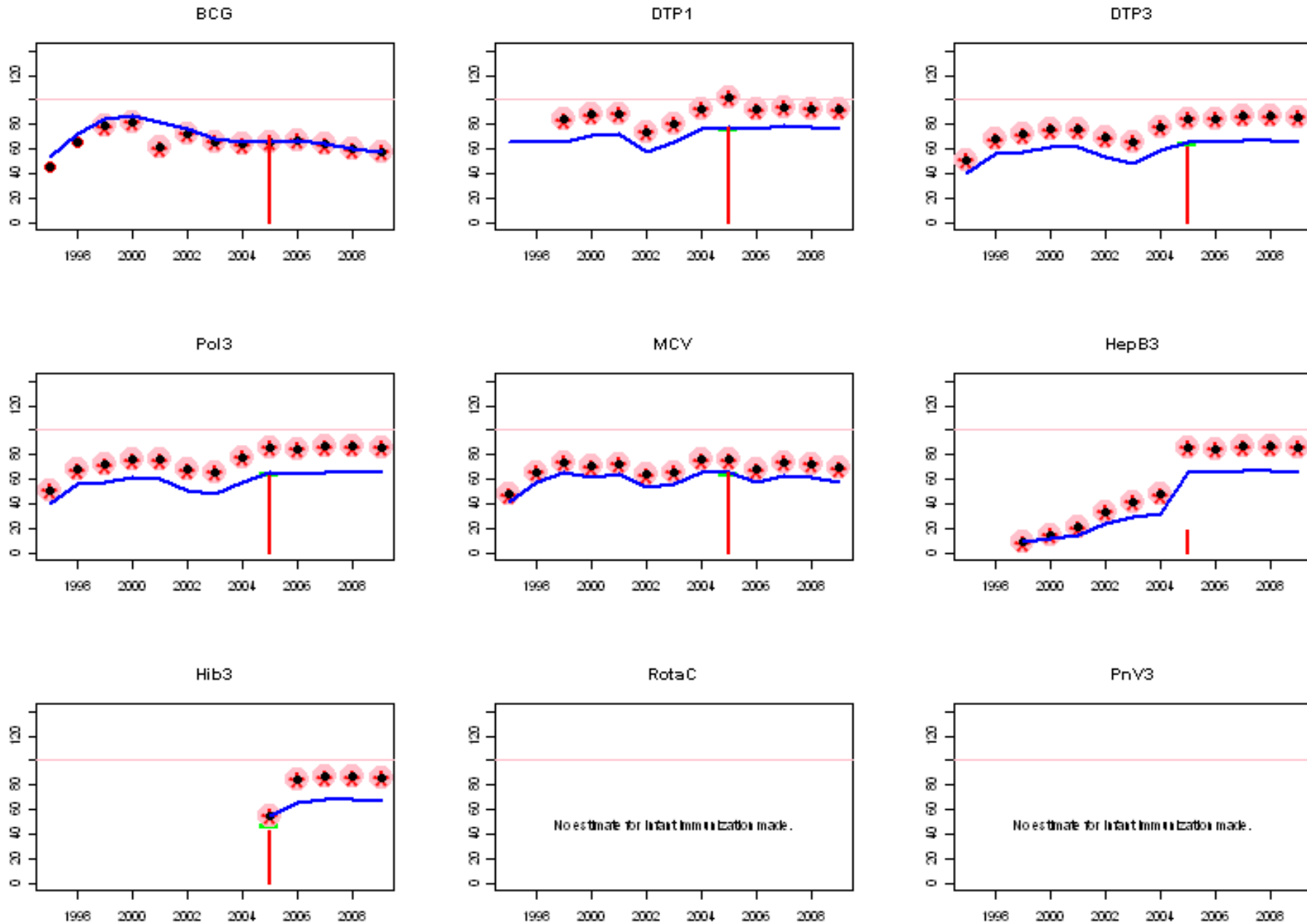
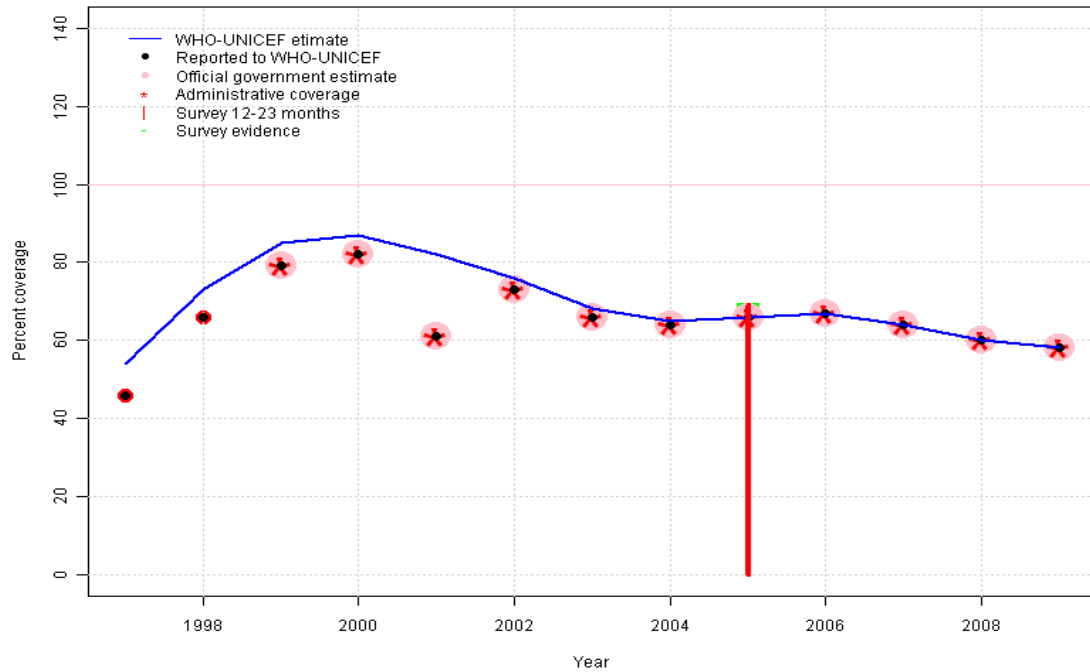


Yemen: WHO and UNICEF estimates of immunization coverage, 1997 - 2009



Yemen - BCG

YEM - BCG



	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Estimate	54	73	85	87	82	76	68	65	66	67	64	60	58
Reported	46	66	79	82	61	73	66	64	66	67	64	60	58
Official	NA	NA	79	82	61	73	66	64	66	67	64	60	58
Administrative	NA	NA	79	82	61	73	66	64	66	67	64	60	58
Survey	NA	NA	NA	NA	NA	NA	NA	NA	69	NA	NA	NA	NA

Description:

1997: Legacy estimate.

1998: Reported data (66 percent) calibrated to 1997 and 2005 levels.

1999: Reported data (79 percent) calibrated to 1997 and 2005 levels.

2000: Reported data (82 percent) calibrated to 1997 and 2005 levels.

2001: Reported data (78 percent) calibrated to 1997 and 2005 levels. Missing or ignored reported value estimated by interpolation between reported values of 82 percent in 2000 and 73 percent in 2002. 2001 reported data (61 percent) inconsistent with data from other years.

2002: Reported data (73 percent) calibrated to 1997 and 2005 levels.

2003: Reported data (66 percent) calibrated to 1997 and 2005 levels.

2004: Reported data (64 percent) calibrated to 1997 and 2005 levels.

2005: Estimate based on reported data (66 percent) confirmed by survey (69 percent).

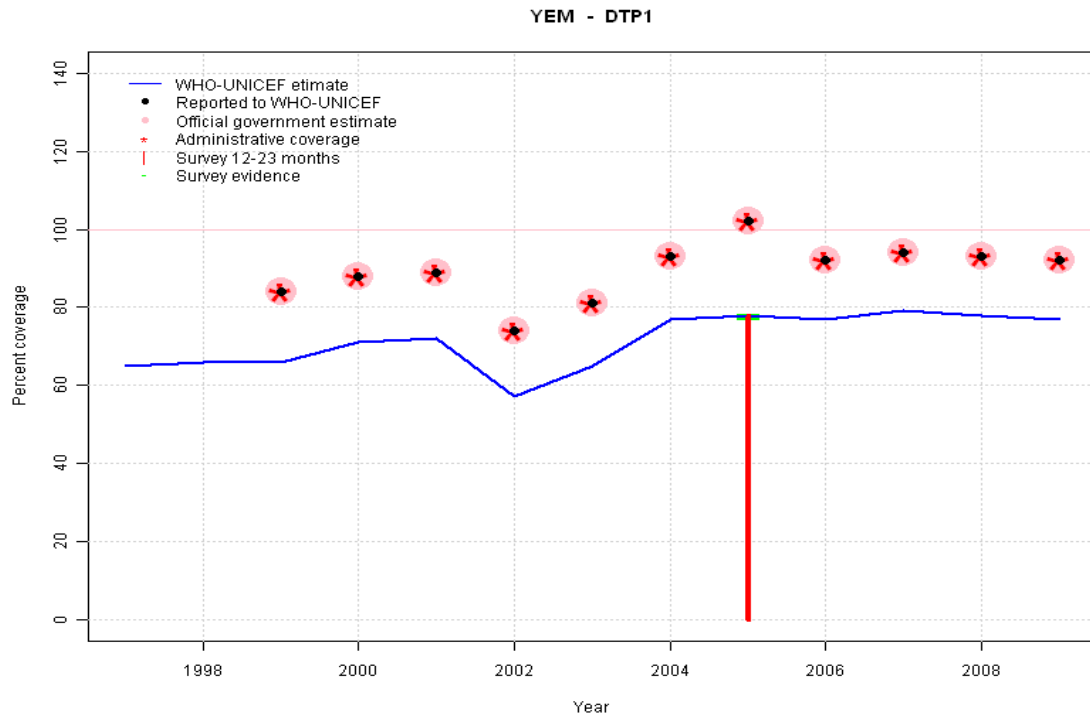
2006: Estimate based on reported data.

2007: Estimate based on reported data.

2008: Estimate based on reported data.

2009: Estimate based on reported data.

Yemen - DTP1



Description:

1997: Legacy estimate.

1998: Reported data (84 percent) calibrated to 1997 and 2005 levels. Missing or ignored reported value estimated by extrapolation from 1999 reported value of 84 percent.

1999: Reported data (84 percent) calibrated to 1997 and 2005 levels.

2000: Reported data (88 percent) calibrated to 1997 and 2005 levels.

2001: Reported data (89 percent) calibrated to 1997 and 2005 levels.

2002: Reported data (74 percent) calibrated to 1997 and 2005 levels.

2003: Reported data (81 percent) calibrated to 1997 and 2005 levels.

2004: Reported data (93 percent) calibrated to 1997 and 2005 levels.

2005: Estimate based on survey results. Reported data (93 percent) not consistent with survey results (78 percent). 2005 reported data (102 percent) ignored; greater than 100 percent.

2006: Reported data (92 percent) calibrated to 2005 level (78 percent).

2007: Reported data (94 percent) calibrated to 2005 level (78 percent).

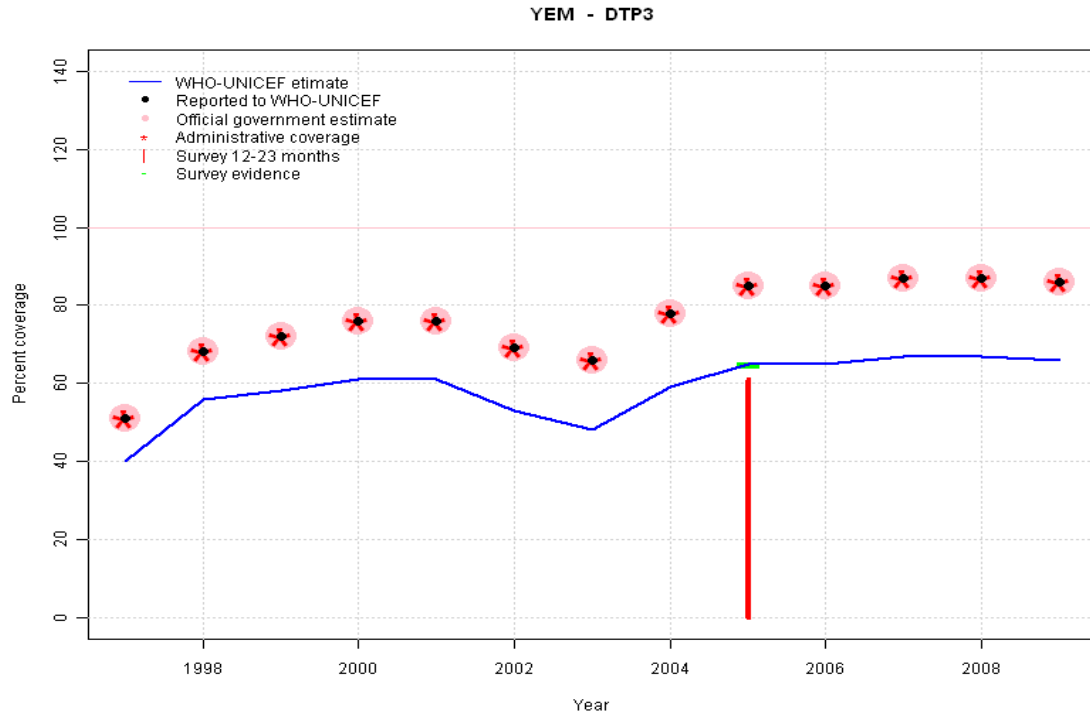
2008: Reported data (93 percent) calibrated to 2005 level (78 percent).

2009: Reported data (92 percent) calibrated to 2005 level (78 percent).

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Estimate	65	66	66	71	72	57	65	77	78	77	79	78	77
Reported	NA	NA	84	88	89	74	81	93	102	92	94	93	92
Official	NA	NA	84	88	89	74	81	93	102	92	94	93	92
Administrative	NA	NA	84	88	89	74	81	93	102	92	94	93	92
Survey	NA	NA	NA	NA	NA	NA	NA	NA	78	NA	NA	NA	NA

Yemen - DTP3

Description:

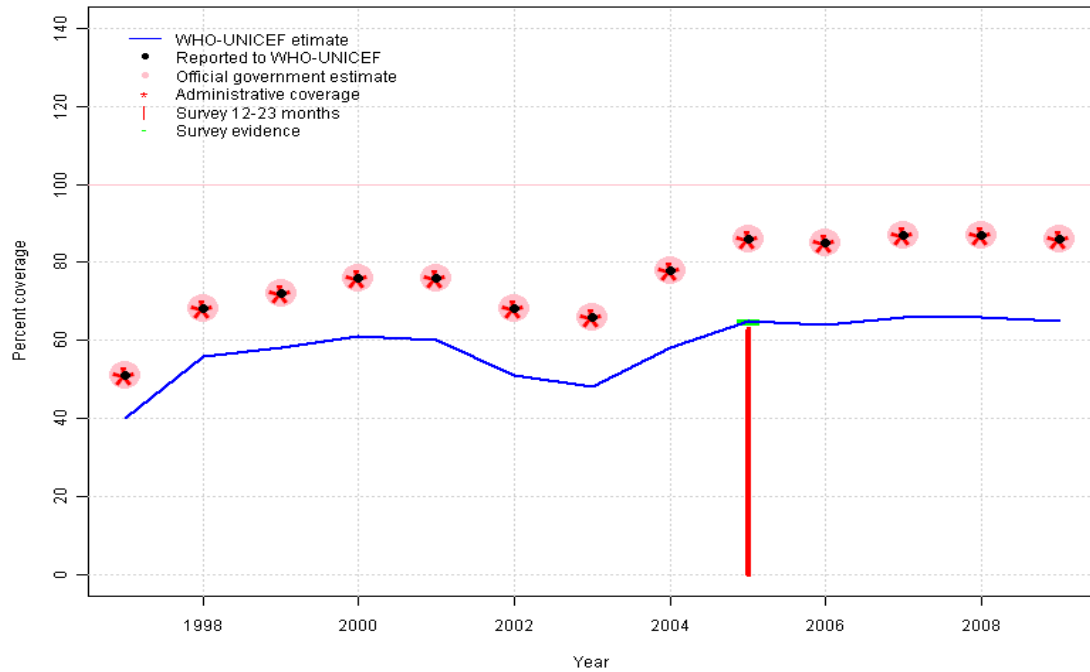


- 1997: Legacy estimate.
 1998: Reported data (68 percent) calibrated to 1997 and 2005 levels.
 1999: Reported data (72 percent) calibrated to 1997 and 2005 levels.
 2000: Reported data (76 percent) calibrated to 1997 and 2005 levels.
 2001: Reported data (76 percent) calibrated to 1997 and 2005 levels.
 2002: Reported data (69 percent) calibrated to 1997 and 2005 levels.
 2003: Reported data (66 percent) calibrated to 1997 and 2005 levels.
 2004: Reported data (78 percent) calibrated to 1997 and 2005 levels.
 2005: Estimate based on survey results. Reported data (85 percent) not consistent with survey results (65 percent). Survey results (61 percent) adjusted for recall bias to 65 percent based on first dose card or history coverage (78 percent) and documented drop-out between first (47 percent) and third (39 percent) doses.
 2006: Reported data (85 percent) calibrated to 2005 level (65 percent).
 2007: Reported data (87 percent) calibrated to 2005 level (65 percent).
 2008: Reported data (87 percent) calibrated to 2005 level (65 percent).
 2009: Reported data (86 percent) calibrated to 2005 level (65 percent).

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Estimate	40	56	58	61	61	53	48	59	65	65	67	67	66
Reported	51	68	72	76	76	69	66	78	85	85	87	87	86
Official	51	68	72	76	76	69	66	78	85	85	87	87	86
Administrative	51	68	72	76	76	69	66	78	85	85	87	87	86
Survey	NA	NA	NA	NA	NA	NA	NA	NA	65	NA	NA	NA	NA

Yemen - Pol3

YEM - Pol3



Description:

1997: Legacy estimate.

1998: Reported data (68 percent) calibrated to 1997 and 2005 levels.

1999: Reported data (72 percent) calibrated to 1997 and 2005 levels.

2000: Reported data (76 percent) calibrated to 1997 and 2005 levels.

2001: Reported data (76 percent) calibrated to 1997 and 2005 levels.

2002: Reported data (68 percent) calibrated to 1997 and 2005 levels.

2003: Reported data (66 percent) calibrated to 1997 and 2005 levels.

2004: Reported data (78 percent) calibrated to 1997 and 2005 levels.

2005: Estimate based on survey results. Reported data (86 percent) not consistent with survey results (65 percent). Survey results (63 percent) adjusted for recall bias to 65 percent based on first dose card or history coverage (81 percent) and documented drop-out between first (45 percent) and third (36 percent) doses.

2006: Reported data (85 percent) calibrated to 2005 level (65 percent).

2007: Reported data (87 percent) calibrated to 2005 level (65 percent).

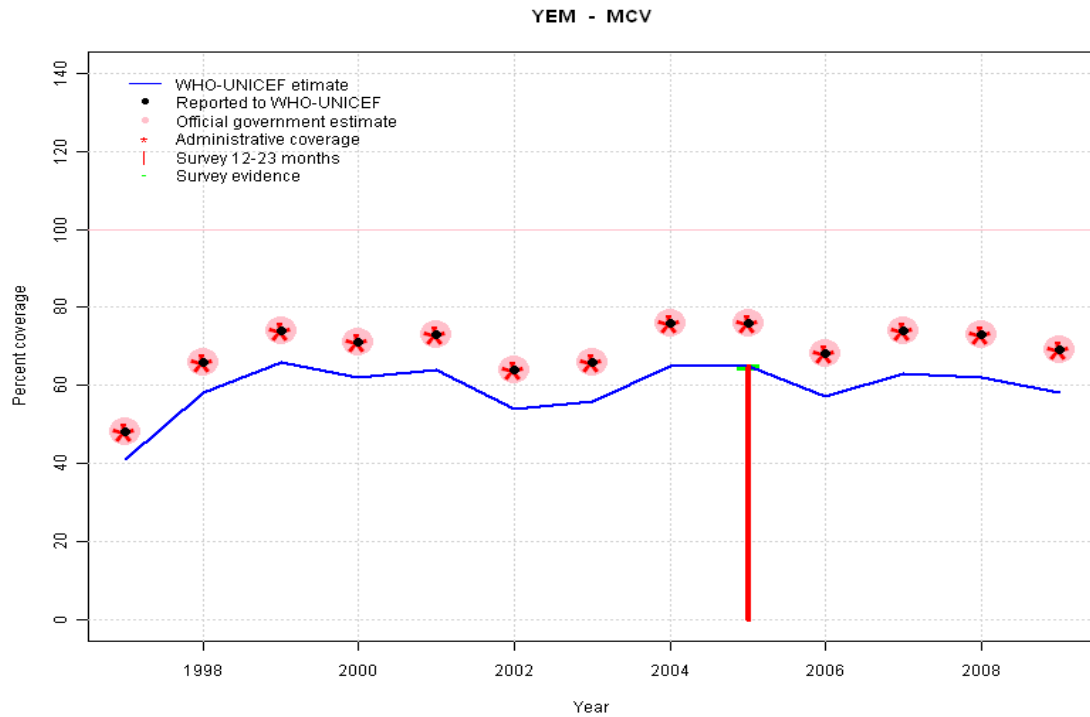
2008: Reported data (87 percent) calibrated to 2005 level (65 percent).

2009: Reported data (86 percent) calibrated to 2005 level (65 percent).

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Estimate	40	56	58	61	60	51	48	58	65	64	66	66	65
Reported	51	68	72	76	76	68	66	78	86	85	87	87	86
Official	51	68	72	76	76	68	66	78	86	85	87	87	86
Administrative	51	68	72	76	76	68	66	78	86	85	87	87	86
Survey	NA	NA	NA	NA	NA	NA	NA	NA	65	NA	NA	NA	NA

Yemen - MCV

Description:

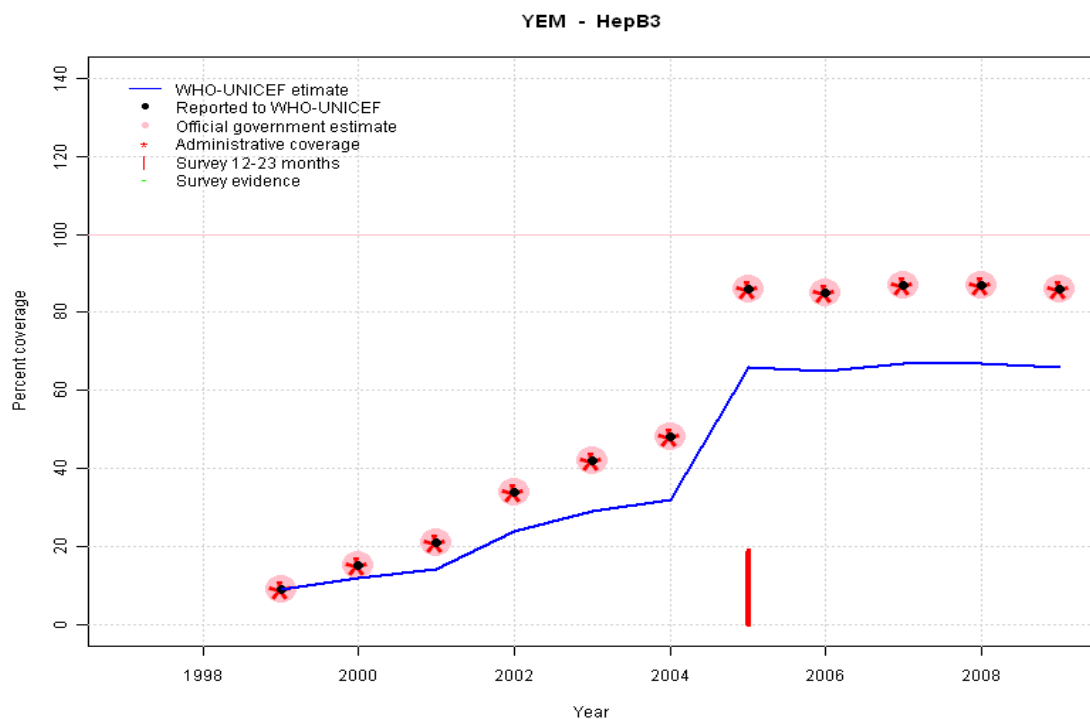


1997: Legacy estimate.
 1998: Reported data (66 percent) calibrated to 1997 and 2005 levels.
 1999: Reported data (74 percent) calibrated to 1997 and 2005 levels.
 2000: Reported data (71 percent) calibrated to 1997 and 2005 levels.
 2001: Reported data (73 percent) calibrated to 1997 and 2005 levels.
 2002: Reported data (64 percent) calibrated to 1997 and 2005 levels.
 2003: Reported data (66 percent) calibrated to 1997 and 2005 levels.
 2004: Reported data (76 percent) calibrated to 1997 and 2005 levels.
 2005: Estimate based on survey results. Reported data (76 percent) not consistent with survey results (65 percent).
 2006: Reported data (68 percent) calibrated to 2005 level (65 percent).
 2007: Reported data (74 percent) calibrated to 2005 level (65 percent).
 2008: Reported data (73 percent) calibrated to 2005 level (65 percent).
 2009: Reported data (69 percent) calibrated to 2005 level (65 percent).

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Estimate	41	58	66	62	64	54	56	65	65	57	63	62	58
Reported	48	66	74	71	73	64	66	76	76	68	74	73	69
Official	48	66	74	71	73	64	66	76	76	68	74	73	69
Administrative	48	66	74	71	73	64	66	76	76	68	74	73	69
Survey	NA	NA	NA	NA	NA	NA	NA	NA	65	NA	NA	NA	NA

Yemen - HepB3

Description:



1999: Hepatitis B vaccine introduced in April 1999. HepB introduced in 1999
 Vaccine presentation is DTP-HepB-Hib.

2000: Reported data (15 percent) calibrated to 1999 and 2005 levels.

2001: Reported data (21 percent) calibrated to 1999 and 2005 levels.

2002: Reported data (34 percent) calibrated to 1999 and 2005 levels.

2003: Reported data (42 percent) calibrated to 1999 and 2005 levels.

2004: Reported data (48 percent) calibrated to 1999 and 2005 levels.

2005: HepB levels are set to DTP3 estimate levels. Survey results of 19 percent ignored by working group. DTP-HepB-Hib pentavalent vaccine introduced during April 2005. Survey results are likely for monovalent HepB3.

2006: Reported data (85 percent) calibrated to 2005 level (66 percent).

2007: Reported data (87 percent) calibrated to 2005 level (66 percent).

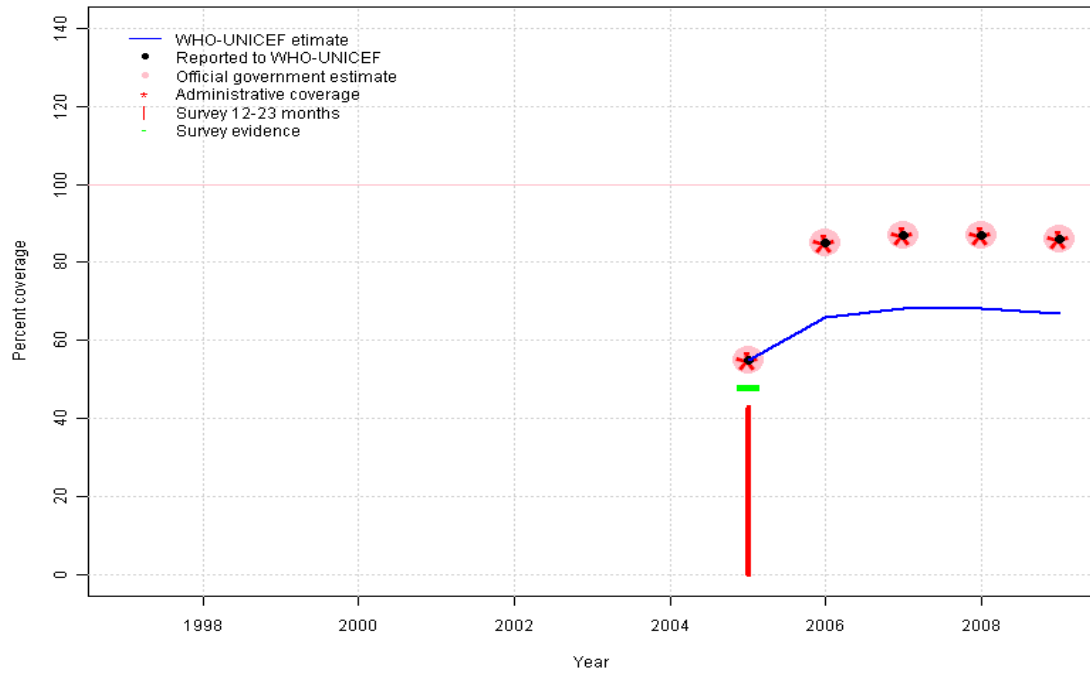
2008: Reported data (87 percent) calibrated to 2005 level (66 percent).

2009: Reported data (86 percent) calibrated to 2005 level (66 percent).

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Estimate	NA	NA	9	12	14	24	29	32	66	65	67	67	66
Reported	NA	NA	9	15	21	34	42	48	86	85	87	87	86
Official	NA	NA	9	15	21	34	42	48	86	85	87	87	86
Administrative	NA	NA	9	15	21	34	42	48	86	85	87	87	86
Survey	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Yemen - Hib3

YEM - Hib3



Description:

2005: Hib introduced in 2005 Vaccine presentation is DTP-HepB-Hib. Hib levels are set to DTP3 estimate levels. Survey results (43 percent) adjusted for recall bias to 48 percent based on first dose card or history coverage (59 percent) and documented drop-out between first (33 percent) and third (27 percent) doses.

2006: HepB levels are set to DTP3 estimate levels.

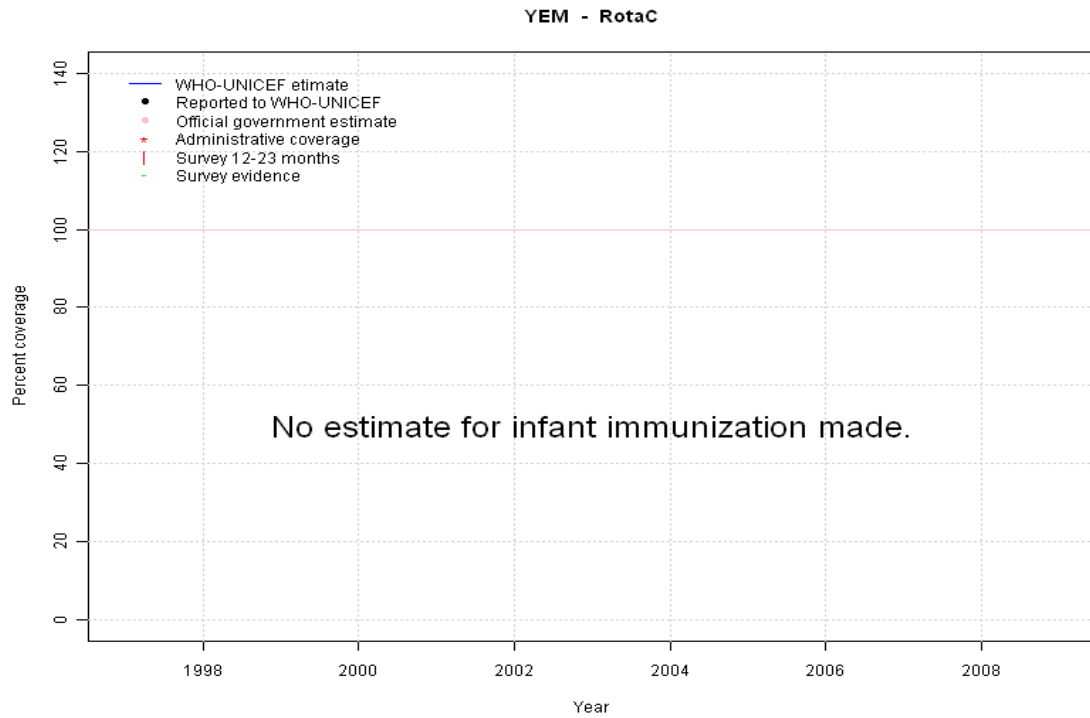
2007: HepB levels are set to DTP3 estimate levels.

2008: HepB levels are set to DTP3 estimate levels.

2009: HepB levels are set to DTP3 estimate levels.

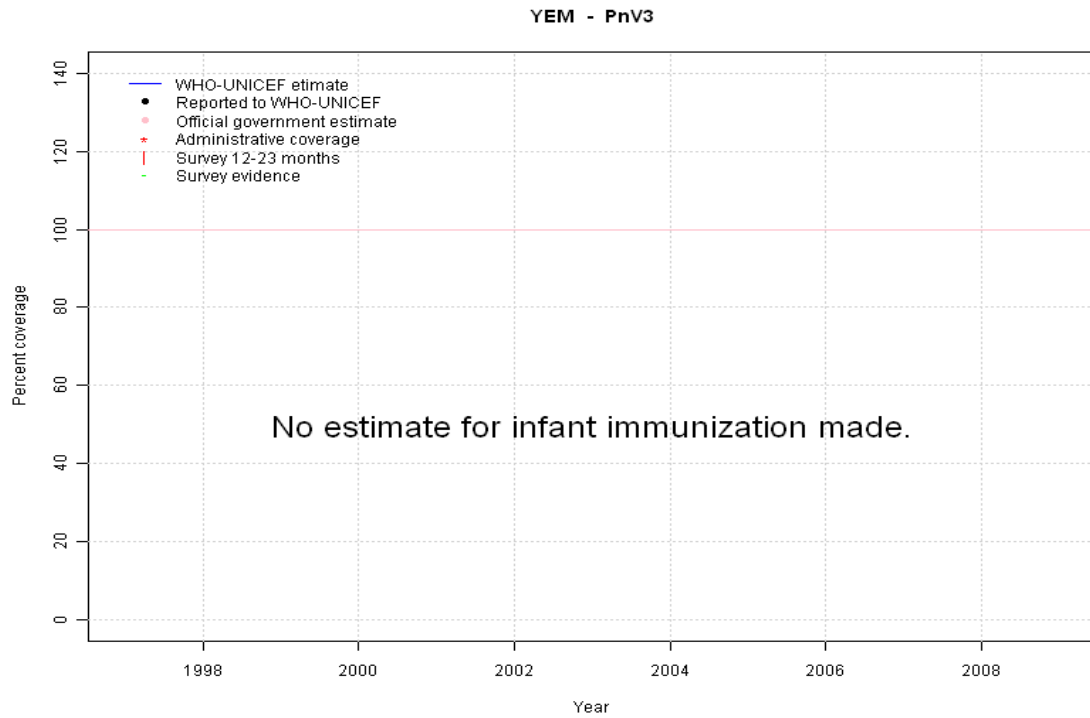
	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Estimate	NA	NA	NA	NA	NA	NA	NA	NA	55	66	68	68	67
Reported	NA	NA	NA	NA	NA	NA	NA	NA	55	85	87	87	86
Official	NA	NA	NA	NA	NA	NA	NA	NA	55	85	87	87	86
Administrative	NA	NA	NA	NA	NA	NA	NA	NA	55	85	87	87	86
Survey	NA	NA	NA	NA	NA	NA	NA	NA	48	NA	NA	NA	NA

Yemen - 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

Yemen - 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

Yemen - survey details

2005 Yemen Multiple Indicator Cluster Survey 2006, Final Report

Vaccine	Confirmation method	Coverage	Age cohort	Sample	Cards seen
BCG	C or H <12 months	67	12-23 m	721	48
BCG	Card	38	12-23 m	721	48
BCG	Card or History	69	12-23 m	721	48
BCG	History	31	12-23 m	721	48
DTP1	History	32	12-23 m	721	48
DTP1	C or H <12 months	77	12-23 m	721	48
DTP1	Card	47	12-23 m	721	48
DTP1	Card or History	78	12-23 m	721	48
DTP3	History	22	12-23 m	721	48
DTP3	Card or History	61	12-23 m	721	48
DTP3	C or H <12 months	60	12-23 m	721	48
DTP3	Card	39	12-23 m	721	48
HepB1	History	16	12-23 m	721	48
HepB1	C or H <12 months	26	12-23 m	721	48
HepB1	Card	12	12-23 m	721	48
HepB1	Card or History	28	12-23 m	721	48
HepB3	History	11	12-23 m	721	48
HepB3	Card	9	12-23 m	721	48
HepB3	Card or History	19	12-23 m	721	48
HepB3	C or H <12 months	19	12-23 m	721	48
Hib1	Card	33	12-23 m	721	48
Hib1	Card or History	59	12-23 m	721	48
Hib1	History	26	12-23 m	721	48
Hib1	C or H <12 months	57	12-23 m	721	48

Hib3	C or H <12 months	40	12-23 m	721	48
Hib3	Card	27	12-23 m	721	48
Hib3	Card or History	43	12-23 m	721	48
Hib3	History	16	12-23 m	721	48
MCV	Card or History	65	12-23 m	721	48
MCV	History	34	12-23 m	721	48
MCV	C or H <12 months	59	12-23 m	721	48
MCV	Card	31	12-23 m	721	48
Pol1	C or H <12 months	79	12-23 m	721	48
Pol1	Card	45	12-23 m	721	48
Pol1	Card or History	81	12-23 m	721	48
Pol1	History	36	12-23 m	721	48
Pol3	C or H <12 months	60	12-23 m	721	48
Pol3	Card	36	12-23 m	721	48
Pol3	History	27	12-23 m	721	48
Pol3	Card or History	63	12-23 m	721	48

2002 The Family Health Survey in the Republic of Yemen 2003

Vaccine	Confirmation method	Coverage	Age cohort	Sample	Cards seen
BCG	Card	55	12-23 m	2058	27
DTP1	Card	56	12-23 m	2058	27
DTP3	Card	45	12-23 m	2058	27
MCV	Card	45	12-23 m	2058	27
Pol1	Card	62	12-23 m	2058	27
Pol3	Card	47	12-23 m	2058	27

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

Yemen

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	30
1998	39
1999	41
2000	54
2001	58
2002	68
2003	65
2004	69
2005	59
2006	56
2007	52
2008	63
2009	66

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.