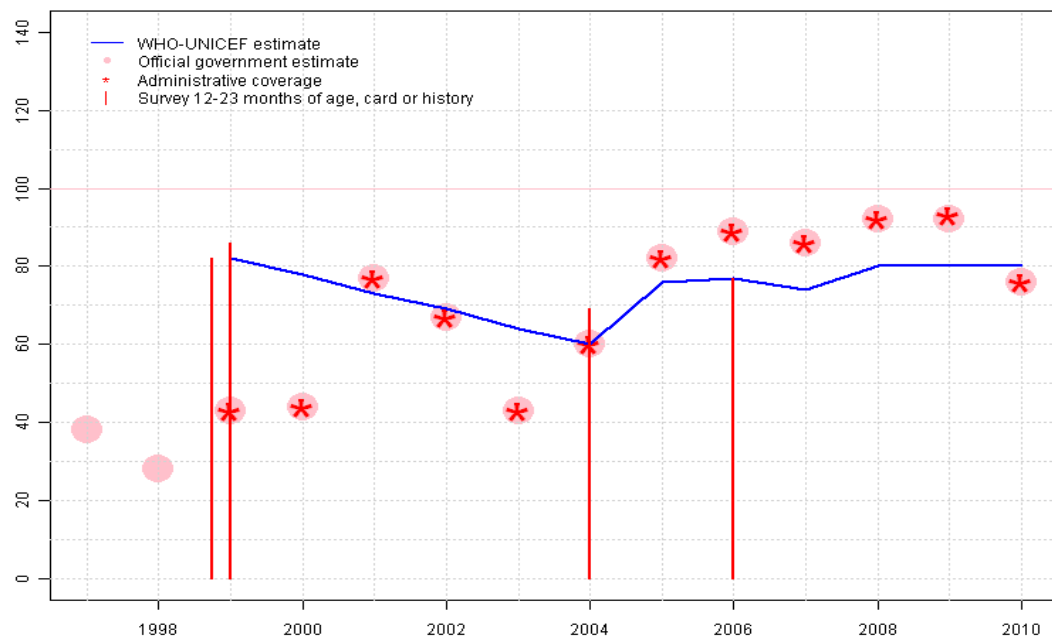


Liberia - BCG

LBR - BCG



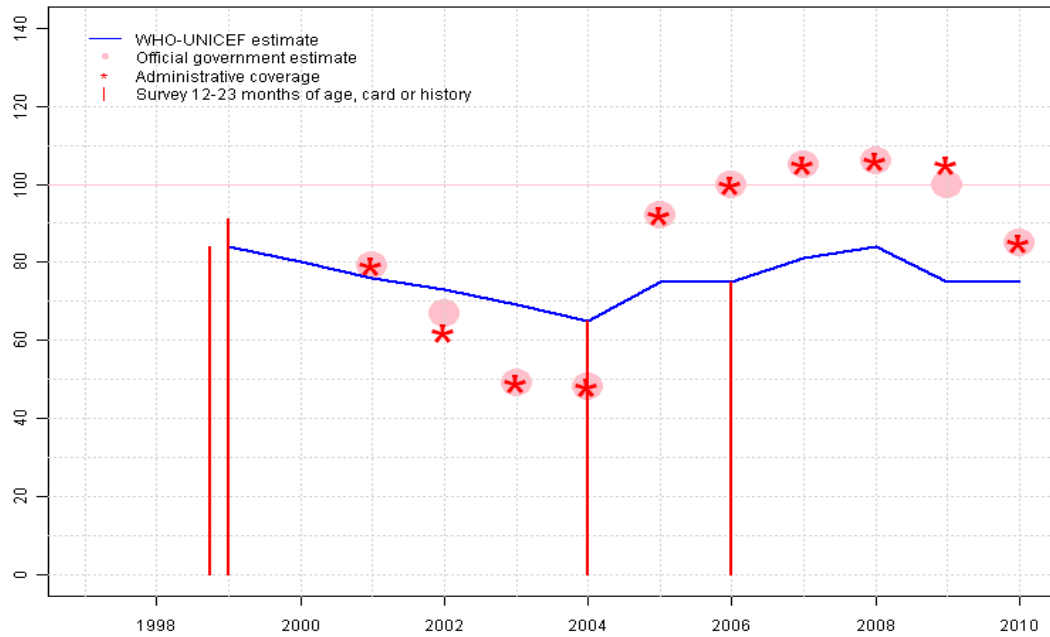
Description:

- 1999: Estimate based on survey results. 82 percent survey results does not support reported data of 43 percent. Survey results not accepted. Sample size 89 less than 300.
- 2000: Estimate based on interpolation between 1999 and 2004. Fluctuating and inconsistent data suggest poor reporting.
- 2001: Estimate based on interpolation between 1999 and 2004. Fluctuating and inconsistent data suggest poor reporting.
- 2002: Estimate based on interpolation between 1999 and 2004. Fluctuating and inconsistent data suggest poor reporting.
- 2003: Estimate based on interpolation between 1999 and 2004. Reported data not accepted due to a decline from 67 percent to 43 percent with a subsequent increase to 60 percent. Fluctuating and inconsistent data suggest poor reporting.
- 2004: Estimate based on reported data. 69 percent survey results supports reported data of 60 percent.
- 2005: Reported data calibrated to 2004 and 2006 levels. During 2005 Liberia carried out six multi-antigen immunization outreach activities.
- 2006: Estimate based on survey results. 77 percent survey results does not support reported data of 89 percent.
- 2007: Reported data 86 percent calibrated to 2006 levels.
- 2008: Reported data 92 percent calibrated to 2006 levels.
- 2009: Reported data 92 percent calibrated to 2006 levels.
- 2010: Estimate based on extrapolation from 2009 value of 80 percent. Reported data not accepted due to a change from 92 level to 76 percent.

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Estimate	NA	NA	82	78	73	69	64	60	76	77	74	80	80	80
Official	38	28	43	44	77	67	43	60	82	89	86	92	92	76
Administrative	NA	NA	43	44	77	67	43	60	82	89	86	92	93	76
Survey	NA	NA	*	NA	NA	NA	NA	69	NA	77	NA	NA	NA	NA

Liberia - DTP1

LBR - DTP1



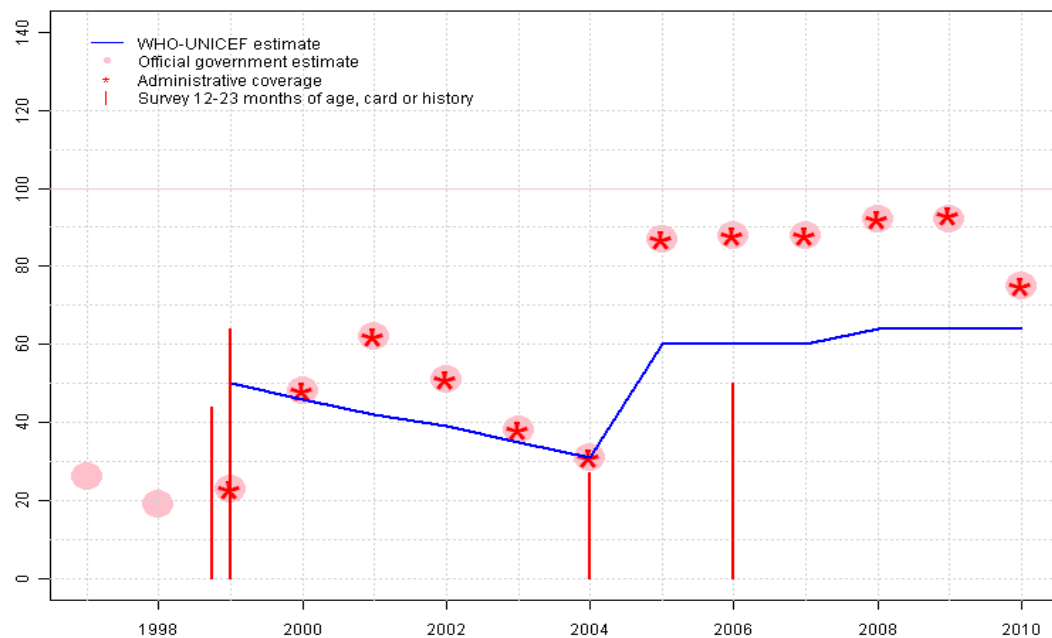
Description:

- 1999: Estimate is based on survey results. Survey results not accepted. Sample size 89 less than 300.
- 2000: Estimate based on interpolation between 1999 and 2004. Fluctuating and inconsistent data suggest poor reporting.
- 2001: Estimate based on interpolation between 1999 and 2004. Fluctuating and inconsistent data suggest poor reporting.
- 2002: Estimate based on interpolation between 1999 and 2004. Fluctuating and inconsistent data suggest poor reporting.
- 2003: Estimate based on interpolation between 1999 and 2004. Fluctuating and inconsistent data suggest poor reporting.
- 2004: Estimate based on survey results. 65 percent survey results does not support reported data of 48 percent.
- 2005: The results of the 2006 survey are presumed to reflect accurately the coverage levels following the 2005 outreach activities. During 2005 Liberia carried out six multi-antigen immunization outreach activities.
- 2006: Estimate based on survey results. 75 percent survey results does not support reported data of 100 percent.
- 2007: No DTP1 data. Estimate based on DTP3 coverage of 60. Reported data of 105 percent greater than 100 percent. Current estimate of 81 percent changed from previous revision value of 75 percent.
- 2008: No DTP1 data. Estimate based on DTP3 coverage of 64. Reported data of 106 percent greater than 100 percent. Current estimate of 84 percent changed from previous revision value of 75 percent.
- 2009: Reported data 100 percent calibrated to 2006 levels.
- 2010: Estimate based on extrapolation from 2009 value of 75 percent. Reported data not accepted due to a change from 100 level to 85 percent.

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Estimate	NA	NA	84	80	76	73	69	65	75	75	81	84	75	75
Official	NA	NA	NA	NA	79	67	49	48	92	100	105	106	100	85
Administrative	NA	NA	NA	NA	79	62	49	48	92	100	105	106	105	85
Survey	NA	NA	*	NA	NA	NA	NA	65	NA	75	NA	NA	NA	NA

Liberia - DTP3

LBR - DTP3



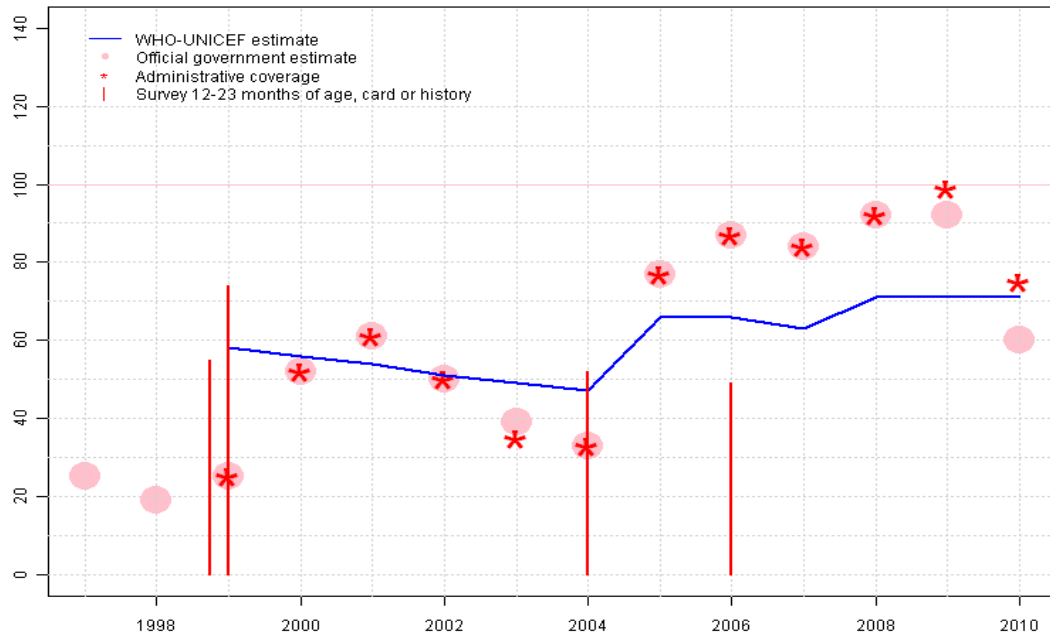
	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Estimate	NA	NA	50	46	42	39	35	31	60	60	60	64	64	64
Official	26	19	23	48	62	51	38	31	87	88	88	92	92	75
Administrative	NA	NA	23	48	62	51	38	31	87	88	88	92	93	75
Survey	NA	NA	*	NA	NA	NA	NA	27	NA	50	NA	NA	NA	NA

Description:

- 1999: Estimate based on survey results. 50 percent survey results does not support reported data of 23 percent. Survey results not accepted. Sample size 89 less than 300.
- 2000: Estimate based on interpolation between 1999 and 2004. Fluctuating and inconsistent data suggest poor reporting.
- 2001: Estimate based on interpolation between 1999 and 2004. Reported data not accepted due to an increase from 48 percent to 62 percent with a subsequent decrease to 51 percent. Fluctuating and inconsistent data suggest poor reporting.
- 2002: Estimate based on interpolation between 1999 and 2004. Fluctuating and inconsistent data suggest poor reporting.
- 2003: Estimate based on interpolation between 1999 and 2004. Fluctuating and inconsistent data suggest poor reporting.
- 2004: Estimate based on reported data. 33 percent survey results supports reported data of 31 percent. Survey results of 27 percent modified for recall bias to 33 percent based on 1st dose card or history coverage of 65 percent, 1st dose card only coverage of 35 percent and 3d dose card only coverage of 18 percent.
- 2005: The results of the 2006 survey are presumed to reflect accurately the coverage levels following the 2005 outreach activities. During 2005 Liberia carried out six multi-antigen immunization outreach activities.
- 2006: Estimate based on survey results. 60 percent survey results does not support reported data of 88 percent. Survey results of 50 percent modified for recall bias to 60 percent based on 1st dose card or history coverage of 75 percent, 1st dose card only coverage of 46 percent and 3d dose card only coverage of 37 percent.
- 2007: Reported data 88 percent calibrated to 2006 levels.
- 2008: Reported data 92 percent calibrated to 2006 levels.
- 2009: Reported data 92 percent calibrated to 2006 levels.
- 2010: Estimate based on extrapolation from 2009 value of 64 percent. Reported data not accepted due to a change from 92 level to 75 percent.

Liberia - Pol3

LBR - Pol3



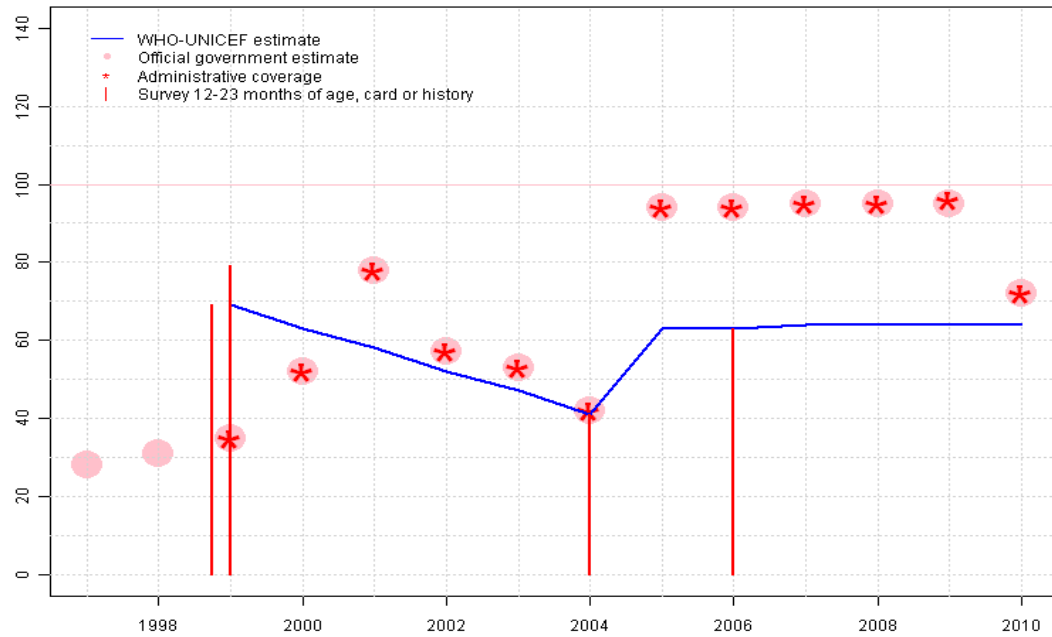
	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Estimate	NA	NA	58	56	54	51	49	47	66	66	63	71	71	71
Official	25	19	25	52	61	50	39	33	77	87	84	92	92	60
Administrative	NA	NA	25	52	61	50	35	33	77	87	84	92	99	75
Survey	NA	NA	*	NA	NA	NA	NA	52	NA	49	NA	NA	NA	NA

Description:

- 1999: Estimate based on survey results. 58 percent survey results does not support reported data of 25 percent. Survey results not accepted. Sample size 89 less than 300.
- 2000: Estimate based on interpolation between 1999 and 2004. Fluctuating and inconsistent data suggest poor reporting.
- 2001: Estimate based on interpolation between 1999 and 2004. Fluctuating and inconsistent data suggest poor reporting.
- 2002: Estimate based on interpolation between 1999 and 2004. Fluctuating and inconsistent data suggest poor reporting.
- 2003: Estimate based on interpolation between 1999 and 2004. Fluctuating and inconsistent data suggest poor reporting.
- 2004: Estimate based on survey results. 47 percent survey results does not support reported data of 33 percent. Survey results of 52 percent modified for recall bias to 47 percent based on 1st dose card or history coverage of 89 percent, 1st dose card only coverage of 34 percent and 3d dose card only coverage of 18 percent.
- 2005: The results of the 2006 survey are presumed to reflect accurately the coverage levels following the 2005 outreach activities. During 2005 Liberia carried out six multi-antigen immunization outreach activities.
- 2006: Estimate based on survey results. 66 percent survey results does not support reported data of 87 percent. Survey results of 49 percent modified for recall bias to 66 percent based on 1st dose card or history coverage of 83 percent, 1st dose card only coverage of 45 percent and 3d dose card only coverage of 36 percent.
- 2007: Reported data 84 percent calibrated to 2006 levels. Current estimate of 63 percent changed from previous revision value of 64 percent.
- 2008: Reported data 92 percent calibrated to 2006 levels. Current estimate of 71 percent changed from previous revision value of 74 percent.
- 2009: Reported data 92 percent calibrated to 2006 levels. Current estimate of 71 percent changed from previous revision value of 74 percent.
- 2010: Estimate based on extrapolation from 2009 value of 71 percent. Reported data not accepted due to a change from 92 level to 60 percent.

Liberia - MCV

LBR - MCV



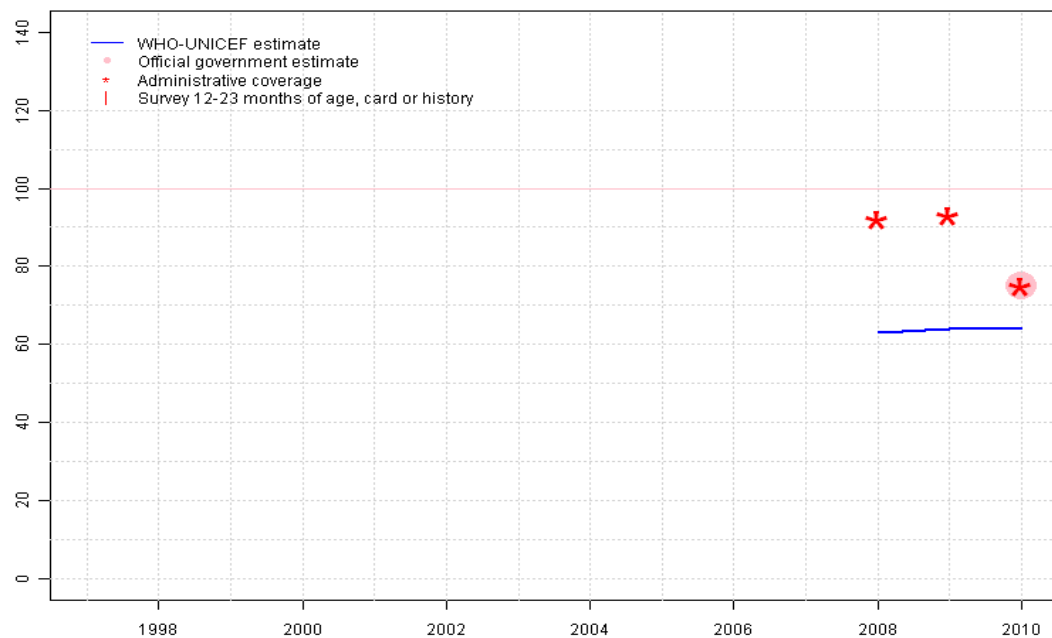
Description:

- 1999: Estimate based on survey results. 69 percent survey results does not support reported data of 35 percent. Survey results not accepted. Sample size 89 less than 300.
- 2000: Estimate based on interpolation between 1999 and 2004. Fluctuating and inconsistent data suggest poor reporting.
- 2001: Estimate based on interpolation between 1999 and 2004. Reported data not accepted due to an increase from 52 percent to 78 percent with a subsequent decrease to 57 percent. Fluctuating and inconsistent data suggest poor reporting.
- 2002: Estimate based on interpolation between 1999 and 2004. Fluctuating and inconsistent data suggest poor reporting.
- 2003: Estimate based on interpolation between 1999 and 2004. Fluctuating and inconsistent data suggest poor reporting.
- 2004: No accepted reported data. Reported data of 74 percent estimated by interpolation between 2003 and 2005 does not support trend in reported data. 41 percent survey results Reported data not accepted due to a decline from 53 percent to 42 percent with a subsequent increase to 94 percent.
- 2005: Reported data calibrated to 2004 and 2006 levels. During 2005 Liberia carried out six multi-antigen immunization outreach activities. Current estimate of 63 percent changed from previous revision value of 62 percent.
- 2006: Estimate based on survey results. 63 percent survey results does not support reported data of 94 percent.
- 2007: Reported data 95 percent calibrated to 2006 levels.
- 2008: Reported data 95 percent calibrated to 2006 levels.
- 2009: Reported data 95 percent calibrated to 2006 levels.
- 2010: Estimate based on extrapolation from 2009 value of 64 percent. Reported data not accepted due to a change from 95 level to 72 percent.

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Estimate	NA	NA	69	63	58	52	47	41	63	63	64	64	64	64
Official	28	31	35	52	78	57	53	42	94	94	95	95	95	72
Administrative	NA	NA	35	52	78	57	53	42	94	94	95	95	96	72
Survey	NA	NA	*	NA	NA	NA	NA	41	NA	63	NA	NA	NA	NA

Liberia - HepB3

LBR - HepB3



Description:

2008: Reported data 92 percent calibrated to 2009 levels. HepB introduced in 2008 Vaccine presentation is DTP-HepB-Hib.

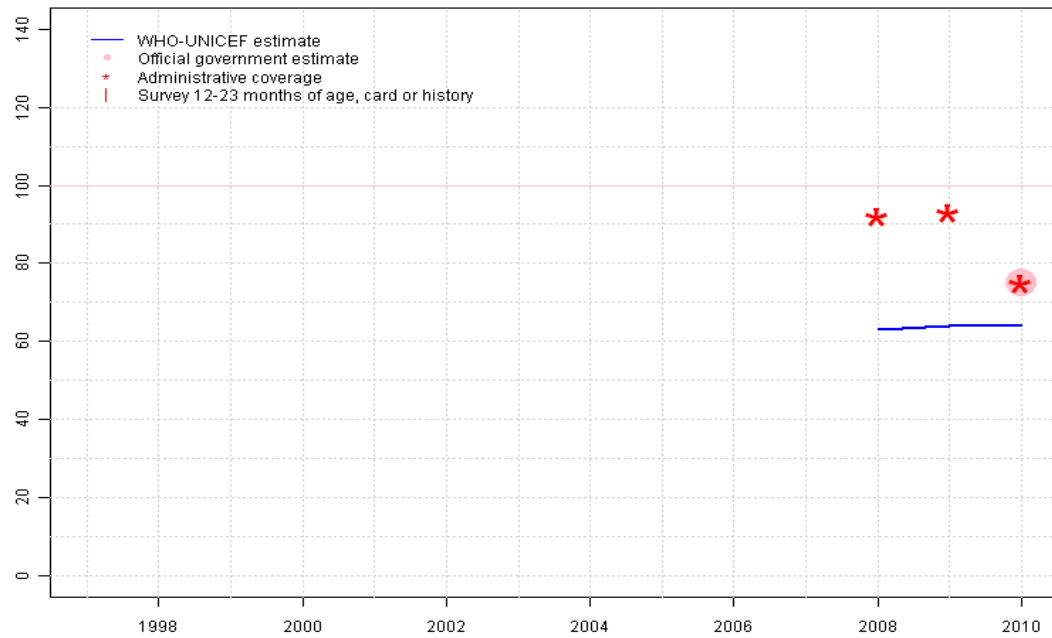
2009: Estimate follows the DTP3 levels of coverage.

2010: Estimate based on extrapolation from 2009 value of 64 percent. Reported data not accepted due to a decline from 93 level to 75 percent.

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Estimate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	63	64	64
Official	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	75
Administrative	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	92	93	75
Survey	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Liberia - Hib3

LBR - Hib3



Description:

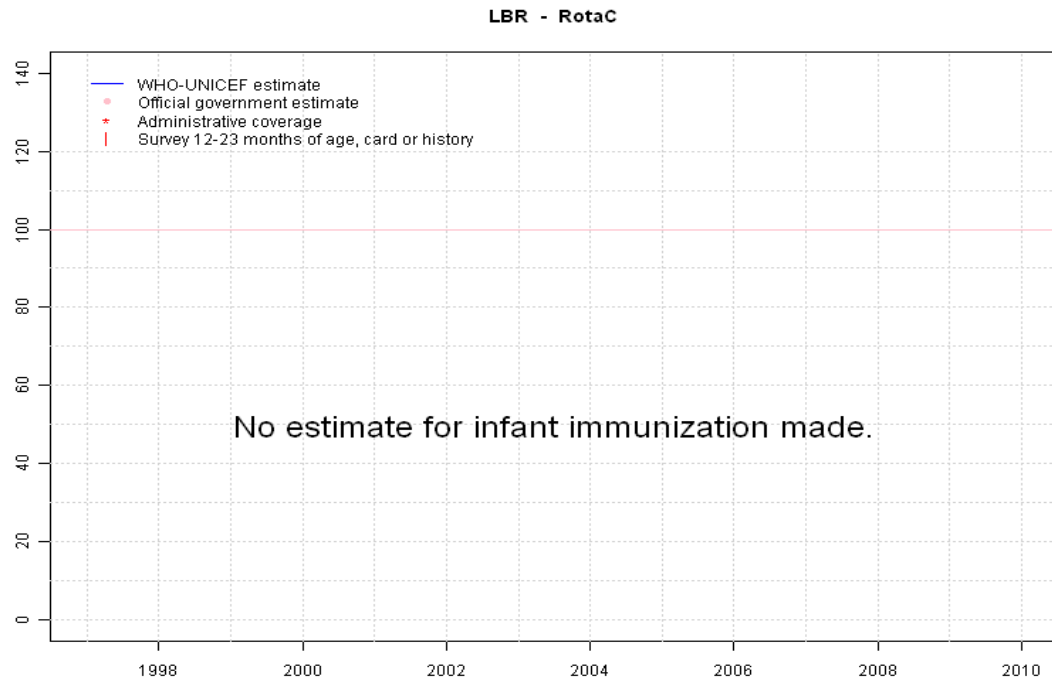
2008: Reported data 92 percent calibrated to 2009 levels. Hib introduced in 2008
Vaccine presentation is DTP-HepB-Hib.

2009: Estimate follows the DTP3 levels of coverage.

2010: Estimate based on extrapolation from 2009 value of 64 percent. Reported data not accepted due to a decline from 93 level to 75 percent.

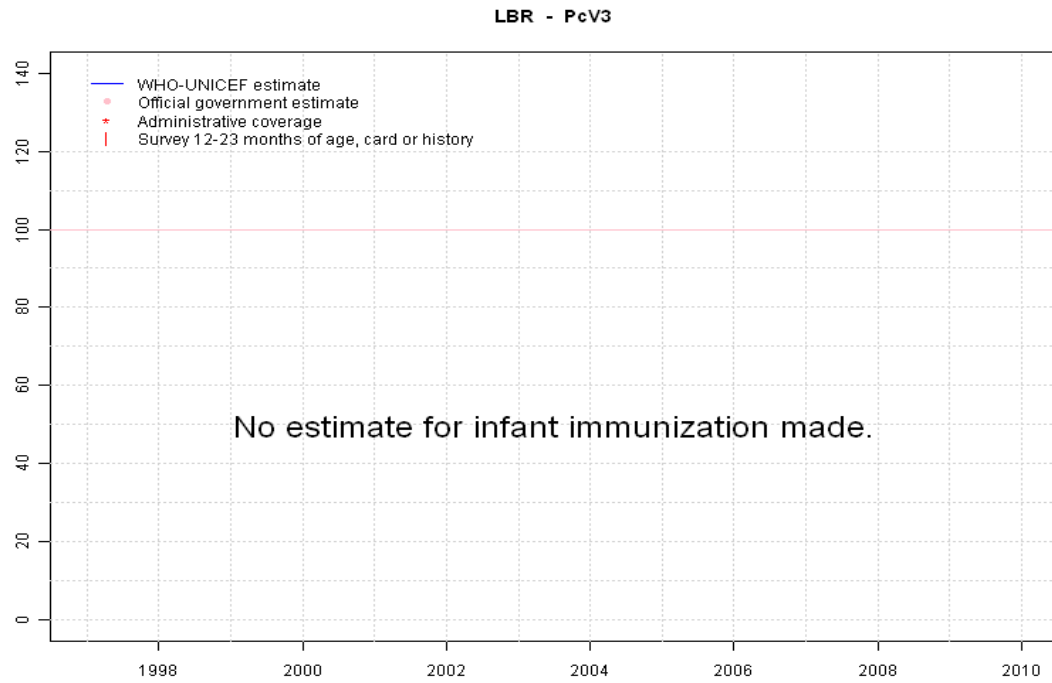
	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Estimate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	63	64	64
Official	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	75
Administrative	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	92	93	75
Survey	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Liberia - RotaC



	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Estimate	NA	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	NA
Administrative	NA	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	NA

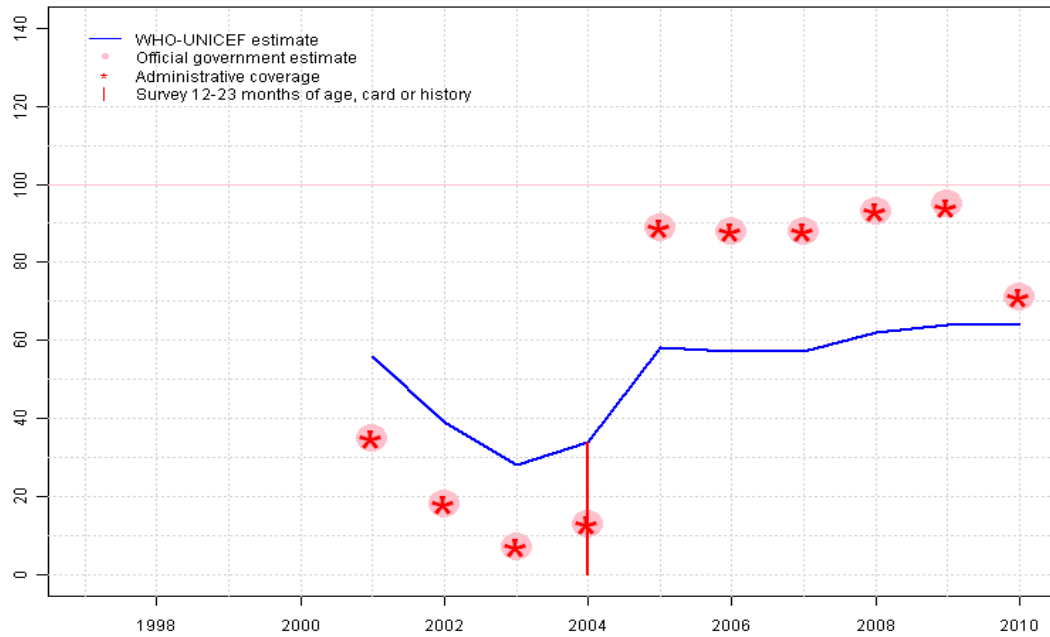
Liberia - PcV3



	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Estimate	NA	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	NA
Administrative	NA	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	NA

Liberia - YFV

LBR - YFV



Description:

- 2001: Estimate is calibrated from reported data using adjustment factor of 0.21, based on the 2005 survey. YFV introduced in 2001. Fluctuating and inconsistent data suggest poor reporting.
- 2002: Estimate is calibrated from reported data using adjustment factor of 0.21, based on the 2005 survey. Fluctuating and inconsistent data suggest poor reporting.
- 2003: Estimate is calibrated from reported data using adjustment factor of 0.21, based on the 2005 survey. Fluctuating and inconsistent data suggest poor reporting.
- 2004: Estimate is calibrated from reported data using adjustment factor of 0.21, based on the 2005 survey.
- 2005: Estimates from 2005 onward are based on the calibration factor applied to MCV coverage levels (-0.31). During 2005 Liberia carried out six multi-antigen immunization outreach activities.
- 2006: Estimates from 2005 onward are based on the calibration factor applied to MCV coverage levels (-0.31).
- 2007: Reported data 88 percent calibrated to 2006 levels.
- 2008: Reported data 93 percent calibrated to 2006 levels. Current estimate of 62 percent changed from previous revision value of 57 percent.
- 2009: Reported data 95 percent calibrated to 2006 levels. Current estimate of 64 percent changed from previous revision value of 57 percent.
- 2010: Estimate based on extrapolation from 2009 value of 64 percent. Reported data not accepted due to a change from 95 level to 71 percent.

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Estimate	NA	NA	NA	NA	56	39	28	34	58	57	57	62	64	64
Official	NA	NA	NA	NA	35	18	7	13	89	88	88	93	95	71
Administrative	NA	NA	NA	NA	35	18	7	13	89	88	88	93	94	71
Survey	NA	NA	NA	NA	NA	NA	NA	34	NA	NA	NA	NA	NA	NA

Liberia - survey details

2006 Liberia Demographic and Health Survey 2007

Vaccine	Confirmation method	Coverage	Age cohort	Sample	Cards seen
BCG	C or H <12 months	76	12-23 m	977	0
BCG	Card	47	12-23 m	977	0
BCG	Card or History	77	12-23 m	977	0
BCG	History	30	12-23 m	977	0
DTP1	C or H <12 months	75	12-23 m	977	0
DTP1	Card	46	12-23 m	977	0
DTP1	Card or History	75	12-23 m	977	0
DTP1	History	29	12-23 m	977	0
DTP3	History	13	12-23 m	977	0
DTP3	C or H <12 months	47	12-23 m	977	0
DTP3	Card	37	12-23 m	977	0
DTP3	Card or History	50	12-23 m	977	0
MCV	History	25	12-23 m	977	0
MCV	Card or History	63	12-23 m	977	0
MCV	Card	38	12-23 m	977	0
MCV	C or H <12 months	53	12-23 m	977	0
Pol1	C or H <12 months	82	12-23 m	977	0
Pol1	Card or History	83	12-23 m	977	0
Pol1	History	38	12-23 m	977	0
Pol1	Card	45	12-23 m	977	0
Pol3	Card or History	49	12-23 m	977	0
Pol3	History	13	12-23 m	977	0
Pol3	Card	36	12-23 m	977	0
Pol3	C or H <12 months	47	12-23 m	977	0

2004 Liberia 2005 EPI Cluster Survey

Vaccine	Confirmation method	Coverage	Age cohort	Sample	Cards seen
BCG	Card or history	69	12-23 m	2907	0
BCG	Card	58	12-23 m	2907	0
DTP1	Card	35	12-23 m	2907	0
DTP1	Card or history	65	12-23 m	2907	0
DTP3	Card	18	12-23 m	2907	0
DTP3	Card or history	27	12-23 m	2907	0
MCV	Card or history	41	12-23 m	2907	0

MCV	Card	25	12-23 m	2907	0
Pol1	Card or history	89	12-23 m	2907	0
Pol1	Card	34	12-23 m	2907	0
Pol3	Card	18	12-23 m	2907	0
Pol3	Card or history	52	12-23 m	2907	0
YFV	Card	18	12-23 m	2907	0
YFV	Card or history	34	12-23 m	2907	0

1999 IMCI Household Baseline, Preliminary Report, 2000

Vaccine	Confirmation method	Coverage	Age cohort	Sample	Cards seen
BCG	Card or History	86	12-23 m	89	0
DTP1	Card or History	91	12-23 m	89	0
DTP3	Card or History	64	12-23 m	89	0
MCV	Card or History	79	12-23 m	89	0
Pol1	Card or History	94	12-23 m	89	0
Pol3	Card or History	74	12-23 m	89	0

1999 Liberia National Nutrition Survey 1999-2000, 2001

Vaccine	Confirmation method	Coverage	Age cohort	Sample	Cards seen
BCG	Card	50	12-23 m	1000	0
BCG	C or H <12 months	73	12-23 m	1000	0
BCG	Card or History	82	12-23 m	1000	0
BCG	History	33	12-23 m	1000	0
DTP1	History	34	12-23 m	1000	0
DTP1	C or H <12 months	74	12-23 m	1000	0
DTP1	Card	50	12-23 m	1000	0
DTP1	Card or History	84	12-23 m	1000	0
DTP3	C or H <12 months	38	12-23 m	1000	0
DTP3	Card	30	12-23 m	1000	0
DTP3	Card or History	44	12-23 m	1000	0
DTP3	History	14	12-23 m	1000	0
MCV	History	30	12-23 m	1000	0
MCV	C or H <12 months	50	12-23 m	1000	0
MCV	Card or History	69	12-23 m	1000	0
MCV	Card	39	12-23 m	1000	0

Liberia - survey details

Pol1	History	44	12-23 m	1000	0
Pol1	C or H <12 months	84	12-23 m	1000	0
Pol1	Card or History	94	12-23 m	1000	0
Pol1	Card	50	12-23 m	1000	0
Pol3	C or H <12 months	48	12-23 m	1000	0

Pol3	Card	31	12-23 m	1000	0
Pol3	Card or History	55	12-23 m	1000	0
Pol3	History	24	12-23 m	1000	0

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

Liberia

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	56
1999	44
2000	51
2001	59
2002	64
2003	56
2004	59
2005	60
2006	73
2007	90
2008	91
2009	91
2010	91

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.