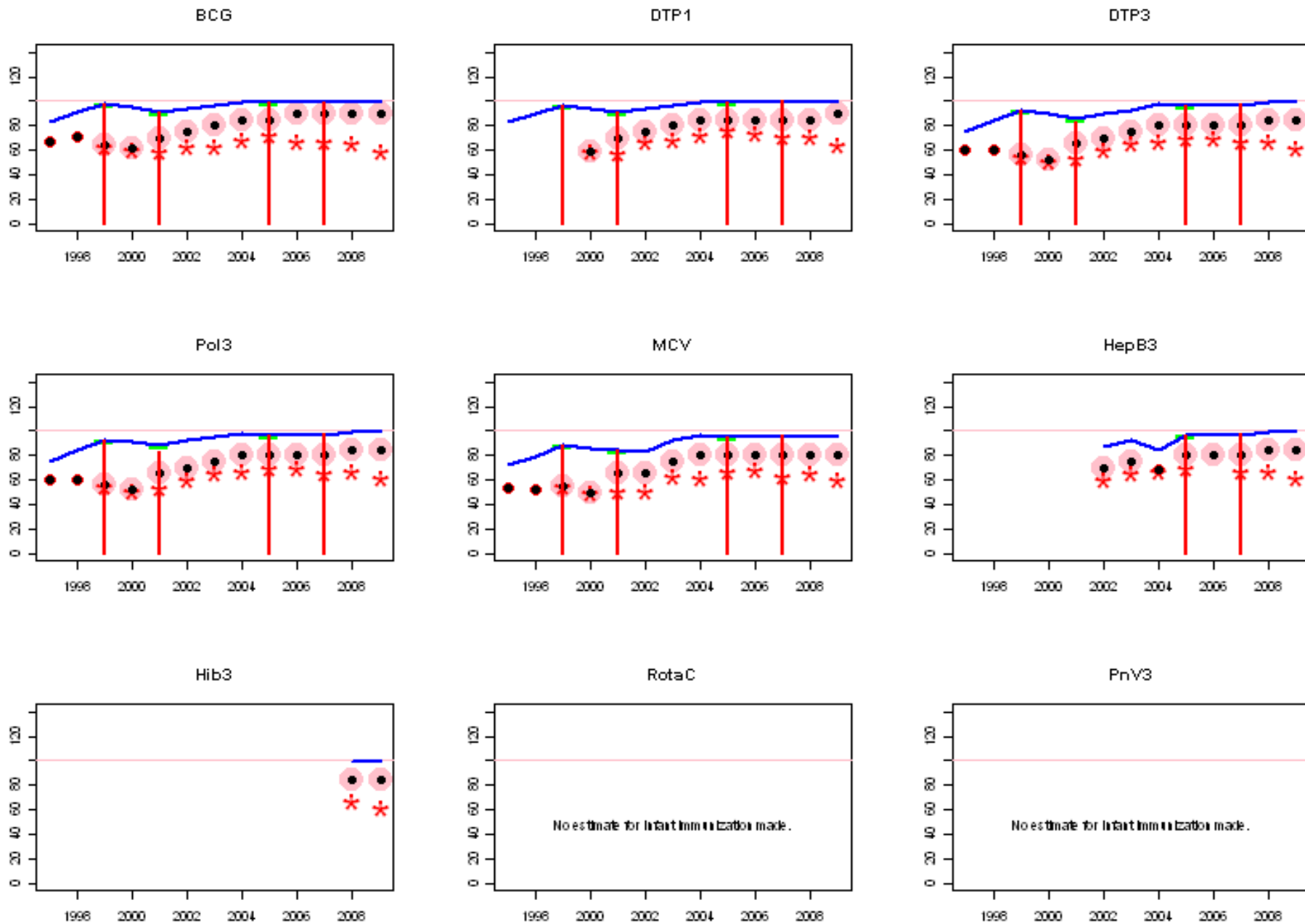
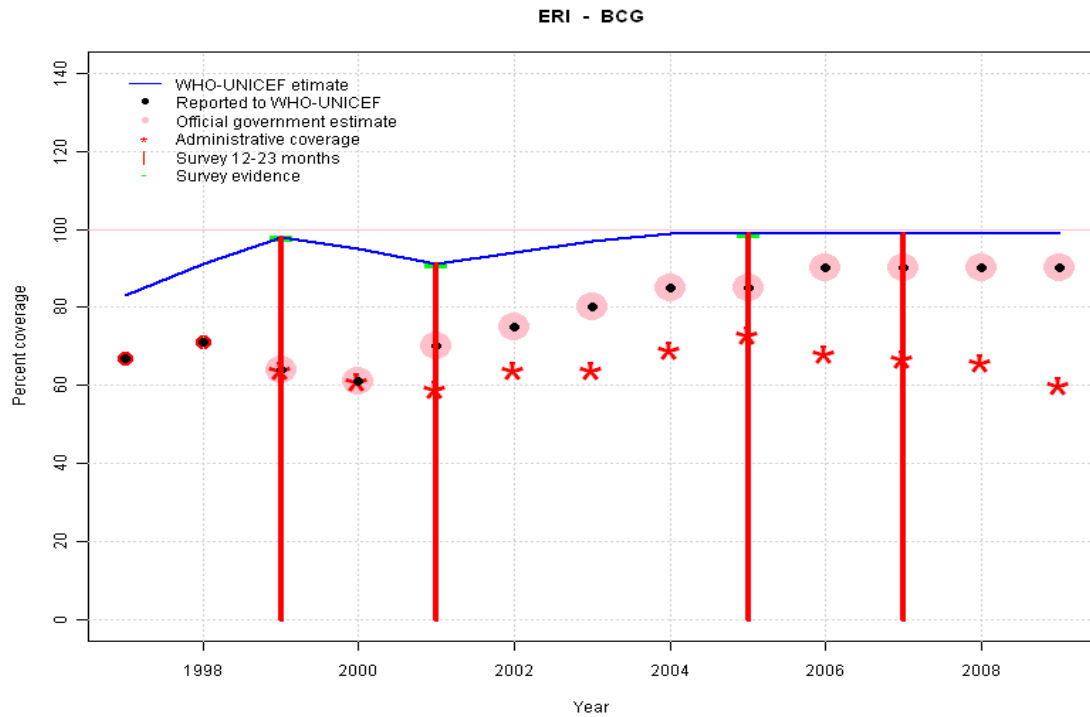


Eritrea: WHO and UNICEF estimates of immunization coverage, 1997 - 2009



# Eritrea - BCG



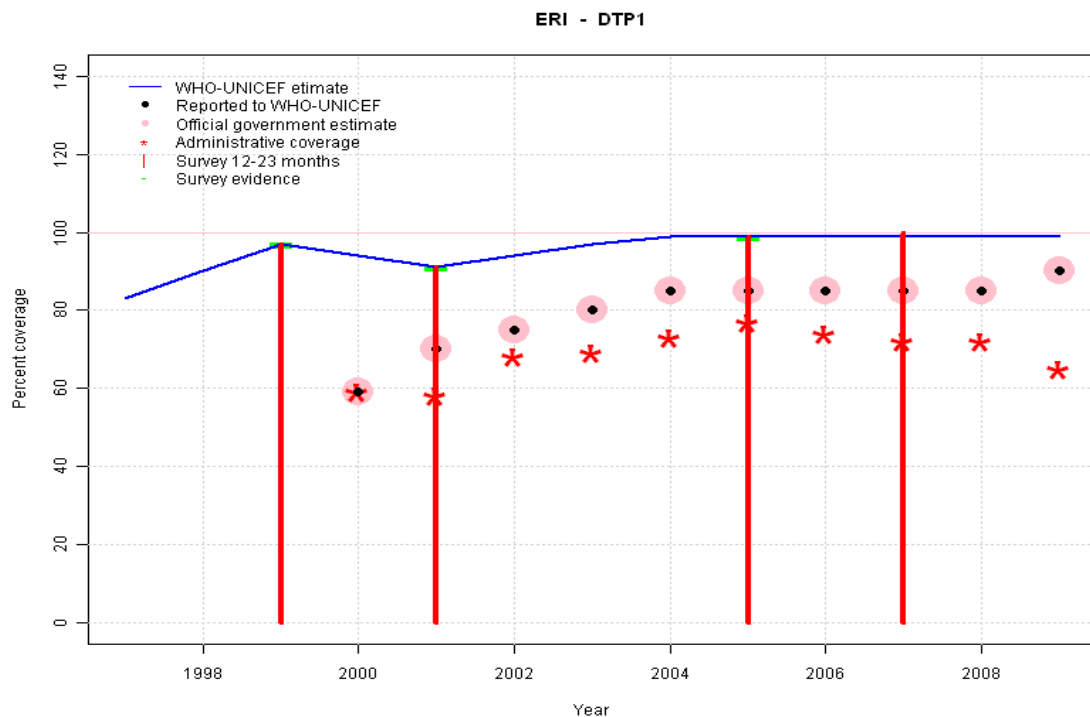
	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Estimate	83	91	98	95	91	94	97	99	99	99	99	99	99
Reported	67	71	64	61	70	75	80	85	85	90	90	90	90
Official	NA	NA	64	61	70	75	80	85	85	90	90	90	90
Administrative	NA	NA	64	61	59	64	64	69	73	68	67	66	60
Survey	NA	NA	98	NA	91	NA	NA	NA	99	NA	NA	NA	NA

## Description:

- 1997: Legacy estimate.
- 1998: Estimate interpolated between 1997 and 1999 estimates.
- 1999: Estimate based on survey results. Reported data (64 percent) not consistent with survey results (98 percent).
- 2000: Estimate interpolated between 1999 and 2001 estimates.
- 2001: Estimate based on survey results. Reported data (70 percent) not consistent with survey results (91 percent).
- 2002: Reported data (75 percent) calibrated to 2001 and 2005 levels.
- 2003: Reported data (80 percent) calibrated to 2001 and 2005 levels.
- 2004: Reported data (85 percent) calibrated to 2001 and 2005 levels.
- 2005: Estimate based on survey results. Reported data (85 percent) not consistent with survey results (99 percent).
- 2006: Reported data (90 percent) calibrated to 2005 level (99 percent).
- 2007: Reported data (90 percent) calibrated to 2005 level (99 percent). Survey results of 99 percent with sample size 0 ignored; sample size less than 300.
- 2008: Reported data (90 percent) calibrated to 2005 level (99 percent).
- 2009: Reported data (90 percent) calibrated to 2005 level (99 percent).

# Eritrea - DTP1

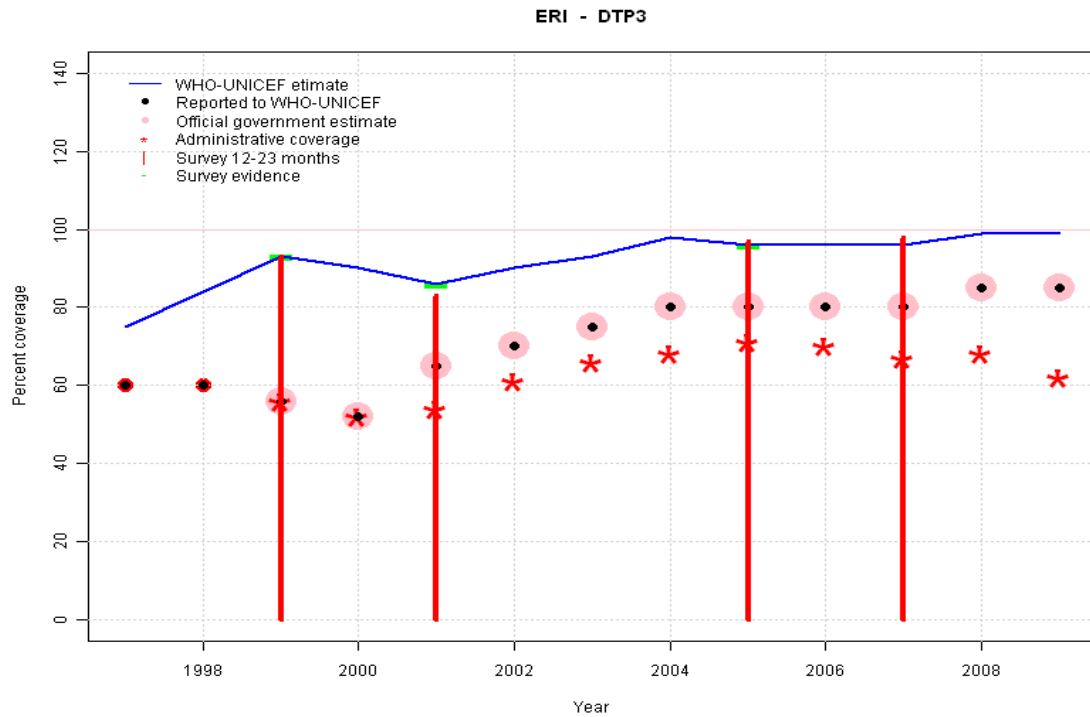
## Description:



- 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 (97 percent).
- 2000: Estimate interpolated between 1999 and 2001 estimates.
- 2001: Estimate based on survey results. Reported data (70 percent) not consistent with survey results (91 percent).
- 2002: Reported data (75 percent) calibrated to 2001 and 2005 levels.
- 2003: Reported data (80 percent) calibrated to 2001 and 2005 levels.
- 2004: Reported data (85 percent) calibrated to 2001 and 2005 levels.
- 2005: Estimate based on survey results. Reported data (85 percent) not consistent with survey results (99 percent).
- 2006: Reported data (85 percent) calibrated to 2005 level (99 percent).
- 2007: Reported data (85 percent) calibrated to 2005 level (99 percent). Survey results of 100 percent with sample size 0 ignored; sample size less than 300.
- 2008: Reported data (85 percent) calibrated to 2005 level (99 percent).
- 2009: Reported data (90 percent) calibrated to 2005 level (99 percent).

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Estimate	83	90	97	94	91	94	97	99	99	99	99	99	99
Reported	NA	NA	NA	59	70	75	80	85	85	85	85	85	90
Official	NA	NA	NA	59	70	75	80	85	85	85	85	85	90
Administrative	NA	NA	NA	59	58	68	69	73	77	74	72	72	65
Survey	NA	NA	97	NA	91	NA	NA	NA	99	NA	NA	NA	NA

# Eritrea - DTP3



	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Estimate	75	84	93	90	86	90	93	98	96	96	96	99	99
Reported	60	60	56	52	65	70	75	80	80	80	80	85	85
Official	NA	NA	56	52	65	70	75	80	80	80	80	85	85
Administrative	NA	NA	56	52	54	61	66	68	71	70	67	68	62
Survey	NA	NA	93	NA	86	NA	NA	NA	96	NA	NA	NA	NA

## Description:

1997: Legacy estimate.

1998: Estimate interpolated between 1997 and 1999 estimates.

1999: Estimate based on survey results. Reported data (56 percent) not consistent with survey results (93 percent).

2000: Estimate interpolated between 1999 and 2001 estimates.

2001: Estimate based on survey results. Reported data (65 percent) not consistent with survey results (86 percent). Survey results (83 percent) adjusted for recall bias to 86 percent based on first dose card or history coverage (91 percent) and documented drop-out between first (76 percent) and third (72 percent) doses.

2002: Reported data (70 percent) calibrated to 2001 and 2005 levels.

2003: Reported data (75 percent) calibrated to 2001 and 2005 levels.

2004: Reported data (80 percent) calibrated to 2001 and 2005 levels.

2005: Estimate based on survey results. Reported data (80 percent) not consistent with survey results (96 percent). Survey results (97 percent) adjusted for recall bias to 96 percent based on first dose card or history coverage (99 percent) and documented drop-out between first (88 percent) and third (85 percent) doses.

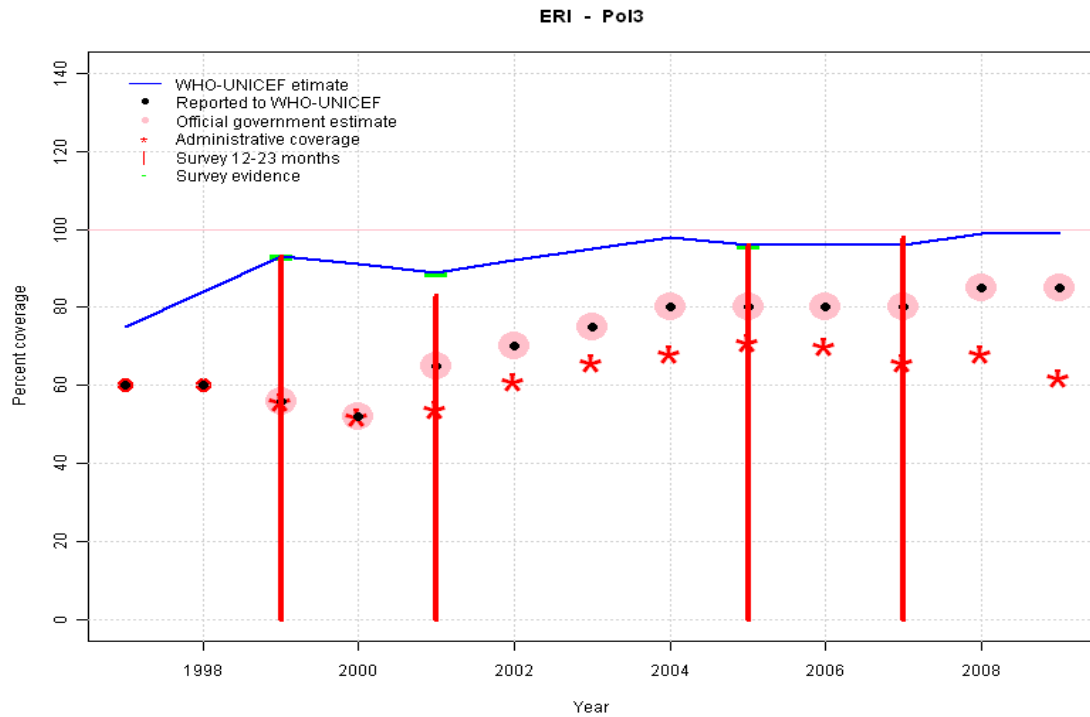
2006: Reported data (80 percent) calibrated to 2005 level (96 percent).

2007: Reported data (80 percent) calibrated to 2005 level (96 percent). Survey results of 98 percent with sample size 0 ignored; sample size less than 300.

2008: Reported data (85 percent) calibrated to 2005 level (96 percent).

2009: Reported data (85 percent) calibrated to 2005 level (96 percent).

# Eritrea - Pol3



	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Estimate	75	84	93	91	89	92	95	98	96	96	96	99	99
Reported	60	60	56	52	65	70	75	80	80	80	80	85	85
Official	NA	NA	56	52	65	70	75	80	80	80	80	85	85
Administrative	NA	NA	56	52	54	61	66	68	71	70	66	68	62
Survey	NA	NA	93	NA	89	NA	NA	NA	96	NA	NA	NA	NA

## Description:

1997: Legacy estimate.

1998: Estimate interpolated between 1997 and 1999 estimates.

1999: Estimate based on survey results. Reported data (56 percent) not consistent with survey results (93 percent).

2000: Estimate interpolated between 1999 and 2001 estimates.

2001: Estimate based on survey results. Reported data (65 percent) not consistent with survey results (89 percent). Survey results (83 percent) adjusted for recall bias to 89 percent based on first dose card or history coverage (94 percent) and documented drop-out between first (76 percent) and third (72 percent) doses.

2002: Reported data (70 percent) calibrated to 2001 and 2005 levels.

2003: Reported data (75 percent) calibrated to 2001 and 2005 levels.

2004: Reported data (80 percent) calibrated to 2001 and 2005 levels.

2005: Estimate based on survey results. Reported data (80 percent) not consistent with survey results (96 percent). Survey results (96 percent) adjusted for recall bias to 96 percent based on first dose card or history coverage (99 percent) and documented drop-out between first (88 percent) and third (85 percent) doses.

2006: Reported data (80 percent) calibrated to 2005 level (96 percent).

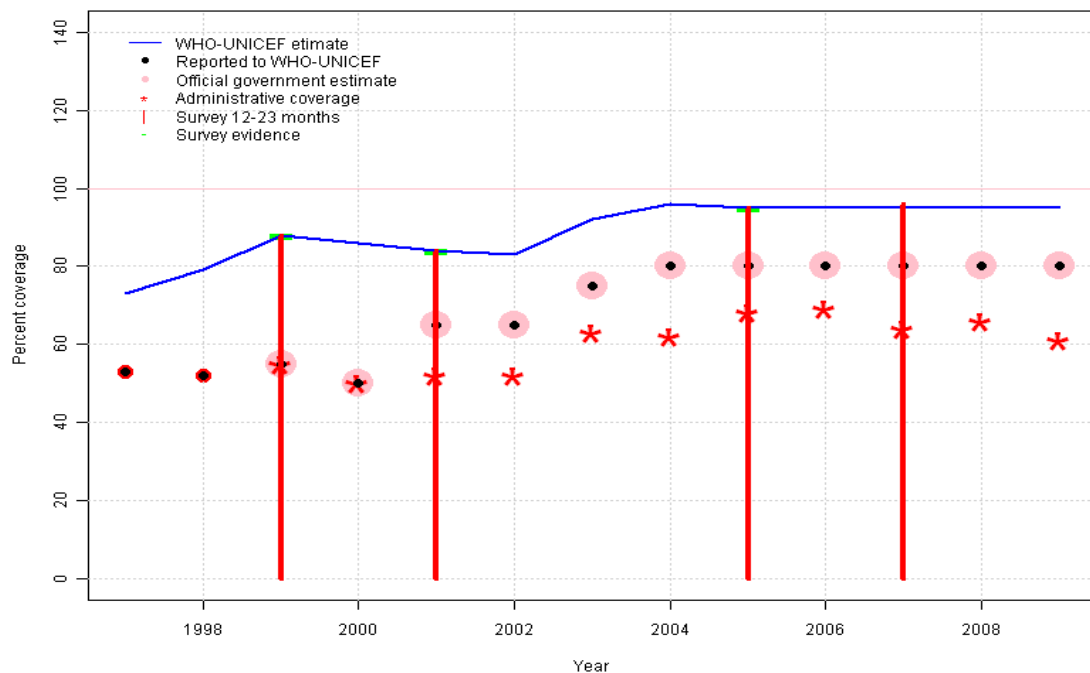
2007: Reported data (80 percent) calibrated to 2005 level (96 percent). Survey results of 98 percent with sample size 0 ignored; sample size less than 300.

2008: Reported data (85 percent) calibrated to 2005 level (96 percent).

2009: Reported data (85 percent) calibrated to 2005 level (96 percent).

# Eritrea - MCV

ERI - MCV



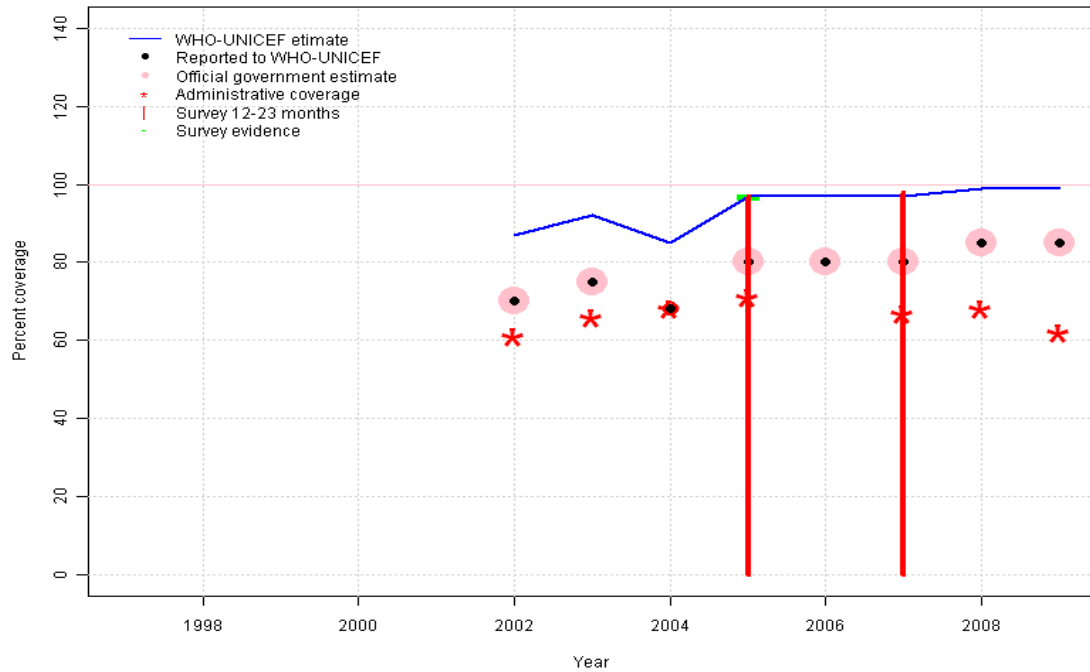
	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Estimate	73	79	88	86	84	83	92	96	95	95	95	95	95
Reported	53	52	55	50	65	65	75	80	80	80	80	80	80
Official	NA	NA	55	50	65	65	75	80	80	80	80	80	80
Administrative	NA	NA	55	50	52	52	63	62	68	69	64	66	61
Survey	NA	NA	88	NA	84	NA	NA	NA	95	NA	NA	NA	NA

## Description:

- 1997: Legacy estimate.
- 1998: Reported data (52 percent) calibrated to 1997 and 1999 levels.
- 1999: Estimate based on survey results. Reported data (55 percent) not consistent with survey results (88 percent).
- 2000: Estimate interpolated between 1999 and 2001 estimates.
- 2001: Estimate based on survey results. Reported data (65 percent) not consistent with survey results (84 percent).
- 2002: Reported data (65 percent) calibrated to 2001 and 2005 levels.
- 2003: Reported data (75 percent) calibrated to 2001 and 2005 levels.
- 2004: Reported data (80 percent) calibrated to 2001 and 2005 levels.
- 2005: Estimate based on survey results. Reported data (80 percent) not consistent with survey results (95 percent).
- 2006: Reported data (80 percent) calibrated to 2005 level (95 percent).
- 2007: Reported data (80 percent) calibrated to 2005 level (95 percent). Survey results of 96 percent with sample size 0 ignored; sample size less than 300.
- 2008: Reported data (80 percent) calibrated to 2005 level (95 percent).
- 2009: Reported data (80 percent) calibrated to 2005 level (95 percent).

# Eritrea - HepB3

ERI - HepB3



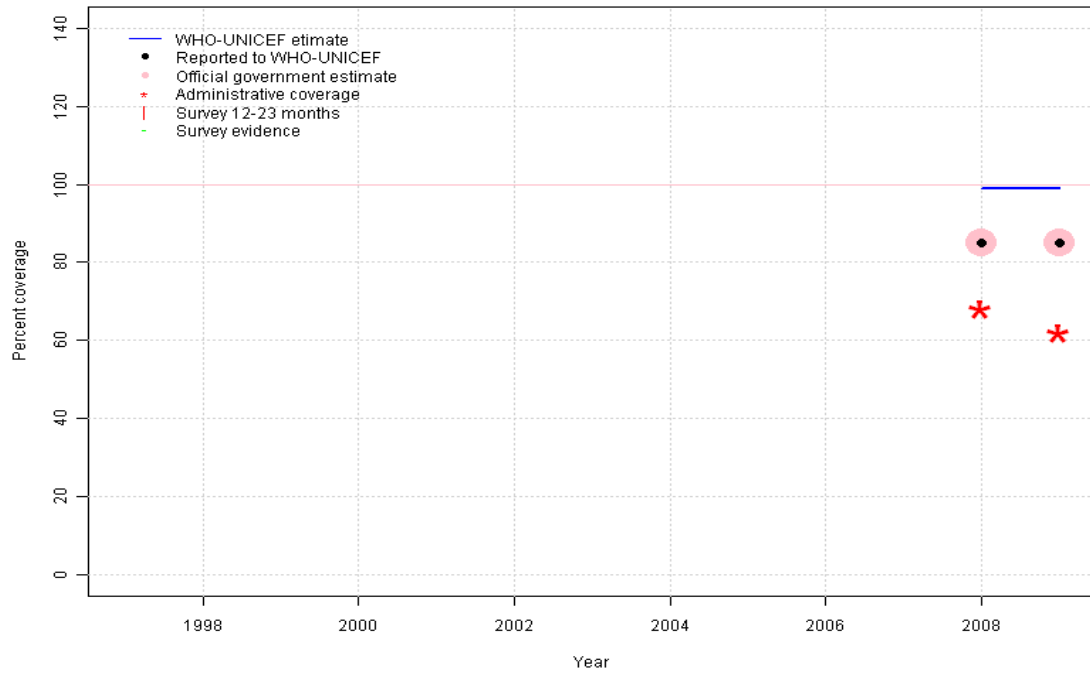
## Description:

- 2002: Estimate calibrated to 2005 level (97 percent) and reported coverage (70 percent). HepB introduced in 2002
- 2003: Estimate calibrated to 2005 level (97 percent) and reported coverage (75 percent).
- 2004: Estimate calibrated to 2005 level (97 percent) and reported coverage (68 percent).
- 2005: Estimate based on survey results. Reported data (80 percent) not consistent with survey results (97 percent).
- 2006: Estimate calibrated to 2005 level (97 percent) and reported coverage (80 percent).
- 2007: Estimate calibrated to 2005 level (97 percent) and reported coverage (80 percent). Survey results of 98 percent with sample size 0 ignored; sample size less than 300.
- 2008: Estimate calibrated to 2005 level (97 percent) and reported coverage (85 percent).
- 2009: Estimate calibrated to 2005 level (97 percent) and reported coverage (85 percent).

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Estimate	NA	NA	NA	NA	NA	87	92	85	97	97	97	99	99
Reported	NA	NA	NA	NA	NA	70	75	68	80	80	80	85	85
Official	NA	NA	NA	NA	NA	70	75	NA	80	80	80	85	85
Administrative	NA	NA	NA	NA	NA	61	66	68	71	NA	67	68	62
Survey	NA	NA	NA	NA	NA	NA	NA	NA	97	NA	NA	NA	NA

# Eritrea - Hib3

ERI - Hib3



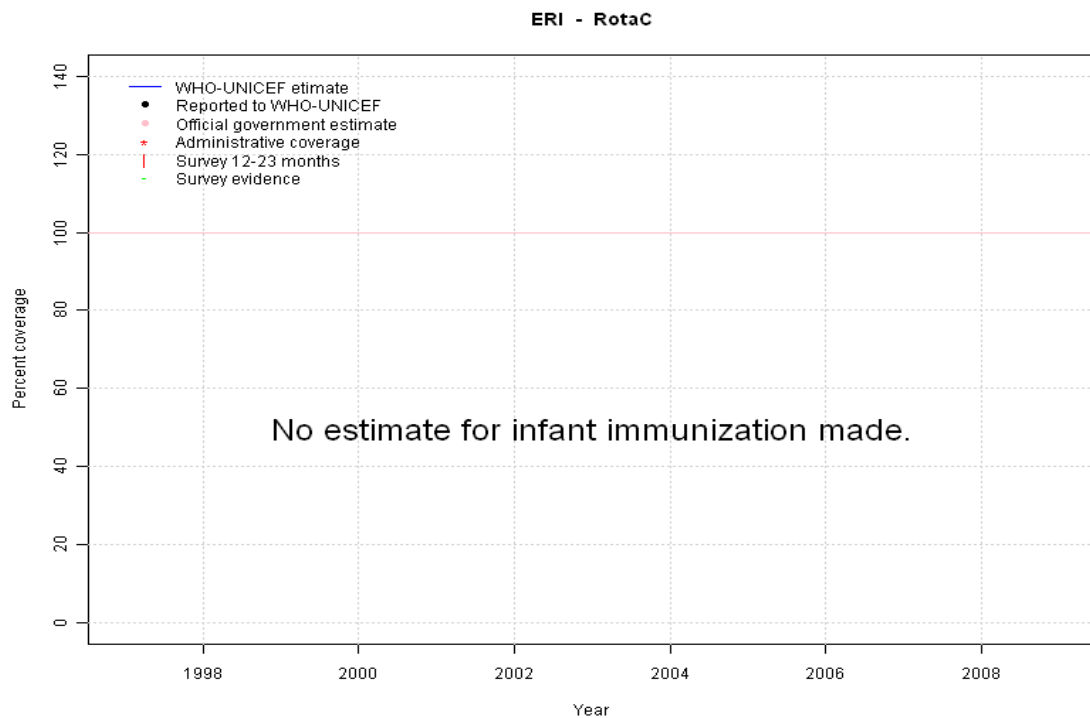
## Description:

2008: Estimate assigned by working group. Estimate follows DTP3 coverage Hib introduced in 2008 Vaccine presentation is DTP-HepB-Hib.

2009: Estimate assigned by working group. Estimate follows DTP3 coverage

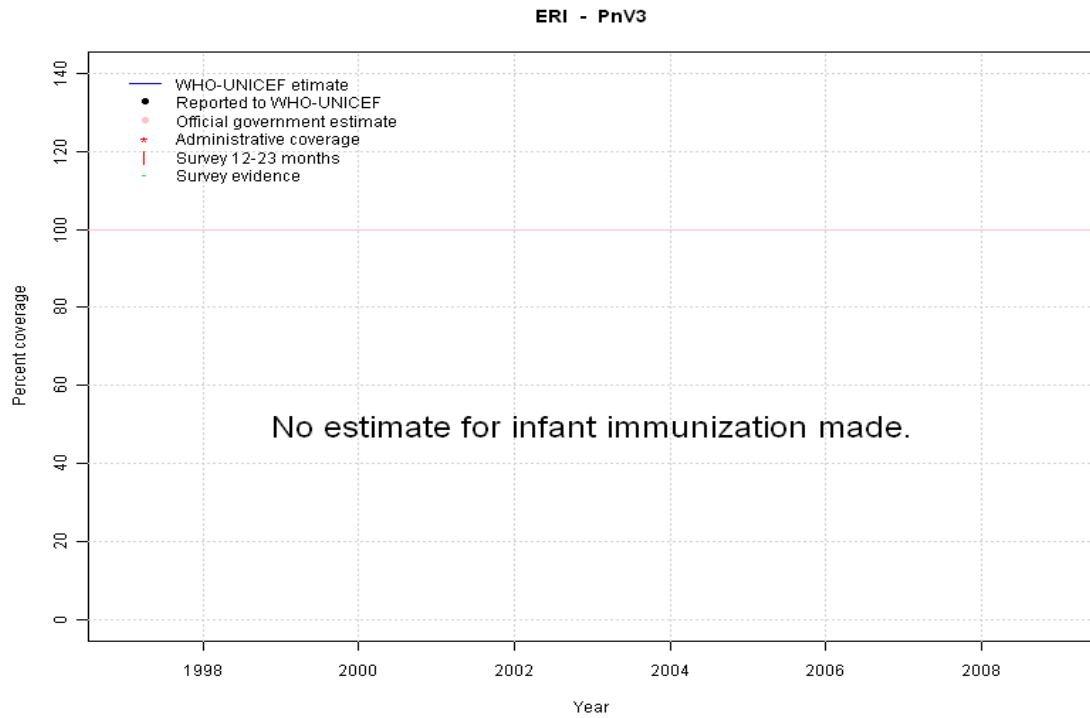
	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Estimate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	99	99
Reported	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	85	85
Official	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	85	85
Administrative	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	68	62
Survey	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

# Eritrea - 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

# Eritrea - 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

# Eritrea - survey details

## 2007 Eritrea EPI Coverage Survey 2009

Vaccine	Confirmation method	Coverage	Age cohort	Sample	Cards seen
BCG	Card or History	99	12-23 m	0	86
DTP1	Card or History	100	12-23 m	0	86
DTP3	Card or History	98	12-23 m	0	86
HepB1	Card or History	100	12-23 m	0	86
HepB3	Card or History	98	12-23 m	0	86
MCV	Card or History	96	12-23 m	0	86
Pol1	Card or History	99	12-23 m	0	86
Pol3	Card or History	98	12-23 m	0	86

## 2005 Eritrea Routine Immunization Coverage Survey 2006

Vaccine	Confirmation method	Coverage	Age cohort	Sample	Cards seen
BCG	Card	87	12-23 m	630	88
BCG	Card or History	99	12-23 m	630	88
DTP1	Card	88	12-23 m	630	88
DTP1	Card or History	99	12-23 m	630	88
DTP3	Card or History	97	12-23 m	630	88
DTP3	Card	85	12-23 m	630	88
HepB1	Card	88	12-23 m	630	88
HepB1	Card or History	99	12-23 m	630	88
HepB3	Card or History	97	12-23 m	630	88
HepB3	Card	85	12-23 m	630	88
MCV	Card or History	95	12-23 m	630	88
MCV	Card	82	12-23 m	630	88
Pol1	Card	88	12-23 m	630	88
Pol1	Card or History	99	12-23 m	630	88
Pol3	Card	85	12-23 m	630	88
Pol3	Card or History	96	12-23 m	630	88

## 2001 Eritrea Demographic and Health Survey 2002

Vaccine	Confirmation method	Coverage	Age cohort	Sample	Cards seen
BCG	Card or History	91	12-23 m	959	50
BCG	History	15	12-23 m	959	50
BCG	C or H <12 months	89	12-23 m	959	50
BCG	Card	76	12-23 m	959	50
DTP1	C or H <12 months	88	12-23 m	959	50
DTP1	Card	76	12-23 m	959	50
DTP1	Card or History	91	12-23 m	959	50
DTP1	History	14	12-23 m	959	50
DTP3	History	11	12-23 m	959	50
DTP3	C or H <12 months	79	12-23 m	959	50
DTP3	Card	72	12-23 m	959	50
DTP3	Card or History	83	12-23 m	959	50
MCV	Card	71	12-23 m	959	50
MCV	Card or History	84	12-23 m	959	50
MCV	History	13	12-23 m	959	50
MCV	C or H <12 months	76	12-23 m	959	50
Pol1	Card or History	94	12-23 m	959	50
Pol1	C or H <12 months	91	12-23 m	959	50
Pol1	Card	76	12-23 m	959	50
Pol1	History	18	12-23 m	959	50
Pol3	Card	72	12-23 m	959	50
Pol3	Card or History	83	12-23 m	959	50
Pol3	History	11	12-23 m	959	50
Pol3	C or H <12 months	79	12-23 m	959	50

## 1999 Eritrea EPI Coverage Survey Report 2000

Vaccine	Confirmation method	Coverage	Age cohort	Sample	Cards seen
BCG	Card or History	98	12-23 m	647	92
DTP1	Card or History	97	12-23 m	647	92
DTP3	Card or History	93	12-23 m	647	92
MCV	Card or History	88	12-23 m	647	92
Pol1	Card or History	97	12-23 m	647	92
Pol3	Card or History	93	12-23 m	647	92

# Eritrea - survey details

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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)

## Eritrea

### 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	36
1998	41
1999	77
2000	80
2001	82
2002	83
2003	83
2004	84
2005	84
2006	85
2007	85
2008	86
2009	86

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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.