estimate based on nationally reported data.
- 2005: Estimate based on reported data.
- 2006: Survey results (86 percent) adjusted for recall bias to 91 percent based on first dose card or history coverage (97 percent) and documented drop-out between first (75 percent) and third (70 percent) doses.
- 2007: Estimate based on reported data.
- 2008: Estimate based on reported data.
- 2009: Estimate based on reported data.

# Bolivia - MCV

## Description:



	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Estimate	51	65	79	81	83	86	88	90	89	88	83	87	86
Reported	99	77	99	99	100	99	100	90	89	88	83	87	86
Official	NA	NA	99	100	107	99	100	90	89	88	83	87	86
Administrative	NA	NA	96	100	107	100	100	90	89	82	83	86	86
Survey	51	NA	79	NA	NA	NA	NA	NA	NA	86	NA	NA	NA

1997: Legacy estimate.

1998: Estimate interpolated between 1997 and 1999 estimates. 1998 reported data (77 percent) inconsistent with data from other years.

1999: Estimate based on survey results. Reported data (99 percent) not consistent with survey results (79 percent).

2000: Estimate interpolated between 1999 and 2004 estimates.

2001: Estimate interpolated between 1999 and 2004 estimates.

2002: Estimate interpolated between 1999 and 2004 estimates. Survey results of 64 percent ignored by working group. Measles immunization recommended at one year of age. Survey results based on cohort 12-23 months of age which could lead to an underestimation of coverage.

2003: Estimate interpolated between 1999 and 2004 estimates.

2004: Estimate based on nationally reported data.

2005: Estimate based on reported data.

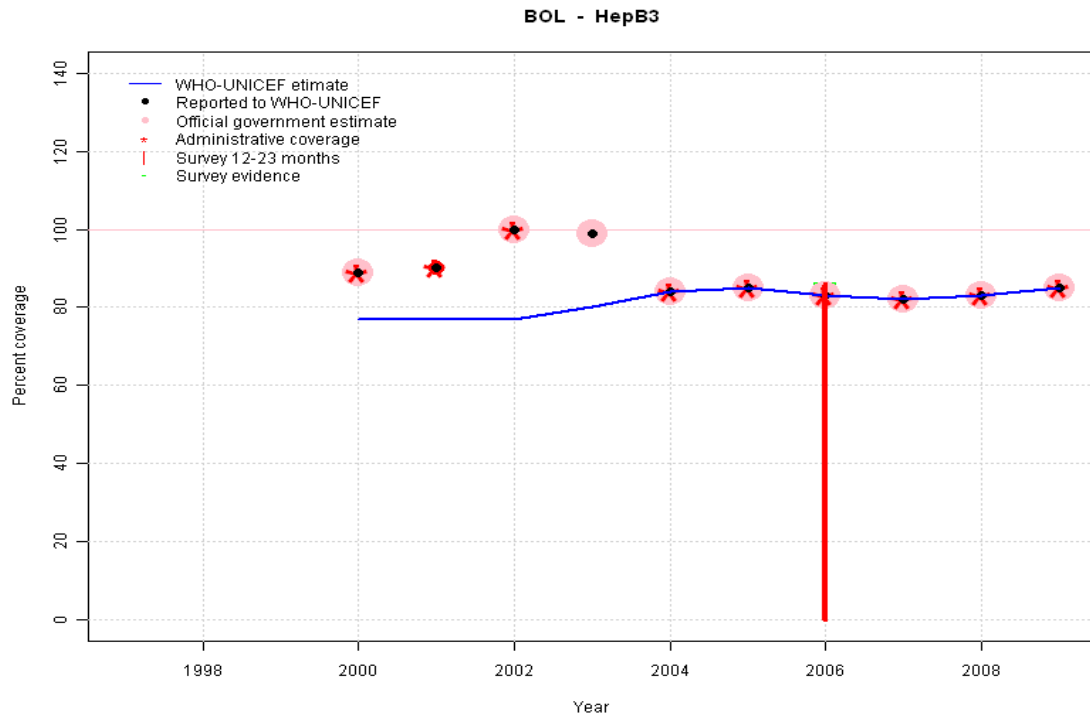
2006: Estimate based on reported data (88 percent) confirmed by survey (86 percent).

2007: Estimate based on reported data.

2008: Estimate based on reported data.

2009: Estimate based on reported data.

# Bolivia - HepB3

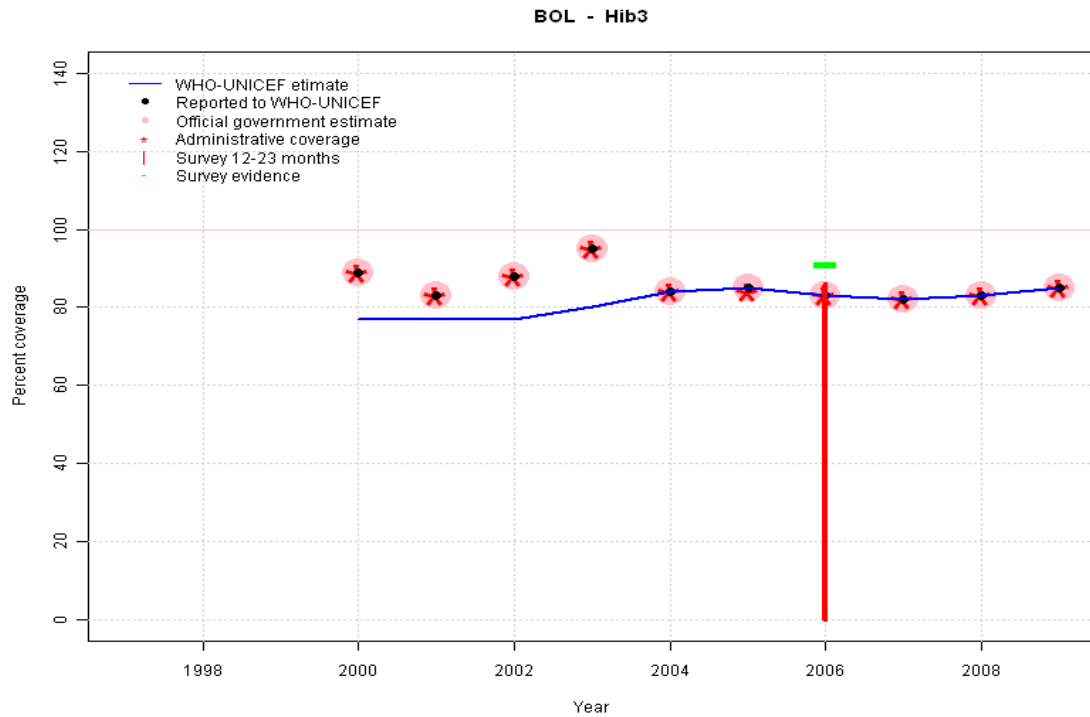


## Description:

- 2000: HepB part of DTP-HepB-Hib pentavalent vaccine. Estimate set to DTP3 level of coverage. HepB introduced in 2000 Vaccine presentation is DTP-HepB-Hib.
- 2001: HepB part of DTP-HepB-Hib pentavalent vaccine. Estimate set to DTP3 level of coverage.
- 2002: HepB part of DTP-HepB-Hib pentavalent vaccine. Estimate set to DTP3 level of coverage.
- 2003: HepB part of DTP-HepB-Hib pentavalent vaccine. Estimate set to DTP3 level of coverage.
- 2004: Estimate follows nationally reported data.
- 2005: Estimate based on reported data.
- 2006: Estimate based on reported data (83 percent) confirmed by survey (86 percent).
- 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	NA	NA	NA	77	77	77	80	84	85	83	82	83	85
Reported	NA	NA	NA	89	90	100	99	84	85	83	82	83	85
Official	NA	NA	NA	89	NA	100	99	84	85	83	82	83	85
Administrative	NA	NA	NA	89	90	100	NA	84	85	83	82	83	85
Survey	NA	NA	NA	NA	NA	NA	NA	NA	NA	86	NA	NA	NA

# Bolivia - Hib3



## Description:

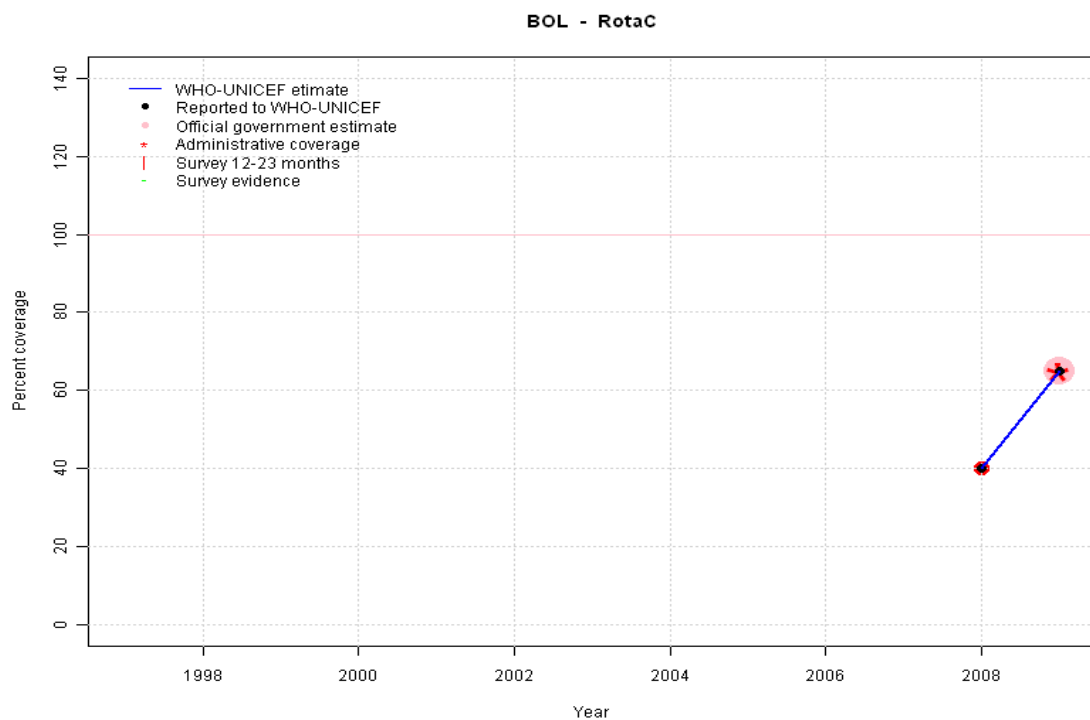
- 2000: HepB part of DTP-HepB-Hib pentavalent vaccine. Estimate set to DTP3 level of coverage. Hib introduced in 2000. Vaccine presentation is DTP-HepB-Hib.
- 2001: HepB part of DTP-HepB-Hib pentavalent vaccine. Estimate set to DTP3 level of coverage.
- 2002: HepB part of DTP-HepB-Hib pentavalent vaccine. Estimate set to DTP3 level of coverage.
- 2003: HepB part of DTP-HepB-Hib pentavalent vaccine. Estimate set to DTP3 level of coverage.
- 2004: Estimate follows nationally reported data.
- 2005: Estimate based on reported data.
- 2006: Estimate based on reported data (83 percent) confirmed by survey (91 percent). Survey results (86 percent) adjusted for recall bias to 91 percent based on first dose card or history coverage (97 percent) and documented drop-out between first (75 percent) and third (70 percent) doses.
- 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	NA	NA	NA	77	77	77	80	84	85	83	82	83	85
Reported	NA	NA	NA	89	83	88	95	84	85	83	82	83	85
Official	NA	NA	NA	89	83	88	95	84	85	83	82	83	85
Administrative	NA	NA	NA	89	83	88	95	84	84	83	82	83	85
Survey	NA	NA	NA	NA	NA	NA	NA	NA	NA	91	NA	NA	NA

# Bolivia - RotaC

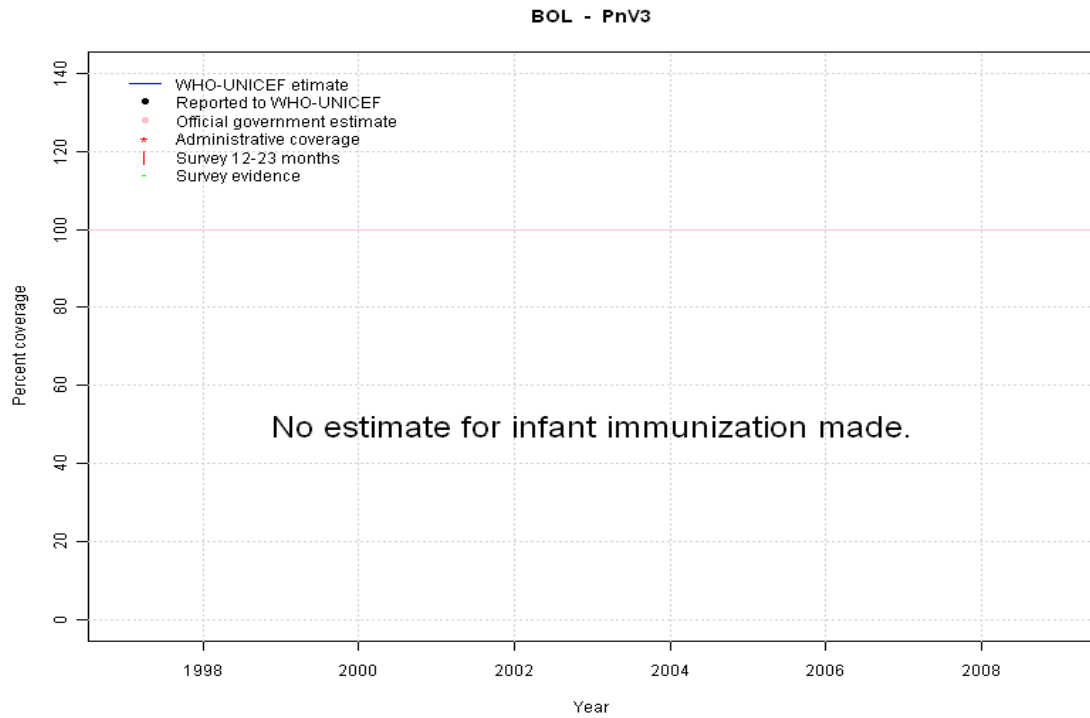
## Description:

2008: Estimate based on reported data. Rota virus vaccine introduced in 2008  
 2009: Estimate based on reported data. Rota introduced in 2008; reporting started in 2009.



	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	40	65
Reported	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	40	65
Official	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	65
Administrative	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	65
Survey	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

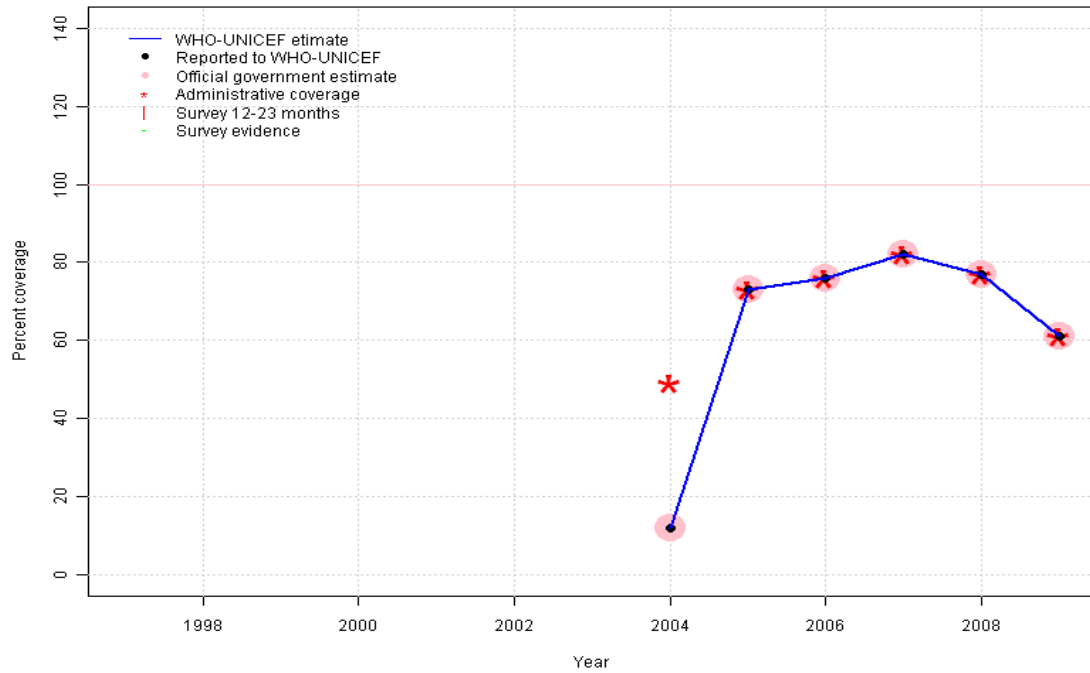
# Bolivia - PnV3



	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

# Bolivia - YFV

**BOL - YFV**



## Description:

2004: Estimate based on reported data. YFV partially introduced nationally in 2003; reporting started in 2004.

2005: Estimate based on reported data.

2006: Estimate based on reported data.

2007: Estimate based on reported data.

2008: Estimate based on reported data.

2009: Estimate based on reported data. Decline attributed to 2 months vaccine shortage.

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Estimate	NA	NA	NA	NA	NA	NA	NA	12	73	76	82	77	61
Reported	NA	NA	NA	NA	NA	NA	NA	12	73	76	82	77	61
Official	NA	NA	NA	NA	NA	NA	NA	12	73	76	82	77	61
Administrative	NA	NA	NA	NA	NA	NA	NA	49	73	76	82	77	61
Survey	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

# Bolivia - survey details

## 2006 Bolivia Encuesta Nacional de Demografía y Salud 2008

Vaccine	Confirmation method	Coverage	Age cohort	Sample	Cards seen
BCG	Card	76	18-29 m	1689	76
BCG	History	22	18-29 m	1689	76
BCG	Card or History	98	18-29 m	1689	76
DTP1	Card	75	18-29 m	1689	76
DTP1	History	22	18-29 m	1689	76
DTP1	Card or History	97	18-29 m	1689	76
DTP3	Card	70	18-29 m	1689	76
DTP3	History	16	18-29 m	1689	76
DTP3	Card or History	86	18-29 m	1689	76
HepB1	Card	75	18-29 m	1689	76
HepB1	History	22	18-29 m	1689	76
HepB1	Card or History	97	18-29 m	1689	76
HepB3	Card or History	86	18-29 m	1689	76
HepB3	History	16	18-29 m	1689	76
HepB3	Card	70	18-29 m	1689	76
Hib1	History	22	18-29 m	1689	76
Hib1	Card or History	97	18-29 m	1689	76
Hib1	Card	75	18-29 m	1689	76
Hib3	Card	70	18-29 m	1689	76
Hib3	History	16	18-29 m	1689	76
Hib3	Card or History	86	18-29 m	1689	76
MCV	Card or History	86	18-29 m	1689	76
MCV	History	18	18-29 m	1689	76
MCV	Card	68	18-29 m	1689	76
Pol1	Card	75	18-29 m	1689	76
Pol1	History	22	18-29 m	1689	76
Pol1	Card or History	97	18-29 m	1689	76
Pol3	Card	70	18-29 m	1689	76
Pol3	History	16	18-29 m	1689	76
Pol3	Card or History	86	18-29 m	1689	76

## 2005 Encuesta de cobertura vacunal de SR 15-39 años y SRP en niños de 12-23 meses

Vaccine	Confirmation method	Coverage	Age cohort	Sample	Cards seen
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MCV	C or H <24 months	81	< 24 m	597	65
MCV	Card or History	92	12-59 m	597	65
MCV	History	40	12-59 m	597	65
MCV	Card	52	12-59 m	597	65

## 2002 Encuesta Nacional de Demografía y Salud, ENDSA 2003

Vaccine	Confirmation method	Coverage	Age cohort	Sample	Cards seen
BCG	History	17	12-23 m	1861	79
BCG	Card	76	12-23 m	1861	79
BCG	Card or History	93	12-23 m	1861	79
DTP1	Card or History	94	12-23 m	1861	79
DTP1	History	17	12-23 m	1861	79
DTP1	Card	77	12-23 m	1861	79
DTP3	History	9	12-23 m	1861	79
DTP3	Card or History	72	12-23 m	1861	79
DTP3	Card	63	12-23 m	1861	79
MCV	History	10	12-23 m	1861	79
MCV	Card or History	64	12-23 m	1861	79
MCV	Card	54	12-23 m	1861	79
Pol1	Card or History	94	12-23 m	1861	79
Pol1	History	16	12-23 m	1861	79
Pol1	Card	77	12-23 m	1861	79
Pol3	History	5	12-23 m	1861	79
Pol3	Card	63	12-23 m	1861	79
Pol3	Card or History	68	12-23 m	1861	79

## 1999 Bolivia, Encuesta de múltiples indicadores por conglomerados 2000 (MICS 2000), 2001

Vaccine	Confirmation method	Coverage	Age cohort	Sample	Cards seen
BCG	History	44	12-23 m	642	54
BCG	Card	49	12-23 m	642	54
BCG	Card or History	92	12-23 m	642	54
DTP1	History	43	12-23 m	642	54
DTP1	Card	49	12-23 m	642	54
DTP1	Card or History	92	12-23 m	642	54
DTP3	History	30	12-23 m	642	54

## Bolivia - survey details

DTP3	Card or History	72	12-23 m	642	54
DTP3	Card	41	12-23 m	642	54
MCV	History	37	12-23 m	642	54
MCV	Card or History	79	12-23 m	642	54
MCV	Card	42	12-23 m	642	54
Pol1	History	43	12-23 m	642	54
Pol1	Card or History	92	12-23 m	642	54
Pol1	Card	49	12-23 m	642	54
Pol3	Card	42	12-23 m	642	54
Pol3	Card or History	57	12-23 m	642	54
Pol3	History	15	12-23 m	642	54

### 1997 República de Bolivia, Encuesta Nacional de Demografía y Salud 1998

Vaccine	Confirmation method	Coverage	Age cohort	Sample	Cards seen
BCG	Card	39	12-23 m	1275	40
BCG	Card or History	87	12-23 m	1275	40
BCG	History	49	12-23 m	1275	40
BCG	C or H <12 months	85	12-23 m	1275	40
BCG	C or H <12 months	82	24-35 m	1234	37
BCG	C or H <12 months	77	36-47 m	1302	27
BCG	C or H <12 months	78	48-59 m	1249	27
DTP1	Card	39	12-23 m	1275	40
DTP1	History	43	12-23 m	1275	40
DTP1	Card or History	82	12-23 m	1275	40
DTP1	C or H <12 months	78	12-23 m	1275	40
DTP1	C or H <12 months	75	24-35 m	1234	37
DTP1	C or H <12 months	72	36-47 m	1302	27

DTP1	C or H <12 months	70	48-59 m	1249	27
DTP3	C or H <12 months	41	12-23 m	1275	40
DTP3	History	21	12-23 m	1275	40
DTP3	Card or History	49	12-23 m	1275	40
DTP3	Card	28	12-23 m	1275	40
DTP3	C or H <12 months	43	24-35 m	1234	37
DTP3	C or H <12 months	38	36-47 m	1302	27
DTP3	C or H <12 months	38	48-59 m	1249	27
MCV	History	29	12-23 m	1275	40
MCV	Card or History	51	12-23 m	1275	40
MCV	Card	22	12-23 m	1275	40
MCV	C or H <12 months	12	12-23 m	1275	40
MCV	C or H <12 months	24	24-35 m	1234	37
MCV	C or H <12 months	40	36-47 m	1302	27
MCV	C or H <12 months	40	48-59 m	1249	27
Pol1	History	46	12-23 m	1275	40
Pol1	C or H <12 months	81	12-23 m	1275	40
Pol1	Card	39	12-23 m	1275	40
Pol1	Card or History	84	12-23 m	1275	40
Pol1	C or H <12 months	78	24-35 m	1234	37
Pol1	C or H <12 months	72	36-47 m	1302	27
Pol1	C or H <12 months	70	48-59 m	1249	27
Pol3	History	12	12-23 m	1275	40
Pol3	Card or History	39	12-23 m	1275	40
Pol3	Card	28	12-23 m	1275	40
Pol3	C or H <12 months	32	12-23 m	1275	40
Pol3	C or H <12 months	35	24-35 m	1234	37
Pol3	C or H <12 months	31	36-47 m	1302	27
Pol3	C or H <12 months	30	48-59 m	1249	27

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)

## Bolivia (Plurinational State of)

### 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	60
1998	61
1999	66
2000	67
2001	68
2002	69
2003	69
2004	70
2005	70
2006	71
2007	71
2008	74
2009	74

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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.