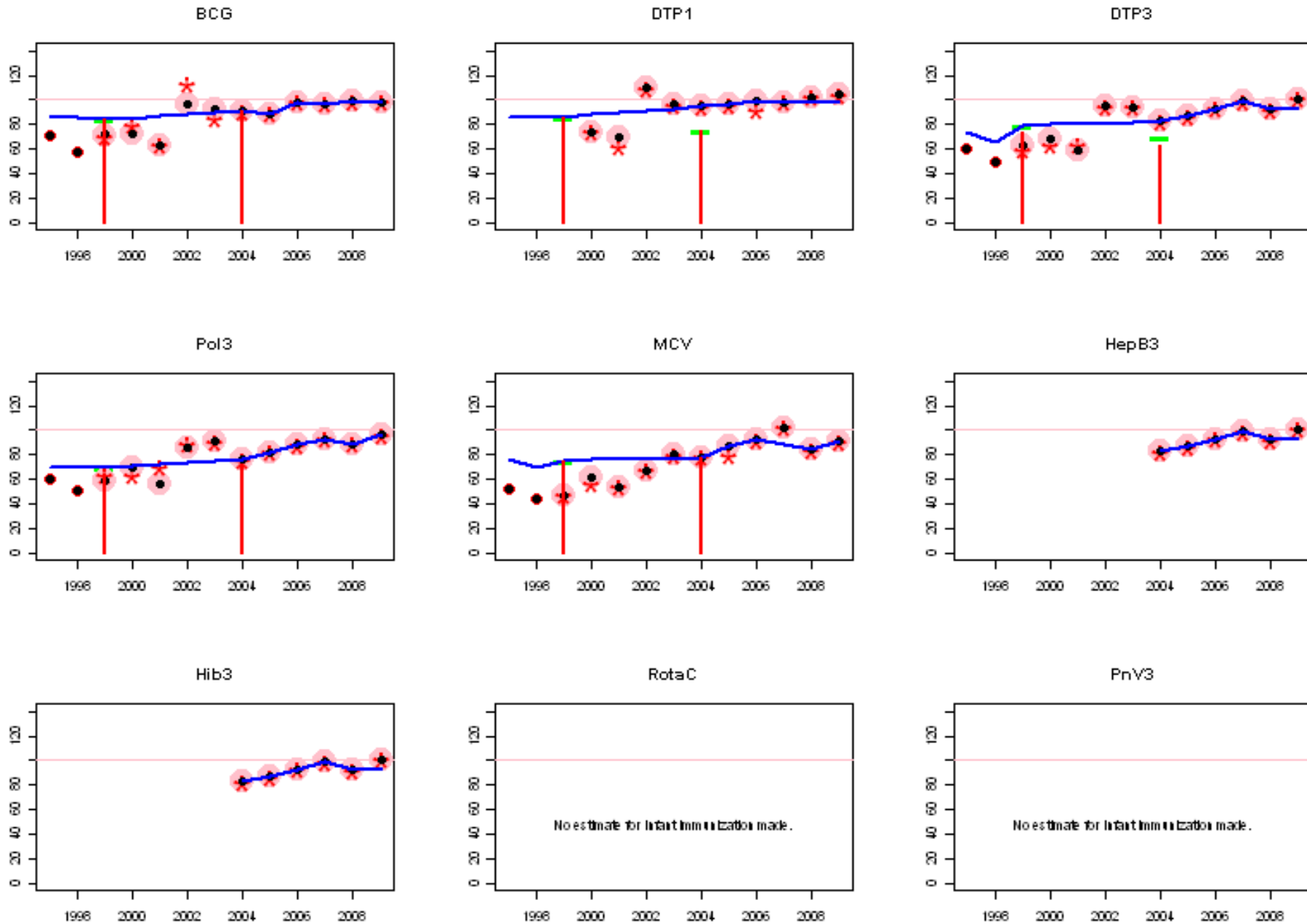
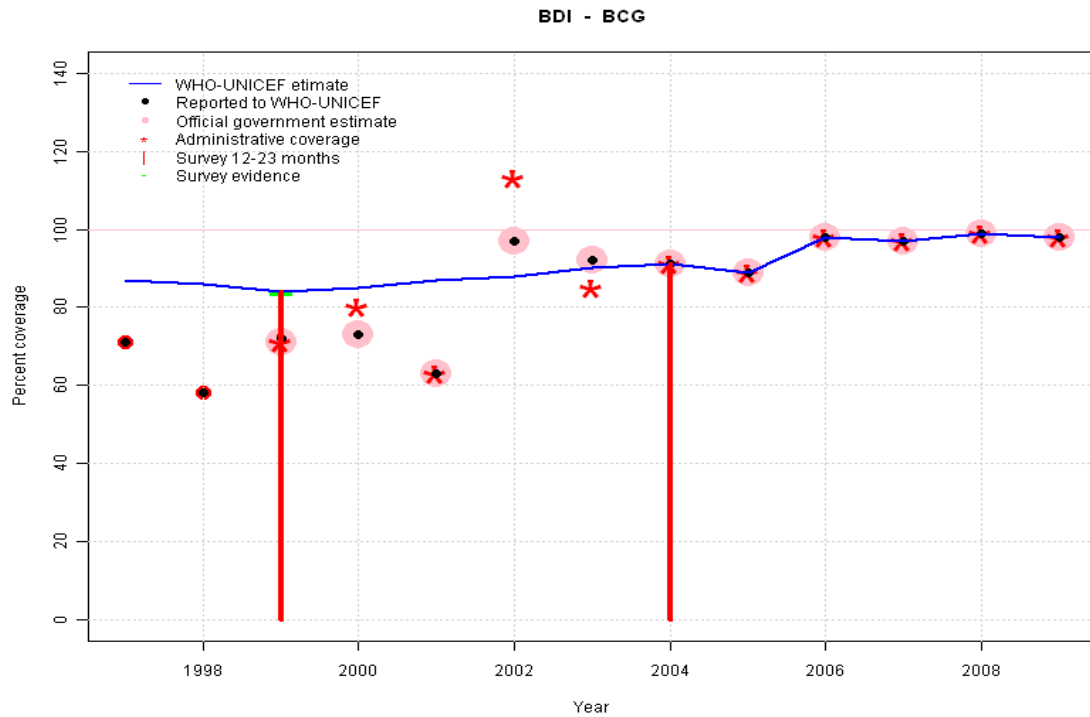


Burundi: WHO and UNICEF estimates of immunization coverage, 1997 - 2009



Burundi - BCG

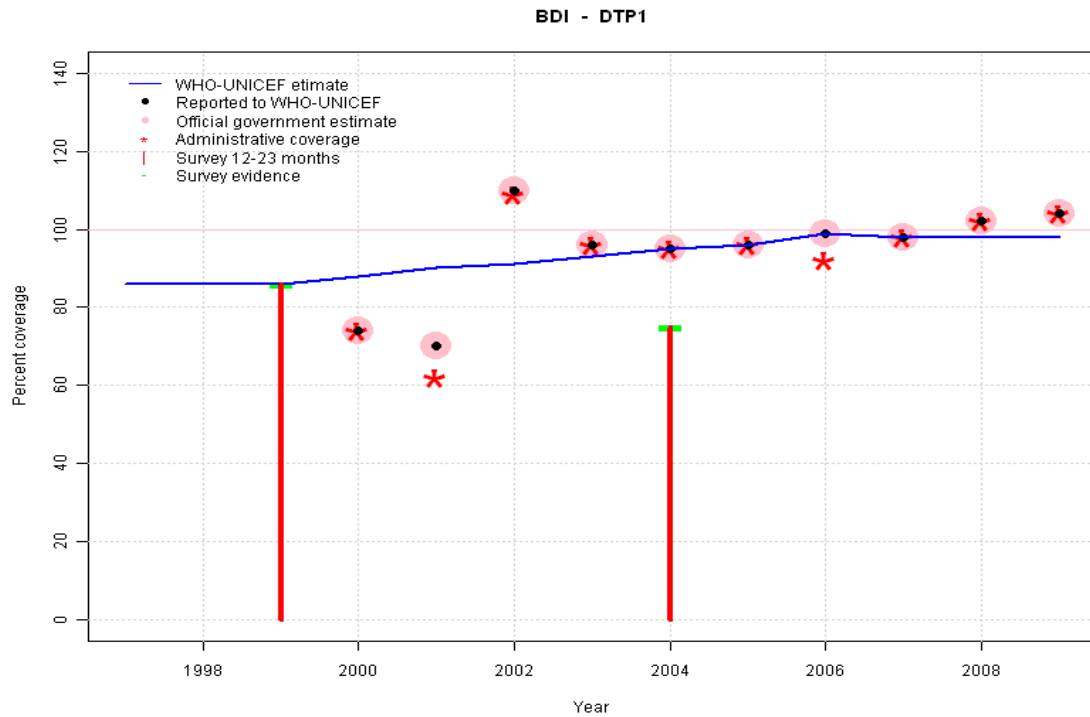


	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Estimate	87	86	84	85	87	88	90	91	89	98	97	99	98
Reported	71	58	72	73	63	97	92	91	89	98	97	99	98
Official	NA	NA	71	73	63	97	92	91	89	98	97	99	98
Administrative	NA	NA	71	80	63	113	85	91	89	98	97	99	98
Survey	NA	NA	84	NA	NA	NA	NA	91	NA	NA	NA	NA	NA

Description:

- 1997: Legacy estimate.
- 1998: Estimate interpolated between 1997 and 1999 estimates. 1998 reported data (58 percent) inconsistent with data from other years.
- 1999: Estimate based on survey results. Reported data (72 percent) not consistent with survey results (84 percent).
- 2000: Estimate based on working group decision to interpolated between 1999 and 2004. Fluctuation in officially reported data suggests problems in reporting system.
- 2001: Estimate based on working group decision to interpolated between 1999 and 2004. Fluctuation in officially reported data suggests problems in reporting system.
- 2002: Estimate based on working group decision to interpolated between 1999 and 2004. Fluctuation in officially reported data suggests problems in reporting system. Data quality audit conducted for the Vaccine Fund suggested inadequacies in the reporting system.
- 2003: Estimate based on working group decision to interpolated between 1999 and 2004. Fluctuation in officially reported data suggests problems in reporting system.
- 2004: Estimate based on reported data (91 percent) confirmed by survey (91 percent). Data quality audit conducted for the Vaccine Fund suggested inadequacies in the reporting system.
- 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.

Burundi - DTP1

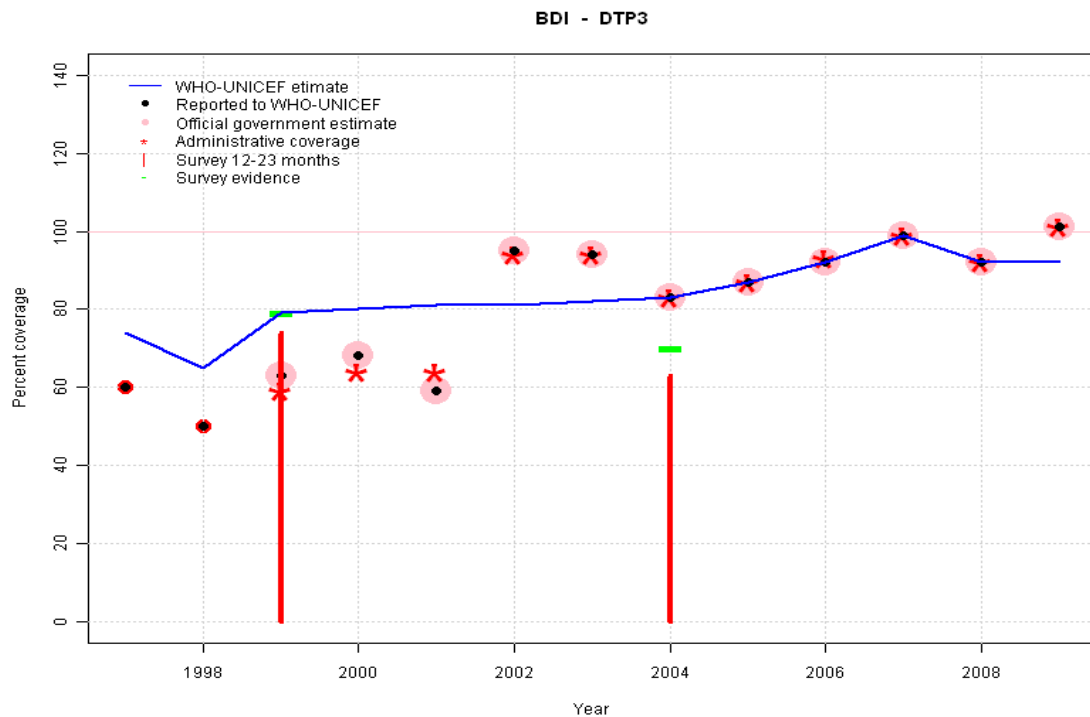


	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Estimate	86	86	86	88	90	91	93	95	96	99	98	98	98
Reported	NA	NA	NA	74	70	110	96	95	96	99	98	102	104
Official	NA	NA	NA	74	70	110	96	95	96	99	98	102	104
Administrative	NA	NA	NA	74	62	109	96	95	96	92	98	102	104
Survey	NA	NA	86	NA	NA	NA	NA	75	NA	NA	NA	NA	NA

Description:

- 1997: Legacy estimate.
- 1998: Estimate interpolated between 1997 and 1999 estimates.
- 1999: Estimate based on survey results. Reported data (74 percent) not consistent with survey results (86 percent).
- 2000: Estimate based on working group decision to interpolated between 1999 and 2004. Fluctuation in officially reported data suggests problems in reporting system.
- 2001: Estimate based on working group decision to interpolated between 1999 and 2004. Fluctuation in officially reported data suggests problems in reporting system.
- 2002: Estimate based on working group decision to interpolated between 1999 and 2004. Fluctuation in officially reported data suggests problems in reporting system. 2002 reported data (110 percent) ignored; greater than 100 percent. 2002 reported data (110 percent) inconsistent with data from other years. Data quality audit conducted for the Vaccine Fund suggested inadequacies in the reporting system.
- 2003: Estimate based on working group decision to interpolated between 1999 and 2004. Fluctuation in officially reported data suggests problems in reporting system.
- 2004: DTP survey results are inconsistent with results for other vaccines. DTP coverage may not include doses received through DTP3-HepB-Hib pentavalent vaccine introduced in 2004. Data quality audit conducted for the Vaccine Fund suggested inadequacies in the reporting system.
- 2005: Estimate based on reported data.
- 2006: Estimate based on reported data.
- 2007: Estimated DTP3 greater than estimated DTP1; DTP1 estimate based on the relationship between DTP1 and DTP3 from 282 surveys.
- 2008: Estimate based on trend in reported data. Missing or ignored reported value estimated by extrapolation from 2007 reported value of 98 percent. 2008 reported data (102 percent) ignored; greater than 100 percent.
- 2009: Estimate based on trend in reported data. Missing or ignored reported value estimated by extrapolation from 2007 reported value of 98 percent. 2009 reported data (104 percent) ignored; greater than 100 percent.

Burundi - DTP3

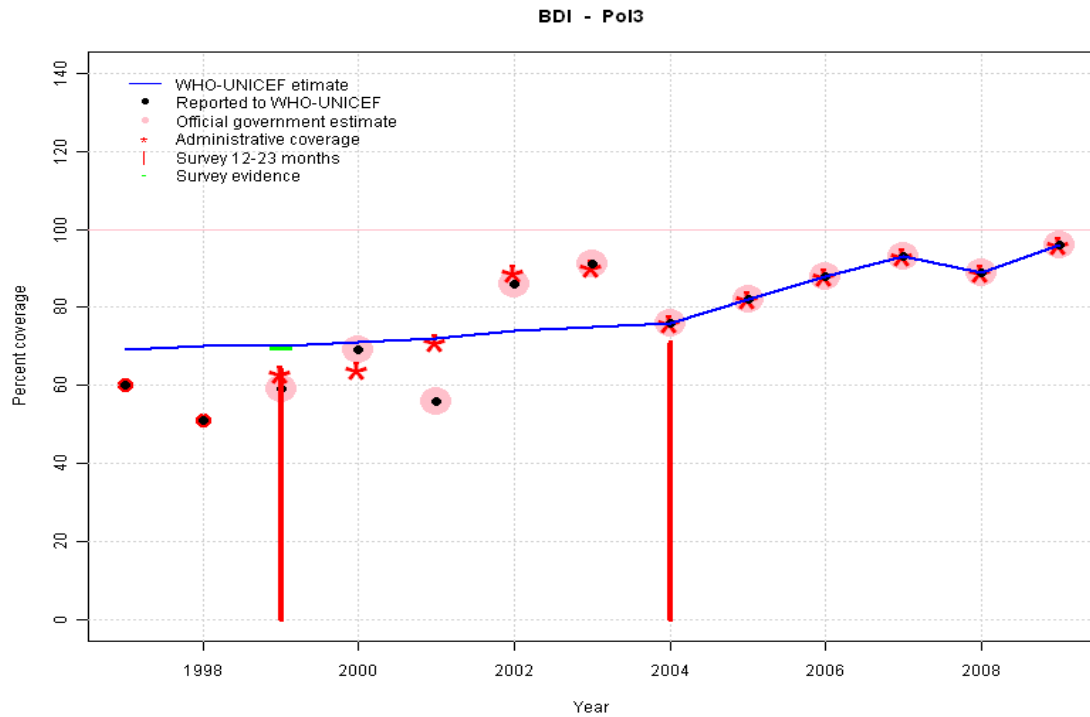


	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Estimate	74	65	79	80	81	81	82	83	87	92	99	92	92
Reported	60	50	63	68	59	95	94	83	87	92	99	92	101
Official	NA	NA	63	68	59	95	94	83	87	92	99	92	101
Administrative	NA	NA	59	64	64	94	94	83	87	93	99	92	101
Survey	NA	NA	79	NA	NA	NA	NA	70	NA	NA	NA	NA	NA

Description:

- 1997: Legacy estimate.
- 1998: Reported data (50 percent) calibrated to 1997 and 1999 levels.
- 1999: Estimate based on survey results. Reported data (63 percent) not consistent with survey results (79 percent). Survey results (74 percent) adjusted for recall bias to 79 percent based on first dose card or history coverage (86 percent) and documented drop-out between first (62 percent) and third (57 percent) doses.
- 2000: Estimate based on working group decision to interpolated between 1999 and 2004. Fluctuation in officially reported data suggests problems in reporting system.
- 2001: Estimate based on working group decision to interpolated between 1999 and 2004. Fluctuation in officially reported data suggests problems in reporting system.
- 2002: Estimate based on working group decision to interpolated between 1999 and 2004. Fluctuation in officially reported data suggests problems in reporting system. Data quality audit conducted for the Vaccine Fund suggested inadequacies in the reporting system.
- 2003: Estimate based on working group decision to interpolated between 1999 and 2004. Fluctuation in officially reported data suggests problems in reporting system.
- 2004: DTP survey results are inconsistent with results for other vaccines. DTP coverage may not include doses received through DTP3-HepB-Hib pentavalent vaccine introduced in 2004. Survey results (63 percent) adjusted for recall bias to 70 percent based on first dose card or history coverage (75 percent) and documented drop-out between first (47 percent) and third (44 percent) doses. Data quality audit conducted for the Vaccine Fund suggested inadequacies in the reporting system.
- 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 trend in reported data. Missing or ignored reported value estimated by extrapolation from 2008 reported value of 92 percent. 2009 reported data (101 percent) ignored; greater than 100 percent.

Burundi - Pol3



	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Estimate	69	70	70	71	72	74	75	76	82	88	93	89	96
Reported	60	51	59	69	56	86	91	76	82	88	93	89	96
Official	NA	NA	59	69	56	86	91	76	82	88	93	89	96
Administrative	NA	NA	63	64	71	89	90	76	82	88	93	89	96
Survey	NA	NA	70	NA	NA	NA	NA	77	NA	NA	NA	NA	NA

Description:

1997: Legacy estimate.

1998: Estimate interpolated between 1997 and 1999 estimates.

1999: Estimate based on survey results. Reported data (59 percent) not consistent with survey results (70 percent). Survey results (64 percent) adjusted for recall bias to 70 percent based on first dose card or history coverage (87 percent) and documented drop-out between first (60 percent) and third (48 percent) doses.

2000: Estimate based on working group decision to interpolated between 1999 and 2004. Fluctuation in officially reported data suggests problems in reporting system.

2001: Estimate based on working group decision to interpolated between 1999 and 2004. Fluctuation in officially reported data suggests problems in reporting system. 2001 reported data (56 percent) inconsistent with data from other years.

2002: Estimate based on working group decision to interpolated between 1999 and 2004. Fluctuation in officially reported data suggests problems in reporting system. Data quality audit conducted for the Vaccine Fund suggested inadequacies in the reporting system.

2003: Estimate based on working group decision to interpolated between 1999 and 2004. Fluctuation in officially reported data suggests problems in reporting system.

2004: Estimate based on reported data (76 percent) confirmed by survey (77 percent). Survey results (71 percent) adjusted for recall bias to 77 percent based on first dose card or history coverage (90 percent) and documented drop-out between first (63 percent) and third (54 percent) doses. Data quality audit conducted for the Vaccine Fund suggested inadequacies in the reporting system.

2005: Estimate based on reported data.

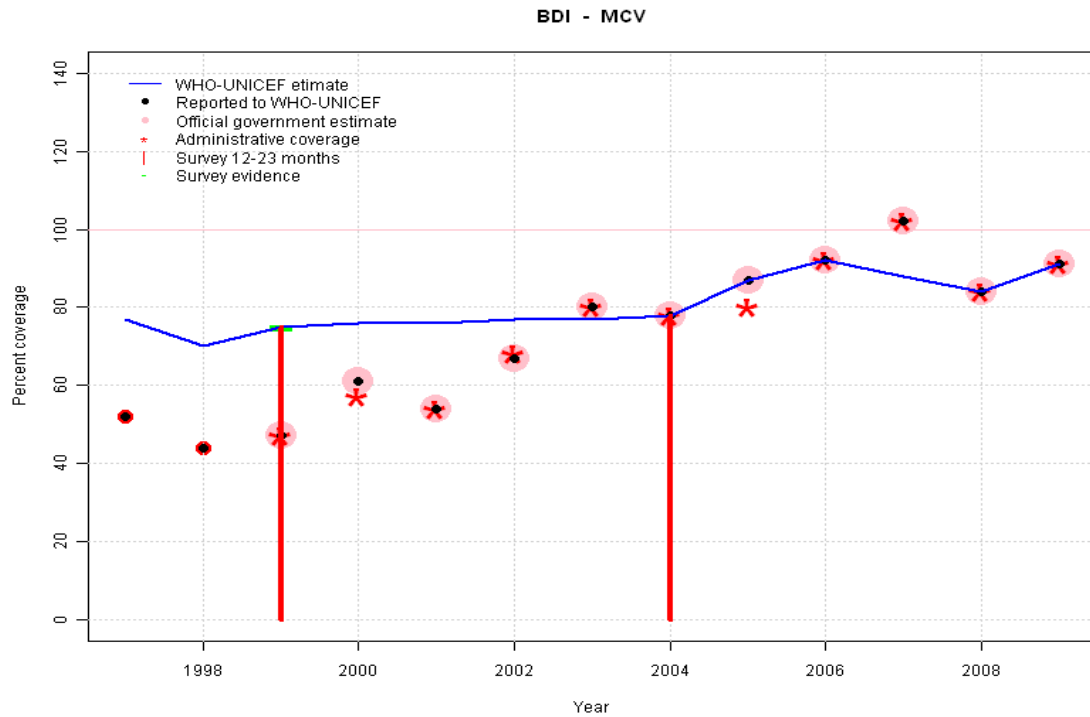
2006: Estimate based on reported data.

2007: Estimate based on reported data.

2008: Estimate based on reported data.

2009: Estimate based on reported data.

Burundi - MCV



	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Estimate	77	70	75	76	76	77	77	78	87	92	88	84	91
Reported	52	44	47	61	54	67	80	78	87	92	102	84	91
Official	NA	NA	47	61	54	67	80	78	87	92	102	84	91
Administrative	NA	NA	47	57	54	68	80	78	80	92	102	84	91
Survey	NA	NA	75	NA	NA	NA	NA	78	NA	NA	NA	NA	NA

Description:

1997: Legacy estimate.

1998: Reported data (44 percent) calibrated to 1997 and 1999 levels.

1999: Estimate based on survey results. Reported data (47 percent) not consistent with survey results (75 percent).

2000: Estimate based on working group decision to interpolated between 1999 and 2004. Fluctuation in officially reported data suggests problems in reporting system.

2001: Estimate based on working group decision to interpolated between 1999 and 2004. Fluctuation in officially reported data suggests problems in reporting system.

2002: Estimate based on working group decision to interpolated between 1999 and 2004. Fluctuation in officially reported data suggests problems in reporting system. Data quality audit conducted for the Vaccine Fund suggested inadequacies in the reporting system.

2003: Estimate based on working group decision to interpolated between 1999 and 2004. Fluctuation in officially reported data suggests problems in reporting system.

2004: Estimate based on reported data (78 percent) confirmed by survey (78 percent). Data quality audit conducted for the Vaccine Fund suggested inadequacies in the reporting system.

2005: Estimate based on reported data.

2006: Estimate based on reported data.

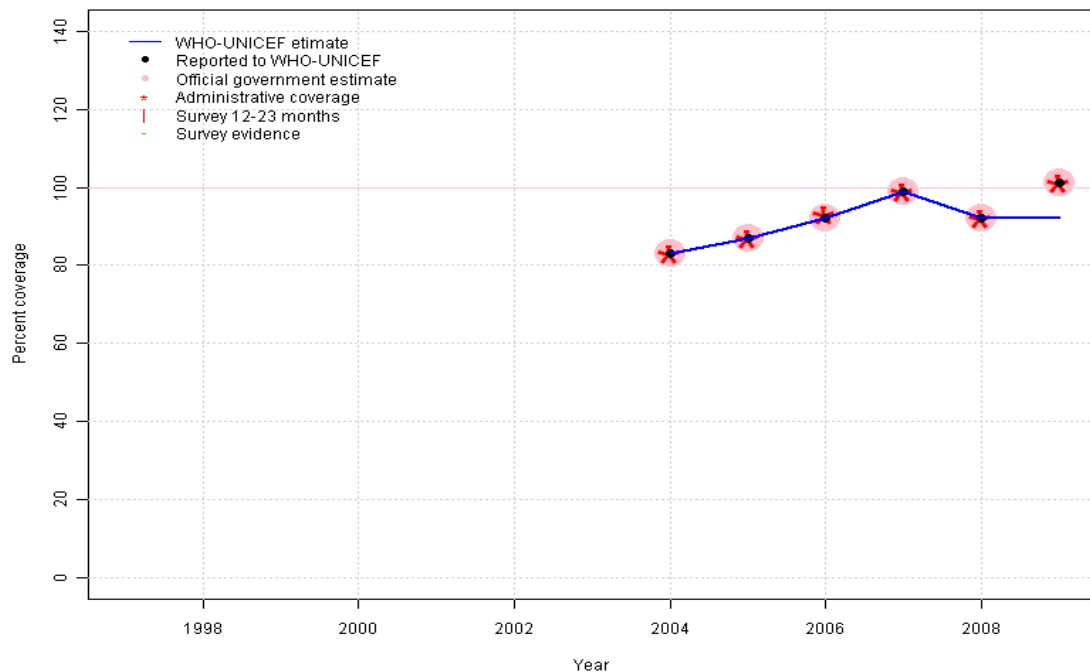
2007: Estimate based on trend in reported data. Missing or ignored reported value estimated by interpolation between reported values of 92 percent in 2006 and 84 percent in 2008. 2007 reported data (102 percent) ignored; greater than 100 percent.

2008: Estimate based on reported data.

2009: Estimate based on reported data.

Burundi - HepB3

BDI - HepB3

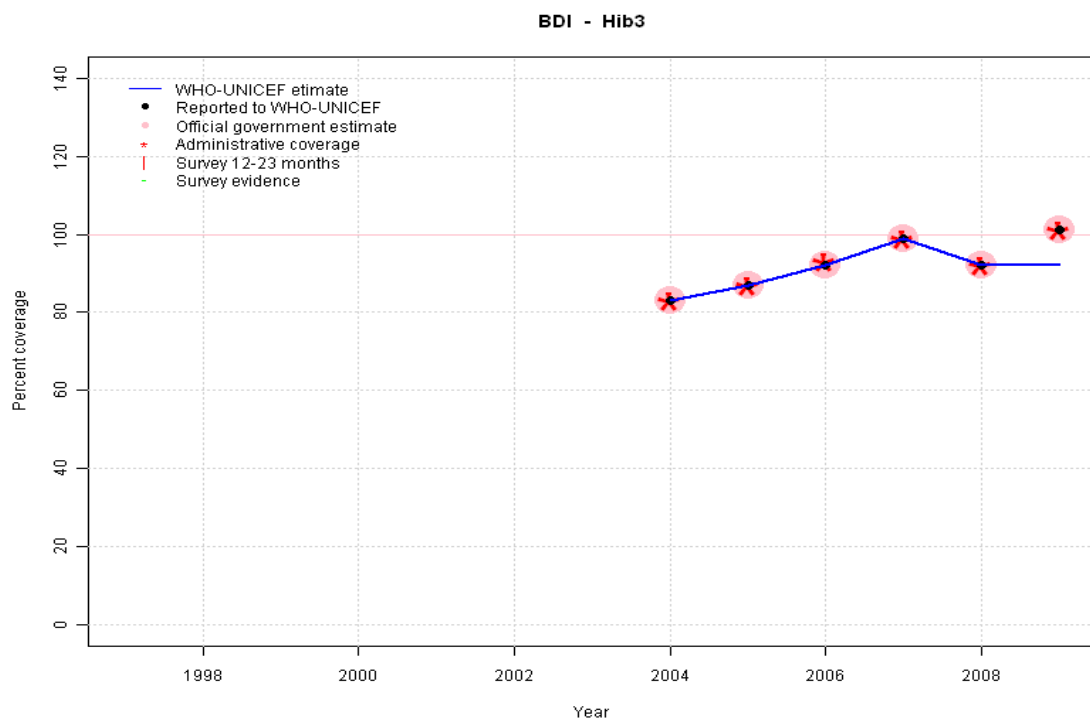


Description:

- 2004: Estimate based on reported data. HepB introduced in 2004 Vaccine presentation is DTP-HepB-Hib. Data quality audit conducted for the Vaccine Fund suggested inadequacies in the reporting system.
- 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. Missing or ignored reported value estimated by extrapolation from 2008 reported value of 92 percent. 2009 reported data (101 percent) ignored; greater than 100 percent.

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Estimate	NA	NA	NA	NA	NA	NA	NA	83	87	92	99	92	92
Reported	NA	NA	NA	NA	NA	NA	NA	83	87	92	99	92	101
Official	NA	NA	NA	NA	NA	NA	NA	83	87	92	99	92	101
Administrative	NA	NA	NA	NA	NA	NA	NA	83	87	93	99	92	101
Survey	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Burundi - Hib3

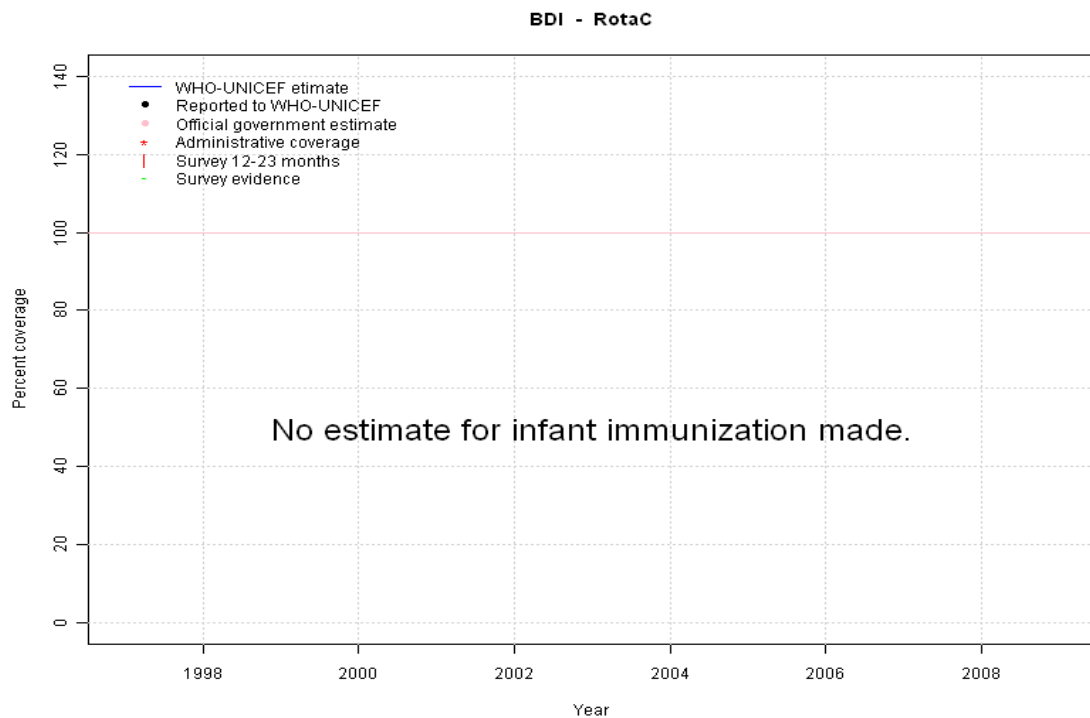


Description:

- 2004: Estimate based on reported data. Hib introduced in 2004 Vaccine presentation is DTP-HepB-Hib. Data quality audit conducted for the Vaccine Fund suggested inadequacies in the reporting system.
- 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. Missing or ignored reported value estimated by extrapolation from 2008 reported value of 92 percent. 2009 reported data (101 percent) ignored; greater than 100 percent.

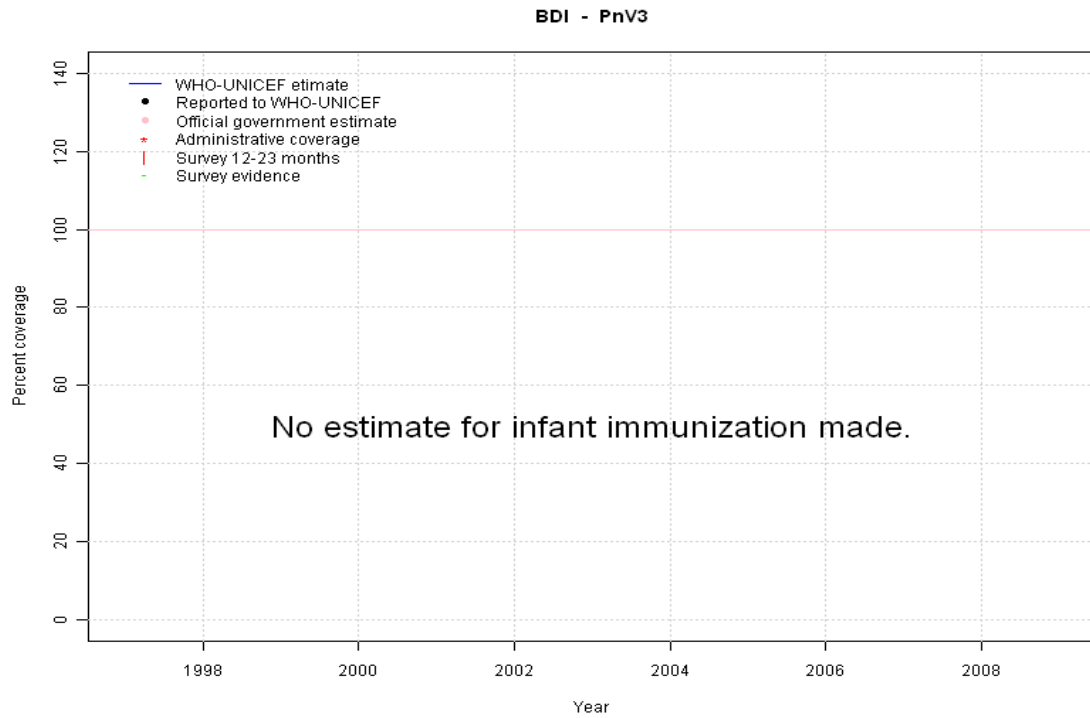
	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Estimate	NA	NA	NA	NA	NA	NA	NA	83	87	92	99	92	92
Reported	NA	NA	NA	NA	NA	NA	NA	83	87	92	99	92	101
Official	NA	NA	NA	NA	NA	NA	NA	83	87	92	99	92	101
Administrative	NA	NA	NA	NA	NA	NA	NA	83	87	93	99	92	101
Survey	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Burundi - 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

Burundi - 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

Burundi - survey details

2004 Enquête Nationale d'Évaluation des Conditions de vie de l'Enfant et de la Femme au Burundi - 2005

Vaccine	Confirmation method	Coverage	Age cohort	Sample	Cards seen
BCG	History	28	12-23 m	1453	64
BCG	C or H <12 months	90	12-23 m	1453	64
BCG	Card or History	91	12-23 m	1453	64
BCG	Card	62	12-23 m	1453	64
DTP1	C or H <12 months	74	12-23 m	1453	64
DTP1	Card	47	12-23 m	1453	64
DTP1	Card or History	75	12-23 m	1453	64
DTP1	History	28	12-23 m	1453	64
DTP3	History	19	12-23 m	1453	64
DTP3	C or H <12 months	60	12-23 m	1453	64
DTP3	Card	44	12-23 m	1453	64
DTP3	Card or History	63	12-23 m	1453	64
MCV	Card	51	12-23 m	1453	64
MCV	Card or History	78	12-23 m	1453	64
MCV	History	27	12-23 m	1453	64
MCV	C or H <12 months	69	12-23 m	1453	64
Pol1	C or H <12 months	89	12-23 m	1453	64
Pol1	Card	63	12-23 m	1453	64
Pol1	Card or History	90	12-23 m	1453	64
Pol1	History	28	12-23 m	1453	64
Pol3	Card	54	12-23 m	1453	64
Pol3	Card or History	71	12-23 m	1453	64
Pol3	History	17	12-23 m	1453	64

Pol3 C or H <12 months 68 12-23 m 1453 64

1999 Enquête Nationale d'Évaluation des Conditions de vie de l'Enfant et de la Femme au Burundi, Rapport Préliminaire, 2000

Vaccine	Confirmation method	Coverage	Age cohort	Sample	Cards seen
BCG	Card or History	84	12-23 m	598	62
BCG	History	23	12-23 m	598	62
BCG	Card	61	12-23 m	598	62
DTP1	Card	62	12-23 m	598	62
DTP1	Card or History	86	12-23 m	598	62
DTP1	History	24	12-23 m	598	62
DTP3	History	17	12-23 m	598	62
DTP3	Card	57	12-23 m	598	62
DTP3	Card or History	74	12-23 m	598	62
MCV	Card or History	75	12-23 m	598	62
MCV	History	23	12-23 m	598	62
MCV	Card	52	12-23 m	598	62
Pol1	Card	60	12-23 m	598	62
Pol1	Card or History	87	12-23 m	598	62
Pol1	History	27	12-23 m	598	62
Pol3	Card	48	12-23 m	598	62
Pol3	Card or History	64	12-23 m	598	62
Pol3	History	16	12-23 m	598	62

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

Burundi

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	44
1999	35
2000	51
2001	55
2002	63
2003	65
2004	66
2005	65
2006	66
2007	76
2008	78
2009	94

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.