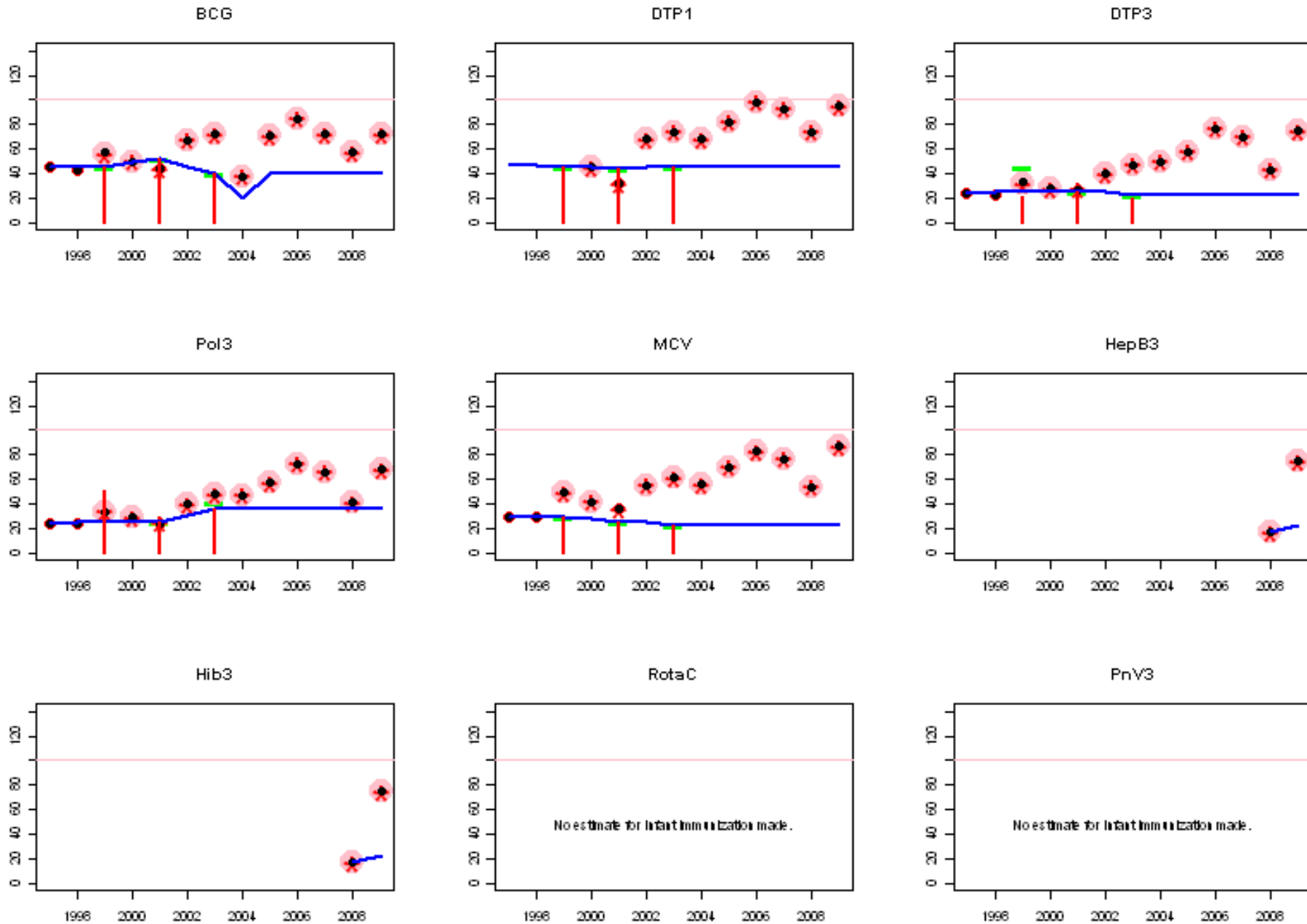
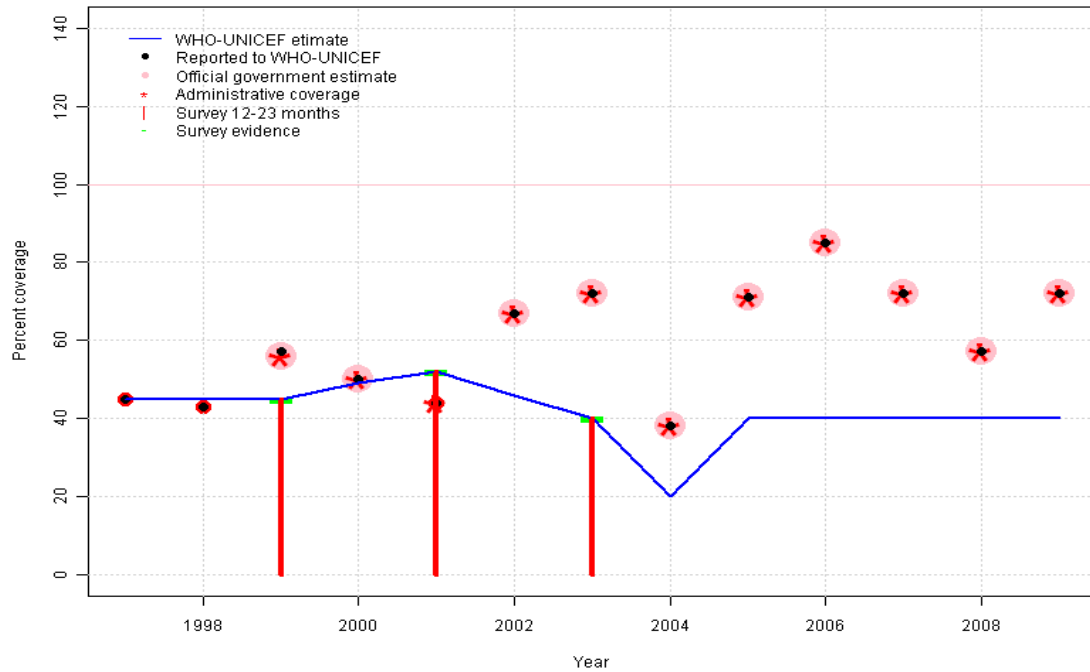


Chad: WHO and UNICEF estimates of immunization coverage, 1997 - 2009



Chad - BCG

TCD - BCG

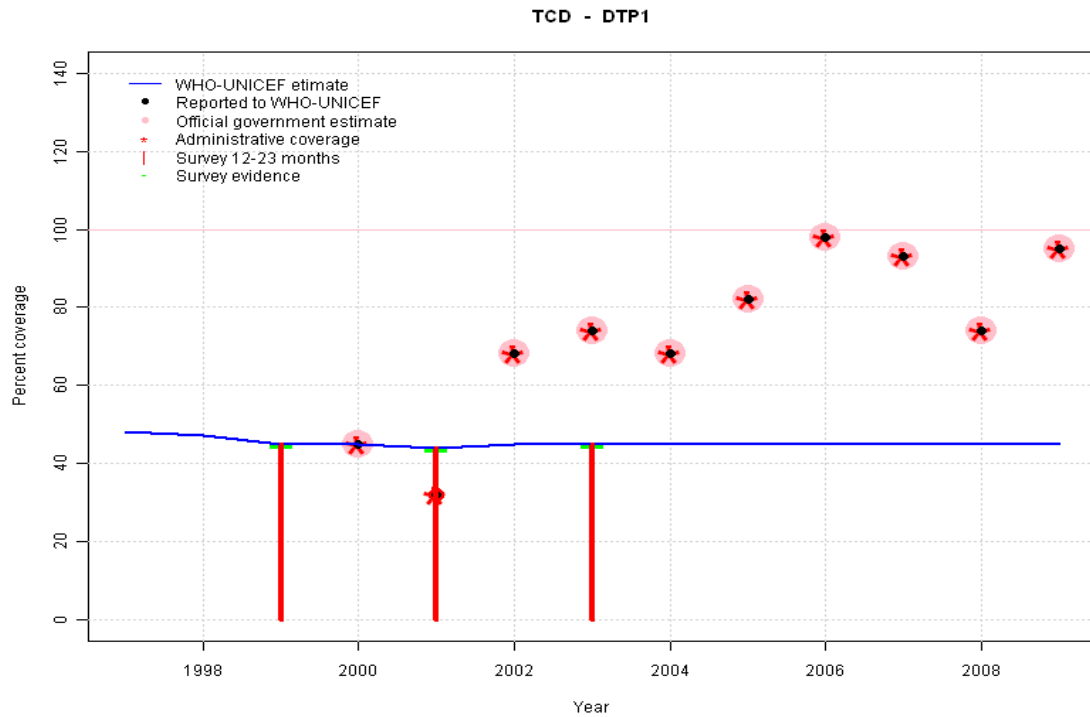


	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Estimate	45	45	45	49	52	46	40	20	40	40	40	40	40
Reported	45	43	57	50	44	67	72	38	71	85	72	57	72
Official	NA	NA	56	50	NA	67	72	38	71	85	72	57	72
Administrative	NA	NA	56	50	44	67	72	38	71	85	72	57	72
Survey	NA	NA	45	NA	52	NA	40	NA	NA	NA	NA	NA	NA

Description:

- 1997: Legacy estimate.
- 1998: Estimate based on working group decision to interpolated between 1997 and 1999. The decline in coverage across antigens is unexplained.
- 1999: Estimate based on survey results. Reported data (57 percent) not consistent with survey results (45 percent).
- 2000: Estimate based on working group decision to interpolated between 1999 and 2001. Fluctuating and inconsistent data suggest poor reporting.
- 2001: Estimate based on survey results. Reported data inconsistent with survey results 2001 reported data (44 percent) ignored by working group. Estimate based on survey results to maintain consistency with other vaccines.
- 2002: Estimate interpolated between 2001 and 2003 estimates.
- 2003: Estimate based on survey results. Reported data (72 percent) not consistent with survey results (40 percent).
- 2004: Estimate assigned by working group. Vaccine supply interrupted for six months in all 55 districts.
- 2005: Estimate extrapolated from 2003 level (40 percent).
- 2006: Estimate extrapolated from 2003 level (40 percent). 2006 reported data (85 percent) inconsistent with data from other years.
- 2007: Estimate extrapolated from 2003 level (40 percent).
- 2008: Estimate extrapolated from 2003 level (40 percent). 2008 reported data (57 percent) inconsistent with data from other years.
- 2009: Estimate extrapolated from 2003 level (40 percent). 2009 reported data (72 percent) inconsistent with data from other years. WHO and UNICEF recommend a high quality coverage survey to verify reported level of coverage.

Chad - DTP1



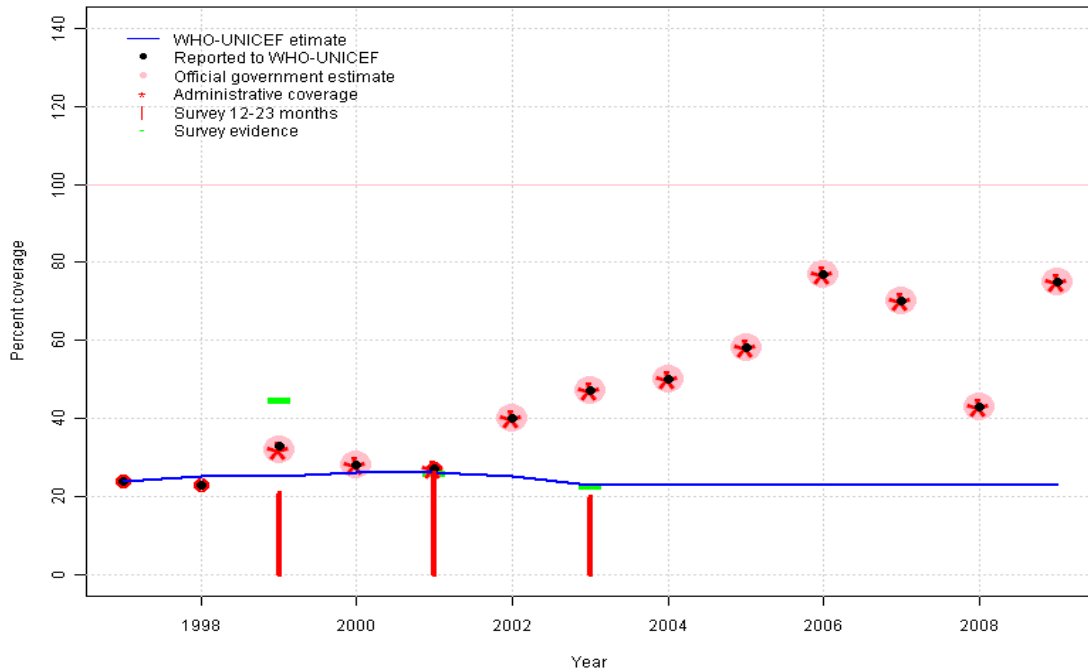
Description:

- 1997: Legacy estimate.
- 1998: Estimate interpolated between 1997 and 1999 estimates.
- 1999: Estimate based on interpolated value between reported data. Survey (45 percent) confirms trend in reported data.
- 2000: Estimate based on working group decision to interpolated between 1999 and 2001. Fluctuating and inconsistent data suggest poor reporting.
- 2001: Estimate based on survey results. Reported data inconsistent with survey results 2001 reported data (32 percent) inconsistent with data from other years.
- 2002: Estimate based on working group decision to interpolated between 2001 and 2003. Fluctuating and inconsistent data suggest poor reporting.
- 2003: Estimate based on survey results. Reported data inconsistent with survey results
- 2004: Estimate extrapolated from 2003 level (45 percent).
- 2005: Estimate extrapolated from 2003 level (45 percent).
- 2006: Estimate extrapolated from 2003 level (45 percent).
- 2007: Estimate extrapolated from 2003 level (45 percent).
- 2008: Estimate extrapolated from 2003 level (45 percent). 2008 reported data (74 percent) inconsistent with data from other years.
- 2009: Estimate extrapolated from 2003 level (45 percent). 2009 reported data (95 percent) inconsistent with data from other years. WHO and UNICEF recommend a high quality coverage survey to verify reported level of coverage.

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Estimate	48	47	45	45	44	45	45	45	45	45	45	45	45
Reported	NA	NA	NA	45	32	68	74	68	82	98	93	74	95
Official	NA	NA	NA	45	NA	68	74	68	82	98	93	74	95
Administrative	NA	NA	NA	45	32	68	74	68	82	98	93	74	95
Survey	NA	NA	45	NA	44	NA	45	NA	NA	NA	NA	NA	NA

Chad - DTP3

TCD - DTP3



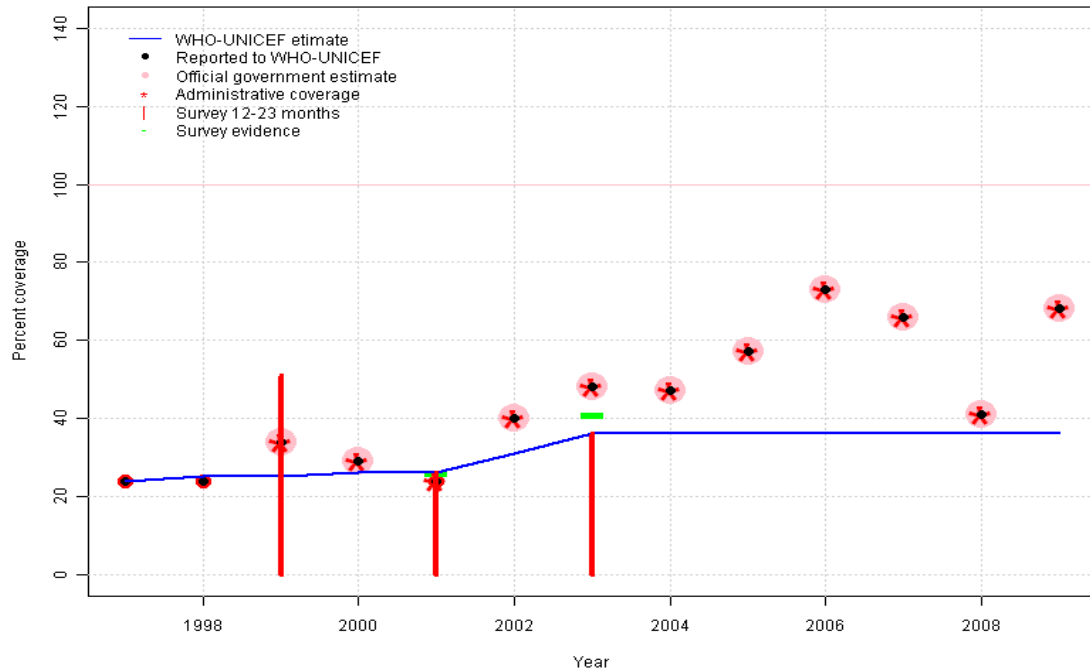
	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Estimate	24	25	25	26	26	25	23	23	23	23	23	23	23
Reported	24	23	33	28	27	40	47	50	58	77	70	43	75
Official	NA	NA	32	28	NA	40	47	50	58	77	70	43	75
Administrative	NA	NA	32	28	27	40	47	50	58	77	70	43	75
Survey	NA	NA	45	NA	26	NA	23	NA	NA	NA	NA	NA	NA

Description:

- 1997: Legacy estimate.
- 1998: Estimate based on working group decision to interpolated between 1997 and 2001. Fluctuating and inconsistent data suggest poor reporting.
- 1999: Estimate based on working group decision to interpolated between 1997 and 2001. Fluctuating and inconsistent data suggest poor reporting. Survey results (21 percent) adjusted for recall bias to 45 percent based on first dose card or history coverage (45 percent) and documented drop-out between first (10 percent) and third (10 percent) doses.
- 2000: Estimate based on working group decision to interpolated between 1997 and 2001. Fluctuating and inconsistent data suggest poor reporting.
- 2001: Estimate based on survey results. Reported data inconsistent with survey results
- 2002: Estimate based on working group decision to interpolated between 2001 and 2003. Fluctuating and inconsistent data suggest poor reporting. Survey results likely include doses administered during campaigns. Survey results inconsistent with results for other vaccines.
- 2003: Estimate based on survey results. Reported data (47 percent) not consistent with survey results (23 percent). Survey results (20 percent) adjusted for recall bias to 23 percent based on first dose card or history coverage (45 percent) and documented drop-out between first (24 percent) and third (12 percent) doses.
- 2004: Estimate extrapolated from 2003 level (23 percent).
- 2005: Estimate extrapolated from 2003 level (23 percent).
- 2006: Estimate extrapolated from 2003 level (23 percent).
- 2007: Estimate extrapolated from 2003 level (23 percent).
- 2008: Estimate extrapolated from 2003 level (23 percent). 2008 reported data (43 percent) inconsistent with data from other years.
- 2009: Estimate extrapolated from 2003 level (23 percent). 2009 reported data (75 percent) inconsistent with data from other years. WHO and UNICEF recommend a high quality coverage survey to verify reported level of coverage.

Chad - Pol3

TCD - Pol3



	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Estimate	24	25	25	26	26	31	36	36	36	36	36	36	36
Reported	24	24	34	29	24	40	48	47	57	73	66	41	68
Official	NA	NA	34	29	NA	40	48	47	57	73	66	41	68
Administrative	NA	NA	34	29	24	40	48	47	57	73	66	41	68
Survey	NA	NA	NA	NA	26	NA	41	NA	NA	NA	NA	NA	NA

Description:

1997: Legacy estimate.

1998: Estimate based on working group decision to interpolated between 1997 and 2001. Fluctuating and inconsistent data suggest poor reporting.

1999: Estimate based on working group decision to interpolated between 1997 and 2001. Fluctuating and inconsistent data suggest poor reporting. Survey results of 51 percent ignored by working group. Survey results most likely contain immunizations administered during polio campaigns. 1999 reported data (34 percent) ignored by working group. Fluctuating and inconsistent data across antigens and survey results suggest poor reporting.

2000: Estimate based on working group decision to interpolated between 1997 and 2001. Fluctuating and inconsistent data suggest poor reporting.

2001: Estimate based on survey results. Reported data inconsistent with survey results

2002: Estimate based on working group decision to interpolated between 2001 and 2003. Fluctuating and inconsistent data suggest poor reporting.

2003: Reported data inconsistent with survey results. Estimate based on survey results. Recall bias not considered; adjusted results are inconsistent with results for other vaccines. Survey results (36 percent) adjusted for recall bias to 41 percent based on first dose card or history coverage (78 percent) and documented drop-out between first (23 percent) and third (12 percent) doses.

2004: Estimate extrapolated from 2003 level (36 percent).

2005: Estimate extrapolated from 2003 level (36 percent).

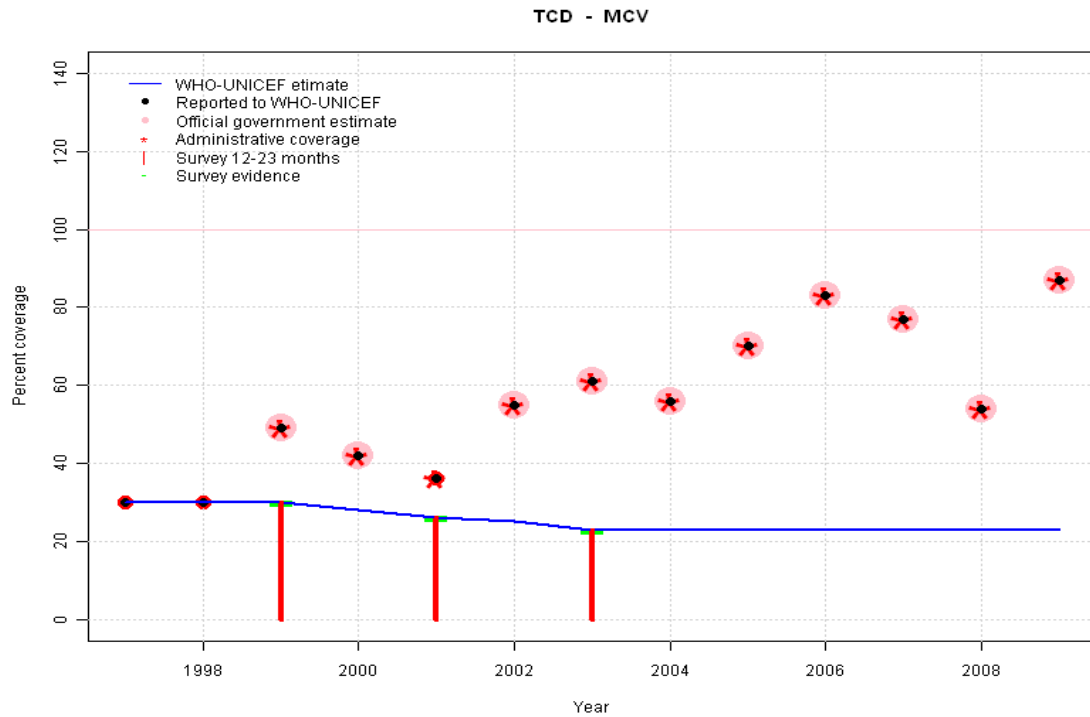
2006: Estimate extrapolated from 2003 level (36 percent).

2007: Estimate extrapolated from 2003 level (36 percent).

2008: Estimate extrapolated from 2003 level (36 percent). 2008 reported data (41 percent) inconsistent with data from other years.

2009: Estimate extrapolated from 2003 level (36 percent). 2009 reported data (68 percent) inconsistent with data from other years. WHO and UNICEF recommend a high quality coverage survey to verify reported level of coverage.

Chad - MCV



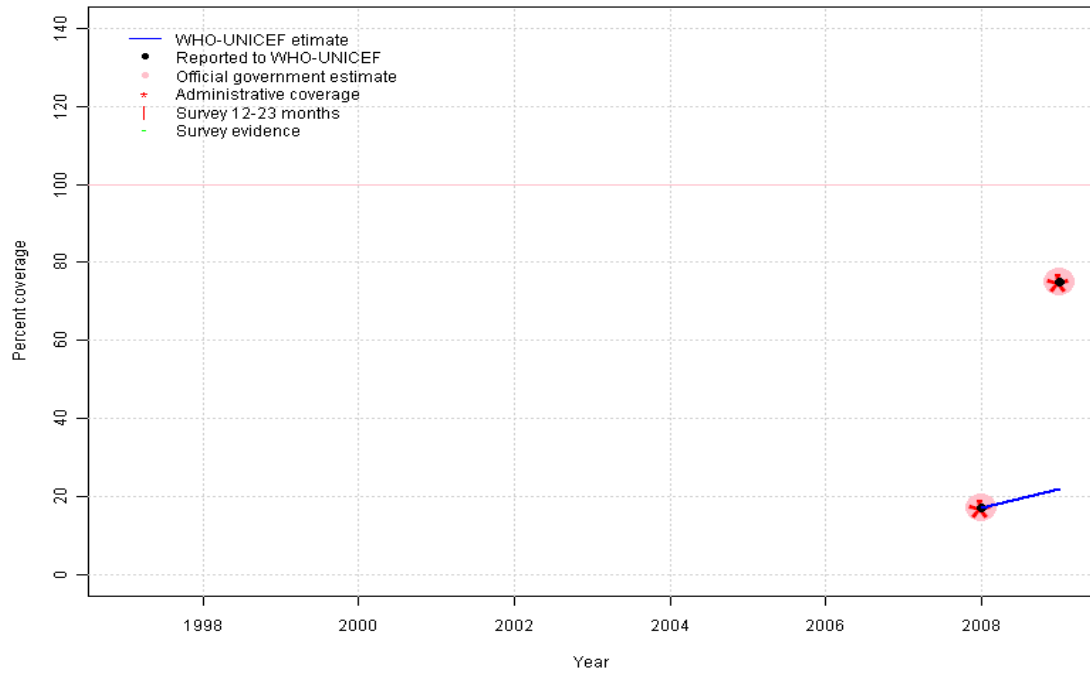
Description:

- 1997: Legacy estimate.
- 1998: Estimate interpolated between 1997 and 1999 estimates.
- 1999: Estimate based on survey results. Reported data (49 percent) not consistent with survey results (30 percent).
- 2000: Estimate based on working group decision to interpolated between 1999 and 2001. Fluctuating and inconsistent data suggest poor reporting.
- 2001: Estimate based on survey results. Reported data inconsistent with survey results 2001 reported data (36 percent) ignored by working group. Estimate based on survey results to maintain consistency with other vaccines.
- 2002: Estimate interpolated between 2001 and 2003 estimates.
- 2003: Estimate based on survey results. Reported data (61 percent) not consistent with survey results (23 percent).
- 2004: Estimate extrapolated from 2003 level (23 percent).
- 2005: Estimate extrapolated from 2003 level (23 percent).
- 2006: Estimate extrapolated from 2003 level (23 percent).
- 2007: Estimate extrapolated from 2003 level (23 percent).
- 2008: Estimate extrapolated from 2003 level (23 percent). 2008 reported data (54 percent) inconsistent with data from other years.
- 2009: Estimate extrapolated from 2003 level (23 percent). 2009 reported data (87 percent) inconsistent with data from other years. WHO and UNICEF recommend a high quality coverage survey to verify reported level of coverage.

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Estimate	30	30	30	28	26	25	23	23	23	23	23	23	23
Reported	30	30	49	42	36	55	61	56	70	83	77	54	87
Official	NA	NA	49	42	NA	55	61	56	70	83	77	54	87
Administrative	NA	NA	49	42	36	55	61	56	70	83	77	54	87
Survey	NA	NA	30	NA	26	NA	23	NA	NA	NA	NA	NA	NA

Chad - HepB3

TCD - HepB3



Description:

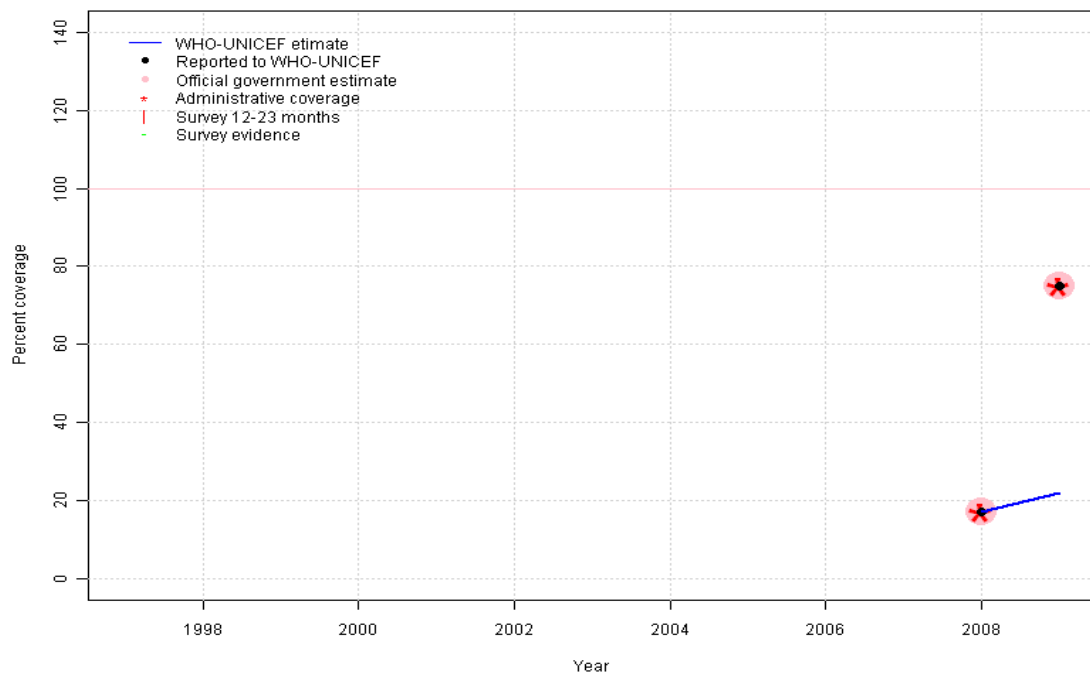
2008: Estimate is based on the reported data. HepB introduced in 2008 Vaccine presentation is DTP-HepB-Hib.

2009: Estimate is based on estimated DTP3 coverage. 2009 reported data (75 percent) inconsistent with data from other years. WHO and UNICEF recommend a high quality coverage survey to verify reported level of 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	17	22
Reported	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	17	75
Official	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	17	75
Administrative	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	17	75
Survey	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Chad - Hib3

TCD - Hib3



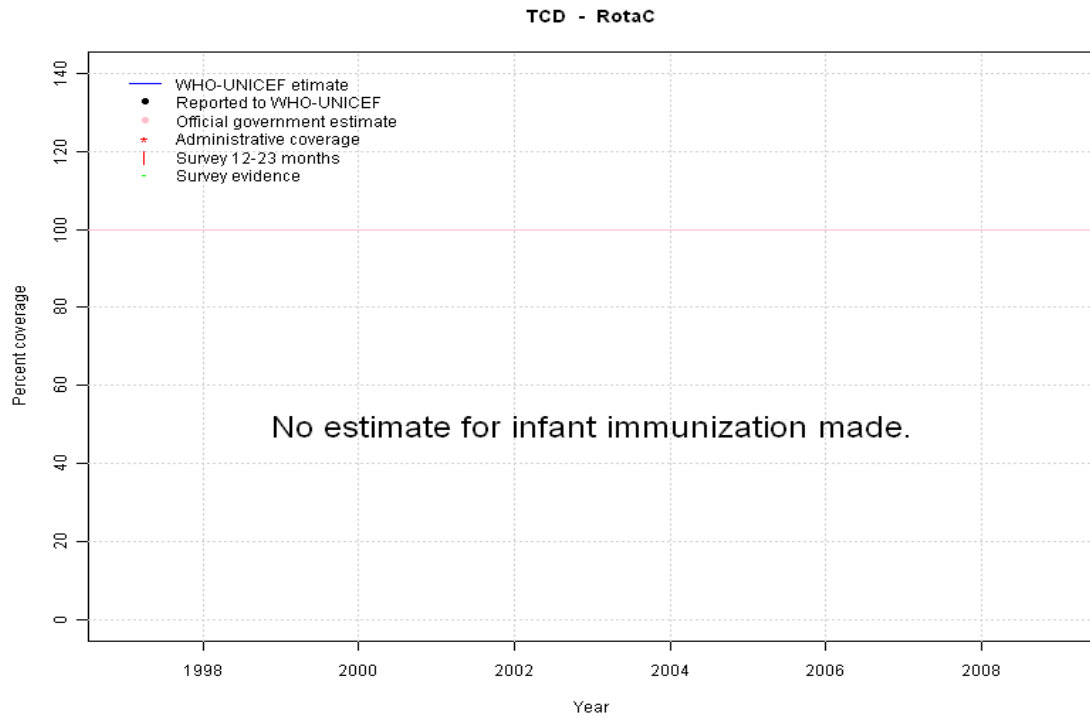
Description:

2008: Estimate is based on the reported data. Hib introduced in 2008 Vaccine presentation is DTP-HepB-Hib.

2009: Estimate is based on estimated DTP3 coverage. 2009 reported data (75 percent) inconsistent with data from other years. WHO and UNICEF recommend a high quality coverage survey to verify reported level of coverage.

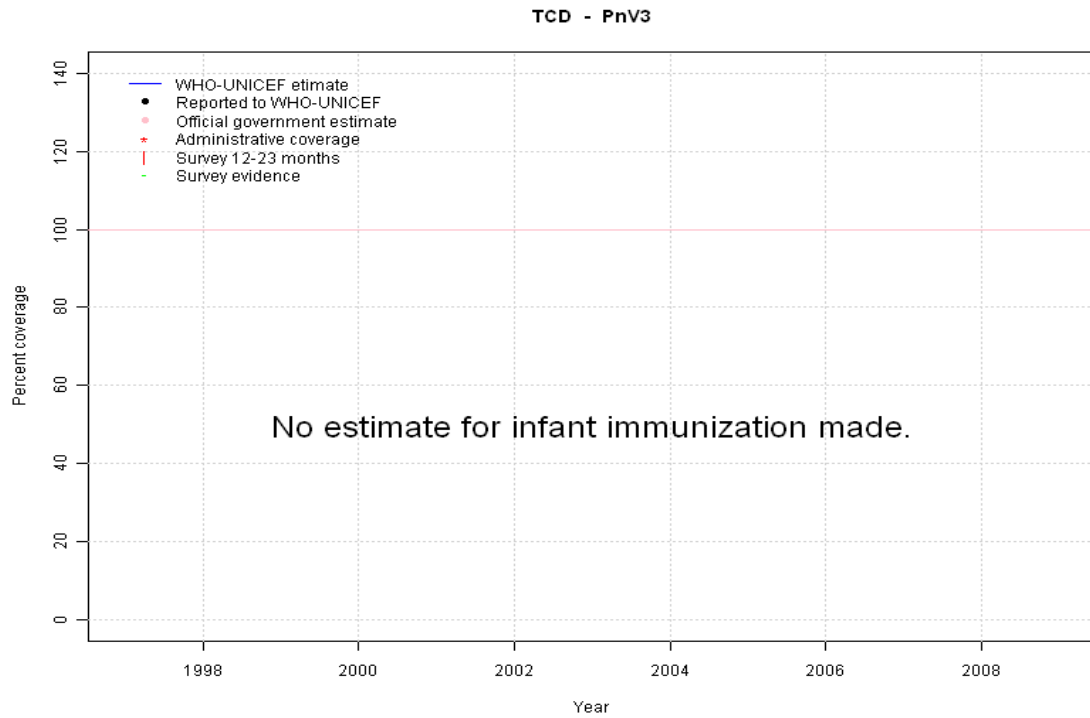
	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Estimate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	17	22
Reported	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	17	75
Official	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	17	75
Administrative	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	17	75
Survey	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Chad - 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

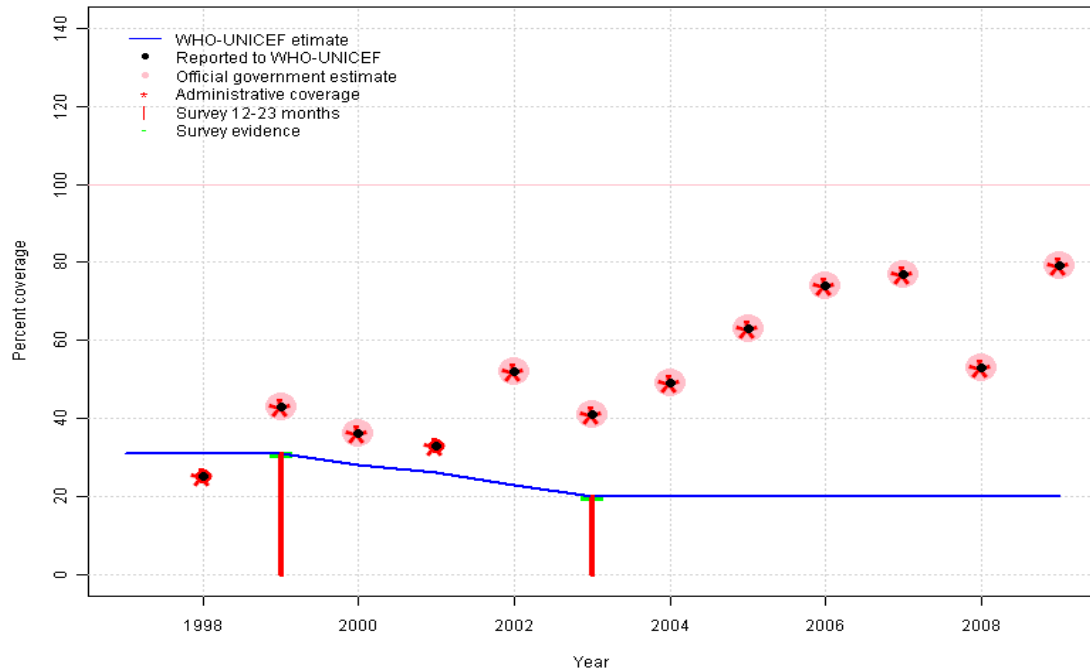
Chad - PnV3



	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

Chad - YFV

TCD - YFV



Description:

- 1997: Estimate extrapolated from 1999 value of 31 percent.
- 1998: Estimate extrapolated from 1999 value of 31 percent.
- 1999: Estimate based on survey results. Reported data (43 percent) not consistent with survey results (31 percent).
- 2000: Estimate based on working group decision to interpolated between 1999 and 2003. Fluctuating and inconsistent data suggest poor reporting.
- 2001: Estimate based on working group decision to interpolated between 1999 and 2003. Fluctuating and inconsistent data suggest poor reporting.
- 2002: Estimate based on working group decision to interpolated between 1999 and 2003. Fluctuating and inconsistent data suggest poor reporting. 2002 reported data (52 percent) inconsistent with data from other years.
- 2003: Estimate based on survey results. Reported data (41 percent) not consistent with survey results (20 percent).
- 2004: Estimate extrapolated from 2003 level (20 percent).
- 2005: Estimate extrapolated from 2003 level (20 percent).
- 2006: Estimate extrapolated from 2003 level (20 percent).
- 2007: Estimate extrapolated from 2003 level (20 percent).
- 2008: Estimate extrapolated from 2003 level (20 percent). 2008 reported data (53 percent) inconsistent with data from other years.
- 2009: Estimate extrapolated from 2003 level (20 percent). 2009 reported data (79 percent) inconsistent with data from other years. WHO and UNICEF recommend a high quality coverage survey to verify reported level of coverage.

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Estimate	31	31	31	28	26	23	20	20	20	20	20	20	20
Reported	NA	25	43	36	33	52	41	49	63	74	77	53	79
Official	NA	NA	43	36	NA	52	41	49	63	74	77	53	79
Administrative	NA	25	43	36	33	52	41	49	63	74	77	53	79
Survey	NA	NA	31	NA	NA	NA	20	NA	NA	NA	NA	NA	NA

Chad - survey details

2003 L'Enquête Démographique et de Santé au Tchad, 2004

Vaccine	Confirmation method	Coverage	Age cohort	Sample	Cards seen
BCG	C or H <12 months	36	12-23 m	941	24
BCG	Card	20	12-23 m	941	24
BCG	Card or history	40	12-23 m	941	24
BCG	History	20	12-23 m	941	24
DTP1	C or H <12 months	42	12-23 m	941	24
DTP1	Card	24	12-23 m	941	24
DTP1	Card or history	45	12-23 m	941	24
DTP1	History	21	12-23 m	941	24
DTP3	History	8	12-23 m	941	24
DTP3	C or H <12 months	16	12-23 m	941	24
DTP3	Card	12	12-23 m	941	24
DTP3	Card or history	20	12-23 m	941	24
MCV	Card	14	12-23 m	941	24
MCV	History	9	12-23 m	941	24
MCV	C or H <12 months	15	12-23 m	941	24
MCV	Card or history	23	12-23 m	941	24
Pol1	C or H <12 months	73	12-23 m	941	24
Pol1	Card	23	12-23 m	941	24
Pol1	Card or history	78	12-23 m	941	24
Pol1	History	55	12-23 m	941	24
Pol3	C or H <12 months	28	12-23 m	941	24
Pol3	History	23	12-23 m	941	24
Pol3	Card	12	12-23 m	941	24
Pol3	Card or history	36	12-23 m	941	24
YFV	History	7	12-23 m	941	24
YFV	C or H <12 months	14	12-23 m	941	24
YFV	Card	14	12-23 m	941	24
YFV	Card or history	20	12-23 m	941	24

2001 République du Tchad, Revue du Programme Elargi de Vaccination, 2002

Vaccine	Confirmation method	Coverage	Age cohort	Sample	Cards seen
BCG	Card or History	52	12-23 m	3159	39
DTP1	Card or History	44	12-23 m	3159	39

DTP3	Card or History	26	12-23 m	3159	39
MCV	Card or History	26	12-23 m	3159	39
Pol1	Card or History	45	12-23 m	3159	39
Pol3	Card or History	26	12-23 m	3159	39

1999 République du Tchad, Enquête de grappes à indicateurs multiples, Rapport complet, 2000

Vaccine	Confirmation method	Coverage	Age cohort	Sample	Cards seen
BCG	C or H <12 months	42	12-23 m	873	23
BCG	Card	10	12-23 m	873	23
BCG	Card or History	45	12-23 m	873	23
BCG	History	36	12-23 m	873	23
DTP1	Card	10	12-23 m	873	23
DTP1	Card or History	45	12-23 m	873	23
DTP1	C or H <12 months	43	12-23 m	873	23
DTP1	History	35	12-23 m	873	23
DTP3	C or H <12 months	17	12-23 m	873	23
DTP3	Card	10	12-23 m	873	23
DTP3	Card or History	21	12-23 m	873	23
DTP3	History	10	12-23 m	873	23
MCV	History	24	12-23 m	873	23
MCV	C or H <12 months	24	12-23 m	873	23
MCV	Card	6	12-23 m	873	23
MCV	Card or History	30	12-23 m	873	23
Pol1	Card	2	12-23 m	873	23
Pol1	Card or History	90	12-23 m	873	23
Pol1	History	88	12-23 m	873	23
Pol1	C or H <12 months	86	12-23 m	873	23
Pol3	C or H <12 months	42	12-23 m	873	23
Pol3	Card	6	12-23 m	873	23
Pol3	Card or History	51	12-23 m	873	23
Pol3	History	45	12-23 m	873	23
YFV	C or H <12 months	27	12-23 m	873	23
YFV	Card	7	12-23 m	873	23
YFV	Card or History	31	12-23 m	873	23
YFV	History	24	12-23 m	873	23

Chad - survey details

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

Chad

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	49
1998	47
1999	43
2000	39
2001	37
2002	48
2003	60
2004	61
2005	61
2006	60
2007	60
2008	58
2009	60

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.