

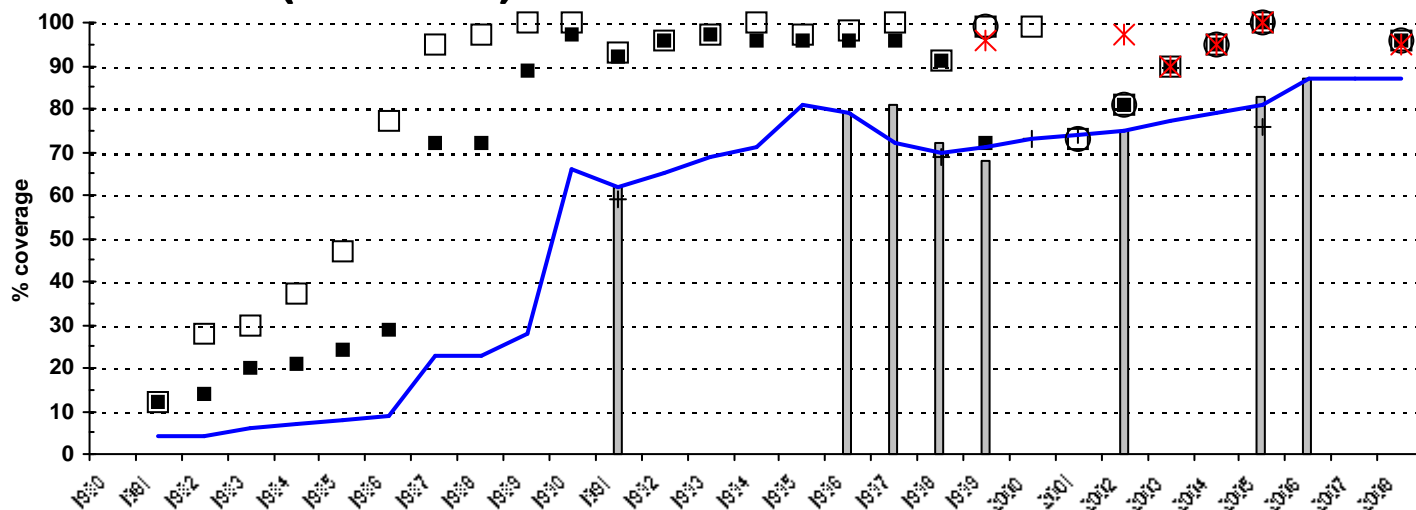
**WHO/UNICEF
Review of National Immunization Coverage
1980-2008**

India

July, 2009

India

BCG (1980-2008)



Description of trend

Trends in officially reported data show an increase in coverage beginning in the early 1980s reflecting the phased geographic expansion of the EPI programme. In 1985 the Universal Immunization Programme, the inclusion of immunization in India's Technology Mission (one of 5 missions reporting directly to the Prime Minister) and the infusion of resources associated with the global Universal Childhood Immunization (UCI) goal resulted in rapidly increasing coverage in the late 1980s.

While official reports describe sustained high levels of coverage following 1990, survey data suggests significantly lower coverage beginning in the late 1980s. Coverage for 1990 and 1991 was estimated to have been 66% and 62% respectively based on an extensive sub-national Immunization Coverage Survey of 1991 and results from the 1992 National Family Health Survey (NFHS). Estimates prior to 1990 were established by calibrating the data reported to UNICEF by the 1990 estimate established by an evaluation of the 1991 and 1992 surveys. Coverage prior to 1990 is below that of DPT3, probably due to the number of home deliveries.

Estimates for 1993 through 1995 are interpolated between the levels established by the 1991 and 1996 surveys and sub-national surveys. The estimates for the periods following 1995 are based primarily on the surveys.

Estimates for 2000 - 2001 are interpolated between the 1999 and 2002 survey data. Review of the NFHS and CES methods suggest CES methodology may overestimate coverage. The 2003-2004 estimates are based on 2002/2004 National District and the average between the CES and the 2006 NFHS. National data for 2004 and 2005 for nine months only. Estimates from 2006 onward are based on the average of the 2006 Coverage Evaluation Survey results and the 2006 District Level Household Survey results.

Data presented in chart

Year	WHO/ UNICEF estimate (%) —	Reported to:*		Government official estimate (%) ○	Reported doses administered (%)** ✱	Survey data (%)***	
		WHO (%) □	UNICEF (%) ■			Survey 12-23 months ▮	Survey <12 months +
1980							
1981	4	12	12				
1982	4	28	14				
1983	6	30	20				
1984	7	37	21				
1985	8	47	24				
1986	9	77	29				
1987	23	95	72				
1988	23	97	72				
1989	28	100	89				
1990	66	100	97				
1991	62	93	92			62	59
1992	65	96	96				
1993	69	97	97				
1994	71	100	96				
1995	81	97	96				
1996	79	98	96			79	
1997	72	100	96			81	
1998	70	91	91			72	69
1999	71	99	72	99	96	68	
2000	73	99		103	103		73
2001	74	73		73	103		74
2002	75	81	81	81	97	75	
2003	77	90	90		90		
2004	79	95	95	95	95		
2005	81	100	100	100	100	83	76
2006	87	101	101	101	101	87	
2007	87	101	101	101	101		
2008	87	96	96	96	95		

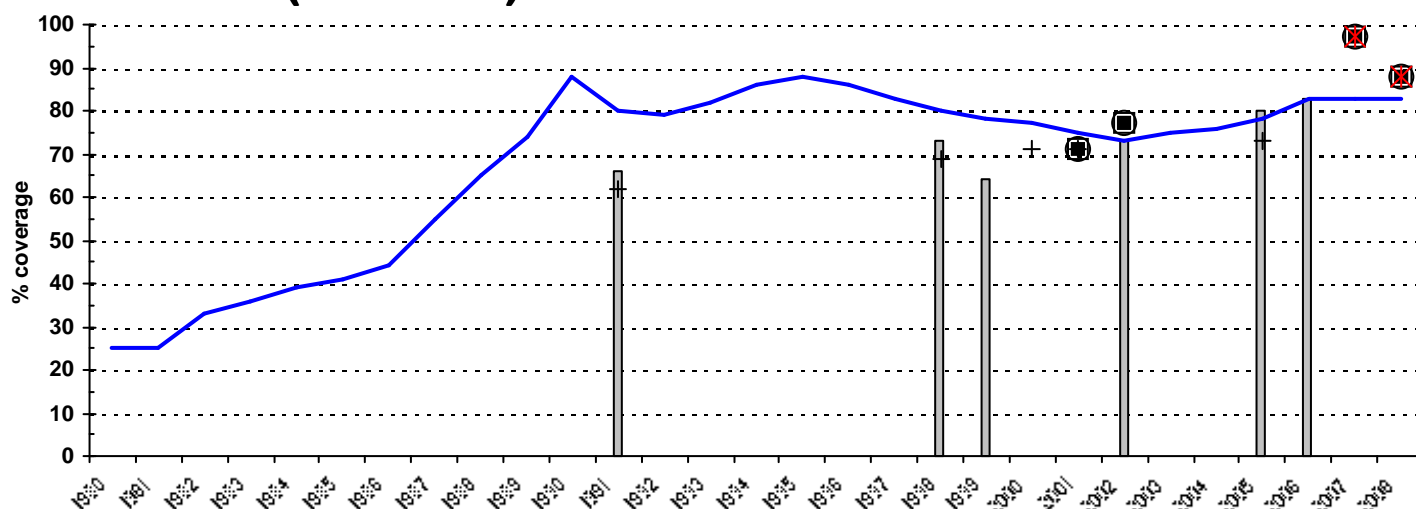
*Prior to 1998 national reports to WHO/UNICEF did not specify whether information was derived from administrative records, surveys or other sources.

**Coverage based on registration of doses administered by health care providers.

***In case more than one survey was implemented in a certain year the highest value is presented. Details of all data are presented in the second section of this report.

India

DTP1 (1980-2008)



Description of trend

WHO and UNICEF began requesting data on DTP1 coverage in 2001 and have received national reports reflecting DTP1 coverage from 2001 onward. The DTP1 estimates from 2001-2002 are based on these reports. For the year 2000 estimates are based on survey, for the years prior to 2000 the estimates are derived from the WHO/UNICEF estimates of DTP3 and the relationship between the levels of DTP3 coverage and the dropout between DTP1 and DTP3. This relationship results from an analysis of 282 surveys conducted in 101 countries which were published between 1980 and 2004.

The estimate for 2002 is based on the 2002 survey data. Review of the NFHS and CES methods suggest CES methodology may overestimate coverage. The 2003-2004 estimates are based on 2002/2004 National District Level Survey and the average between the 2005 CES and the NFHS. Estimates from 2006 onward are based on the average of the 2006 Coverage Evaluation Survey results.

Data presented in chart

Year	WHO/UNICEF estimate (%)	Reported to:*		Government official estimate (%)	Reported doses administered (%)**	Survey data (%)***	
		WHO (%)	UNICEF (%)			Survey 12-23 months	Survey <12 months
1980	25						
1981	25						
1982	33						
1983	36						
1984	39						
1985	41						
1986	44						
1987	55						
1988	65						
1989	74						
1990	88						
1991	80	66	62				
1992	79						
1993	82						
1994	86						
1995	88						
1996	86						
1997	83						
1998	80						
1999	78					73	69
2000	77					64	
2001	75	71	71	71			71
2002	73	77	77	77		73	
2003	75						
2004	76						
2005	78					80	73
2006	83					83	
2007	83	97	97	97	97		
2008	83	88	88	88	88		

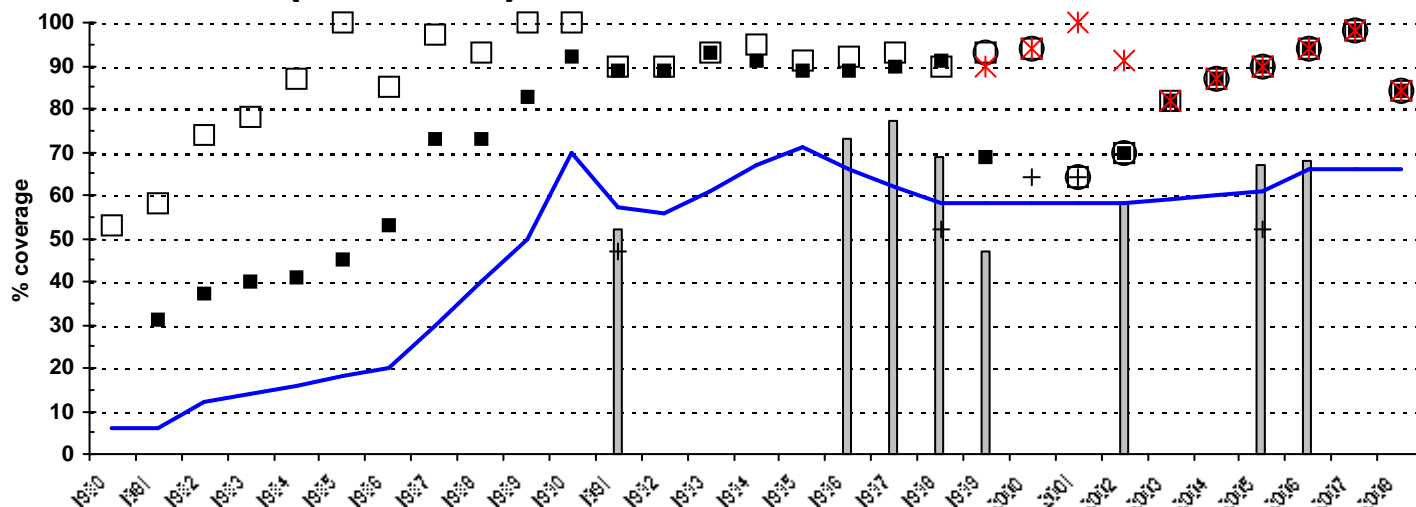
*Prior to 1998 national reports to WHO/UNICEF did not specify whether information was derived from administrative records, surveys or other sources.

**Coverage based on registration of doses administered by health care providers.

***In case more than one survey was implemented in a certain year the highest value is presented. Details of all data are presented in the second section of this report.

India

DTP3 (1980-2008)



Description of trend

Trends in officially reported data show an increase in coverage beginning in the early 1980s reflecting the phased geographic expansion of the EPI programme. In 1985 the Universal Immunization Programme, the inclusion of immunization in India's Technology Mission (one of 5 missions reporting directly to the Prime Minister) and the infusion of resources associated with the global Universal Childhood Immunization goal result rapidly increasing coverage in the late 1980s.







While official reports describe sustained high coverage following 1990, survey data suggests significantly lower coverage beginning in the late 1980s. Coverage for 1990 & 1991 was estimated to have been 70% and 57% respectively based on an extensive sub-national Immunization Coverage Survey of 1991 and results from the 1992 National Family Health Survey (NFHS). Estimates prior to 1990 were established by calibrating the data reported to UNICEF by the 1990 estimate established by an evaluation of the 1991 & 1992 surveys.

Estimates for 1993 through 1995 are interpolated between the levels established by the 1991 and 1996 surveys. The estimates for the period following 1995 are based on the Coverage Evaluation Surveys (CES), MICSS, and a second NFHS (1997/98) and show a marked decline in coverage during this period. The estimates for 1995-1997 are based on an evaluation of the survey data. Results from previous Demographic and Health Surveys (similar to the NFHS and MICSS) suggest that coverage values based on mothers' history are affected by a recall bias for the antigen vaccines (i.e., OPV 1,2,3 and DPT 1,2,3.) and most likely occur in longer surveys covering a variety of indicators. It does not appear a problem in surveys focused on immunization coverage such as the EPI 30 cluster surveys and the CES. To control for this bias we have adjusted the DPT3 card or history value by calculating the dropout rate from DPT1 to DPT3 based on card results and applying this multiplier to the DPT1 card or history value. This adjustment may result in an overestimate since children without a card are less likely to be immunized than children with a card.

The 1996 and 1997 results of the CES seem to estimate the upper range of actual coverage. The dropout rate of 6% from DPT1 to DPT3 in the 1998/1999 CES is unusually low (dropout from the NFHS 98/99 is 13% based on card only data). The estimate of 1997 is based on an adjustment of the NFHS (1997/98) results to account for recall bias and the CES. The estimate of 62% is supported by results from the 1997 Reproductive and Child Health Survey.

The 1999 estimate is based on the MICS adjusted for recall bias. Estimates from 2000-2002 are interpolated between the 1999 and 2002 survey data. Estimates for 2000-2001 are interpolated between the 1999 and 2002 survey data. Review of the NFHS and CES methods suggest CI methodology may overestimate coverage. The 2003-2004 estimates are based on 2002/2004 National District Level Survey and the average between the 2005 CES and the 2006 NFHS. National data for 2004 and 2005 are for nine months only. Estimates from 2006 onward are based on the average of the 2006 Coverage Evaluation Survey results and the 2006 District Level Household Survey results.

Data presented in chart

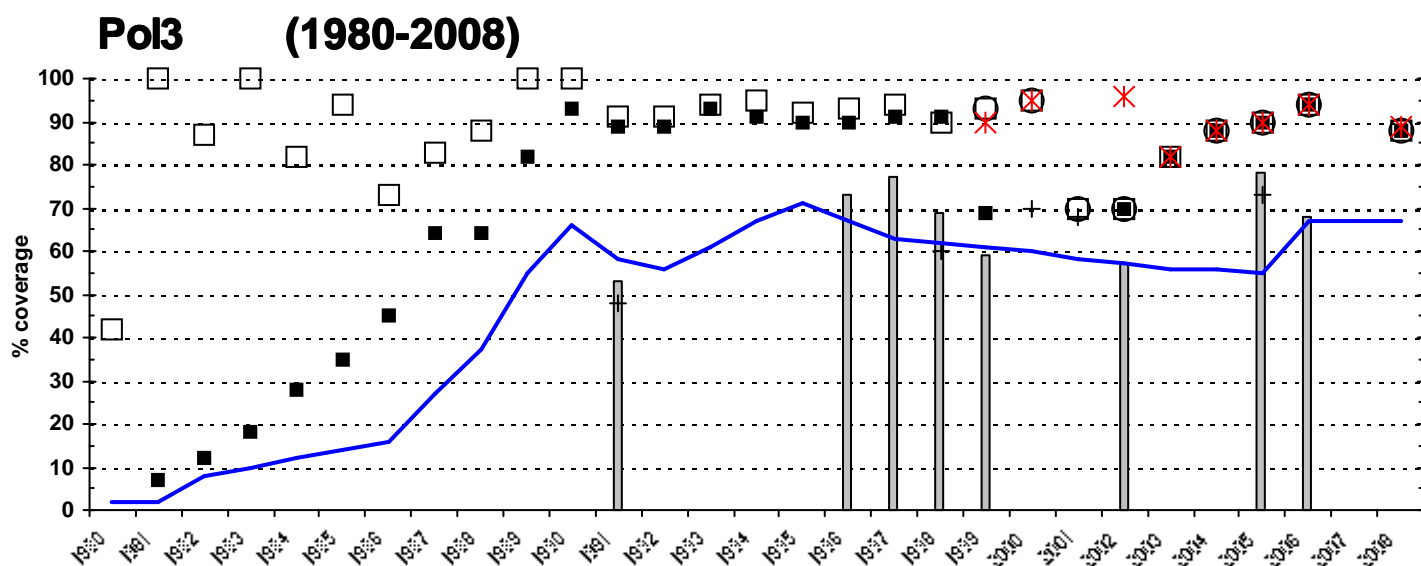
Year	WHO/ UNICEF estimate (%) 	Reported to:*		Government official estimate (%) 	Reported doses administered (%)** 	Survey data (%)***	
		WHO (%) 	UNICEF (%) 			Survey 12-23 months 	Survey <12 months +
1980	6	53					
1981	6	58	31				
1982	12	74	37				
1983	14	78	40				
1984	16	87	41				
1985	18	100	45				
1986	20	85	53				
1987	30	97	73				
1988	40	93	73				
1989	50	100	83				
1990	70	100	92				
1991	57	90	89			52	47
1992	56	90	89				
1993	61	93	93				
1994	67	95	91				
1995	71	91	89				
1996	66	92	89			73	
1997	62	93	90			77	
1998	58	90	91			69	52
1999	58	93	69	93	90	47	
2000	58	94		94	94		64
2001	58	64		64	100		64
2002	58	70	70	70	91	58	
2003	59	82	82		82		
2004	60	87	87	87	87		
2005	61	90	90	90	90	67	52
2006	66	94	94	94	94	68	
2007	66	98	98	98	98		
2008	66	84	84	84	84		

*Prior to 1998 national reports to WHO/UNICEF did not specify whether information was derived from administrative records, surveys or other sources.

**Coverage based on registration of doses administered by health care providers.

***In case more than one survey was implemented in a certain year the highest value is presented. Details of all data are presented in the second section of this report.

India



Description of trend

Trends in officially reported data show an increase in coverage beginning in the early 1980s reflecting the phased geographic expansion of the programme. In 1985 the Universal Immunization Programme, the inclusion of immunization in India's Technology Mission (one of 5 missions reporting directly to the Prime Minister) and the infusion of resources associated with the global Universal Childhood Immunization goal results rapidly increasing coverage in the late 1980s.







While official reports describe sustained high levels of coverage following 1990, survey data suggest significantly lower coverage beginning in 1980s. Coverage for 1990 and 1991 was estimated to have been 66% and 58% respectively based on an extensive sub-national Immunization Coverage Survey of 1991 and results from the 1992 National Family Health Survey (NFHS). Estimates prior to 1990 were established by calibrating the data reported to UNICEF by the 1990 estimate established by an evaluation of the 1991 and 1992 surveys.

Estimates for 1993 through 1995 are interpolated between the levels established by the 1992 and 1996 surveys. The estimates for the periods following 1995 are based primarily on the Coverage Evaluation Surveys (CES), MICSS, and a second National Family & Health Survey (1997/98) show a marked decline in coverage during this period. The estimate for 1995 - 1997 are based on an evaluation of the survey data. Results from previous Demographic and Health Surveys (similar to the NFHS and MICS) suggest that coverage values based on mothers' history are affected by recall bias for the multi-antigen vaccines (i.e., OPV 1,2,3 and DPT 1,2,3.) and to most likely occur in longer surveys covering a variety of indicators. It does not appear to be a problem in surveys focused on immunization coverage such as the EPI 30 cluster surveys and the CES. To control this bias we have adjusted the OPV3 card or history value by calculating the dropout rate from OPV1 to OPV3 based on card results and applied this multiplier to the OPV1 card or history value. This adjustment may result in an overestimation since children without a card are less likely to be immunized than children with a card.

The 1996 and 1997 results of the CES surveys seem to estimate the upper range of actual coverage. The dropout rate of 6% from OPV1 to OPV3 in the 1998/1999 CES is unusually low (dropout from the NFHS 98/99 is 13% based on card only data). The estimate of 1997 is based on an adjustment of the NFHS (1997/98) results to account for recall bias and the CES. The estimate of 63% is supported by results from the 1997 Reproductive and Child Health Survey.

The 1999 estimate is based on the MICS adjusted for recall bias. Estimates for 2000 - 2001 are interpolated between the 1999 and 2002 surveys. A review of the NFHS and CES methods suggest CES methodology may overestimate coverage. The 2005 NFHS data include campaign doses. 2003-2005 estimates are based on 2002/2004 National District and the 2005 CES adjusted with the difference between CES 2005 and NFHS results. National data for 2004 and 2005 are for nine months only. Estimates from 2006 onward are based on the average of the 2006 Coverage Evaluation Survey results and the 2006 District Level Household Survey results.

Data presented in chart

Year	WHO/ UNICEF estimate (%) 	Reported to:*		Government official estimate (%) 	Reported doses administered (%)** 	Survey data (%)***	
		WHO (%) 	UNICEF (%) 			Survey 12-23 months 	Survey <12 months +
1980	2	42					
1981	2	100	7				
1982	8	87	12				
1983	10	100	18				
1984	12	82	28				
1985	14	94	35				
1986	16	73	45				
1987	27	83	64				
1988	37	88	64				
1989	55	100	82				
1990	66	100	93				
1991	58	91	89			53	48
1992	56	91	89				
1993	61	94	93				
1994	67	95	91				
1995	71	92	90				
1996	67	93	90			73	
1997	63	94	91			77	
1998	62	90	91			69	60
1999	61	93	69	93	90	59	
2000	60	95		95	95		70
2001	58	70		70			68
2002	57	70	70	70	96	57	
2003	56	82	82		82		
2004	56	88	88	88	88		
2005	55	90	90	90	90	78	73
2006	67	94	94	94	94	68	
2007	67	102	102	102	102		
2008	67	88	88	88	89		

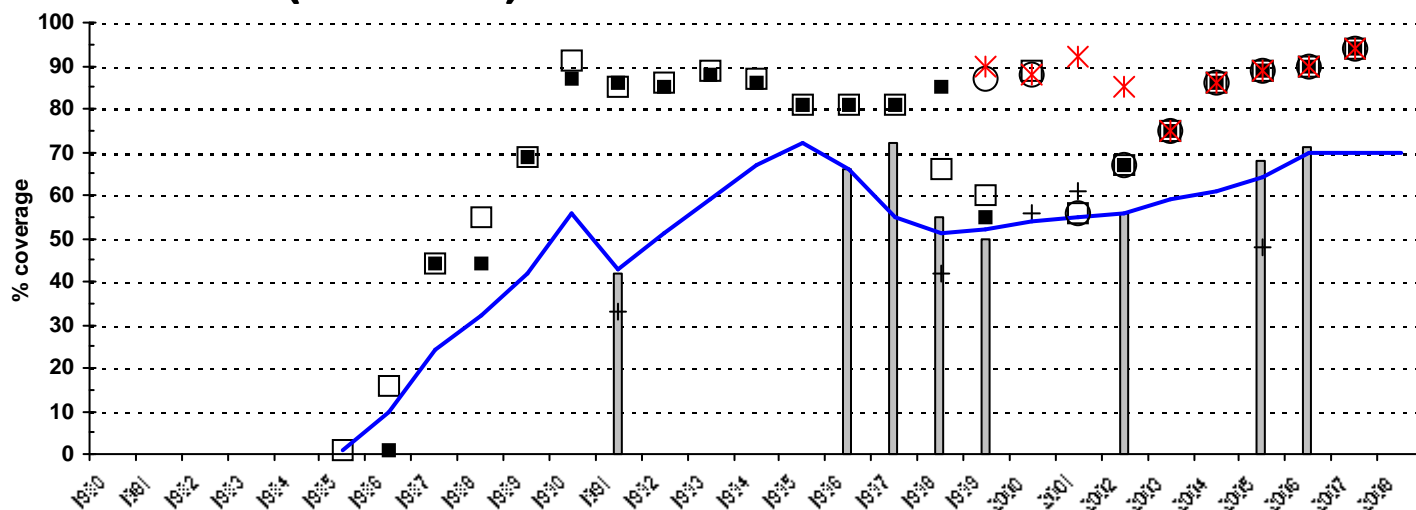
*Prior to 1998 national reports to WHO/UNICEF did not specify whether information was derived from administrative records, surveys or other sources.

**Coverage based on registration of doses administered by health care providers.

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India

MCV (1980-2008)



Description of trend







Measles vaccine was introduced in 1985. Trends in officially reported data show a rapid increase in coverage reflecting the phased geograph expansion of the EPI programme. In 1985 the Universal Immunization Programme, the inclusion of immunization in India's Technology Mission (one of 5 missions reporting directly to the Prime Minister) and the infusion of resources associated with the global Universal Childhood Immunization goal resulted in rapidly increasing coverage in the late 1980s.

While official reports describe sustained high levels of coverage following 1990, survey data suggest significantly lower coverage beginning in late 1980s. Coverage for 1990 and 1991 was estimated to have been 56% and 43% respectively based on an extensive sub-national Immunity Coverage Survey of 1991 and results from the 1992 National Family Health Survey (NFHS). Estimates prior to 1990 were established by calibrating the data reported to UNICEF by the 1990 estimate established by an evaluation of the 1991 and 1992 surveys.

Estimates for 1992 through 1995 are interpolated between the levels established by the 1991 and 1996 surveys. The estimates for the period following 1995 are based primarily on the Coverage Evaluation Surveys (CES), MICSS, and a second National Family & Health Survey (1997) and show a marked decline in coverage during this period. The estimates for 1995 - 1997 are based on an evaluation of the survey data.

The estimate of 1997 is based on the CES. The estimate of 55% is supported by results from the 1997 Reproductive and Child Health Survey and NFHS (1997/98). The 1999 estimate is based on the MICS. Estimates for 2000 - 2001 are interpolated between the 1999 and 2002 survey data. Review of the NFHS and CES methods suggest CES methodology may overestimate coverage. The 2003-2004 estimates are based on 2002/2004 National District Level Survey and the average between the 2005 CES and the 2006 NFHS. National data for 2004 and 2005 are nine months only. Estimates from 2006 onward are based on the average of the 2006 Coverage Evaluation Survey results and the 2006 District Level Household Survey results.

Data presented in chart

Year	WHO/ UNICEF estimate (%) 	Reported to:*		Government official estimate (%) 	Reported doses administered (%)** 	Survey data (%)***	
		WHO (%) 	UNICEF (%) 			Survey 12-23 months 	Survey <12 months +
1980							
1981							
1982							
1983							
1984							
1985	1	1					
1986	10	16	1				
1987	24	44	44				
1988	32	55	44				
1989	42	69	69				
1990	56	91	87				
1991	43	85	86			42	33
1992	51	86	85				
1993	59	89	88				
1994	67	87	86				
1995	72	81	81				
1996	66	81	81			66	
1997	55	81	81			72	
1998	51	66	85			55	42
1999	52	60	55	87	90	50	
2000	54	89		88	88		56
2001	55	56		56	92		61
2002	56	67	67	67	85	56	
2003	59	75	75	75	75		
2004	61	86	86	86	86		
2005	64	89	89	89	89	68	48
2006	70	90	90	90	90	71	
2007	70	94	94	94	94		
2008	70	102	102	102	102		

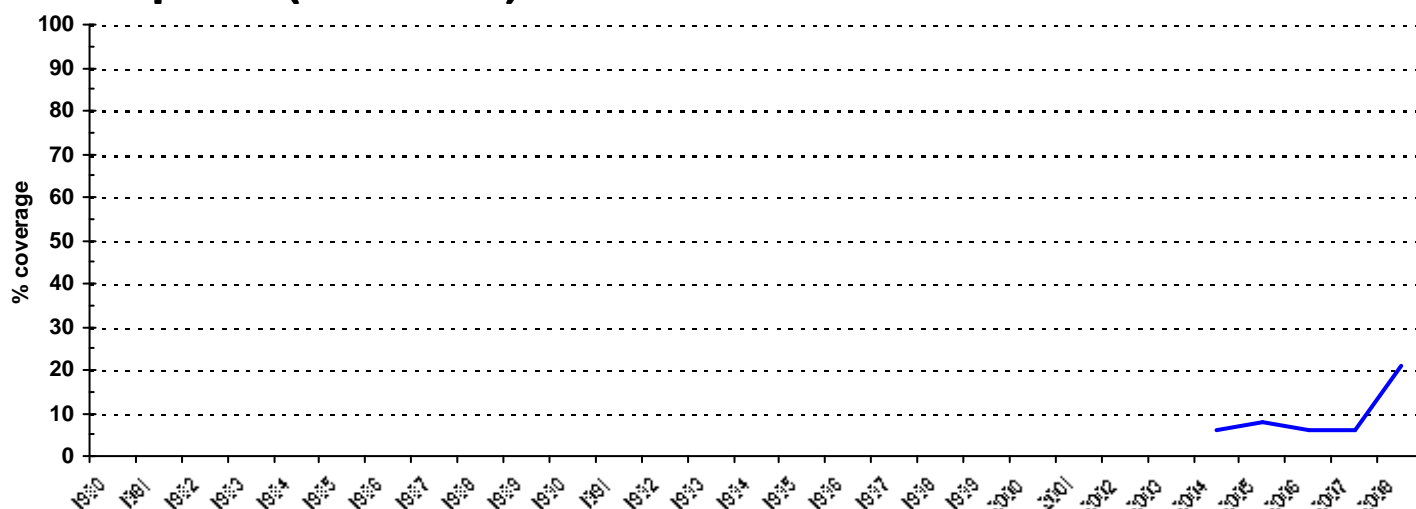
*Prior to 1998 national reports to WHO/UNICEF did not specify whether information was derived from administrative records, surveys or other sources.

**Coverage based on registration of doses administered by health care providers.

***In case more than one survey was implemented in a certain year the highest value is presented. Details of all data are presented in the second section of this report.

India

HepB3 (1980-2008)



Description of trend

Phased introduction of Hepatitis B vaccine began in 2002. Coverage of 68% for 2004 is based on a target population of 1.65 million children under one year of age; 78% in 2005 on 2.3 million children under one year of age. For 2006 72% coverage in 8% of the national target population was reached; for 2007 69% coverage in 7% of the national target population and in 2008 50% coverage in 43% of the national target population.

Data presented in chart

Year	WHO/ UNICEF estimate (%)	Reported to:*		Government official estimate (%)	Reported doses administered (%)**	Survey data (%)***	
		WHO (%)	UNICEF (%)			Survey 12-23 months	Survey <12 months
1980							
1981							
1982							
1983							
1984							
1985							
1986							
1987							
1988							
1989							
1990							
1991							
1992							
1993							
1994							
1995							
1996							
1997							
1998							
1999							
2000							
2001							
2002							
2003							
2004	6						
2005	8						
2006	6						
2007	6						
2008	21						

*Prior to 1998 national reports to WHO/UNICEF did not specify whether information was derived from administrative records, surveys or other sources.

**Coverage based on registration of doses administered by health care providers.

***In case more than one survey was implemented in a certain year the highest value is presented. Details of all data are presented in the second section of this report.

India

Details Survey Data

Year Source

Antigen	Confirmation method	% coverage	Compliance with schedule	Age group	Sample size	% cards seen	Survey year	Comments
2006 India Coverage Evaluation Survey 2006								
BCG	Card or History	87.4		12-23 m	22888		2007	
DTP1	Card or History	83.4		12-23 m	22888		2007	
DTP3	Card or History	68.4		12-23 m	22888		2007	
Pol3	Card or History	67.5		12-23 m	22888		2007	
MCV	Card or History	70.9		12-23 m	22888		2007	
2006 India District-Level Household and Facility Survey 2007-2008 (DHLS-3), Provisional Results								
BCG	Card or History	86.9		12-23 m	63023		2007	
DTP3	Card or History	63.6		12-23 m	63023		2007	
Pol3	Card or History	66.2		12-23 m	63023		2007	
MCV	Card or History	69.6		12-23 m	63023		2007	
2005 India Coverage Evaluation Survey 2005								
BCG	Card or History	83.4		12-23 m	15676		2005	
DTP1	Card or History	80.4		12-23 m	15676		2005	
DTP3	Card or History	67.3		12-23 m	15676		2005	
Pol3	Card or History	61.3		12-23 m	15676		2005	
MCV	Card or History	68.1		12-23 m	15676		2005	
2005 India National Family Health Survey (NFHS-3) 2005-2006								
BCG	Card or History	78.1		12-23 m	10419	38	2006	
BCG	C or H <12 month	75.6		12-23 m	10419	38	2006	
DTP1	Card or History	76		12-23 m	10419	38	2006	
DTP1	C or H <12 month	72.8		12-23 m	10419	38	2006	
DTP3	Card or History	55.3		12-23 m	10419	38	2006	
DTP3	C or H <12 month	51.5		12-23 m	10419	38	2006	
Pol3	Card or History	78.2		12-23 m	10419	38	2006	
Pol3	C or H <12 month	73.2		12-23 m	10419	38	2006	
MCV	Card or History	58.8		12-23 m	10419	38	2006	
MCV	C or H <12 month	48.4		12-23 m	10419	38	2006	
2002 Reproductive and Child Health (District Level Household Survey 2002-2004) - India								
BCG	Card or History	75		12-23 m	62505	31	2002/2004	
DTP1	Card or History	73		12-23 m	62505	31	2002/2004	
DTP3	Card or History	58		12-23 m	62505	31	2002/2004	
Pol3	Card or History	57		12-23 m	62505	31	2002/2004	
MCV	Card or History	56		12-23 m	62505	31	2002/2004	
2001 Routine Immunization and Maternal Care, CES, 2002								
BCG	C or H <12 month	74		12-23 m		53.8	2002	
DTP1	C or H <12 month	70.6		12-23 m		53.8	2002	
DTP3	C or H <12 month	63.8		12-23 m		53.8	2002	
Pol3	C or H <12 month	68.3		12-23 m		53.8	2002	
MCV	C or H <12 month	61.4		12-23 m		53.8	2002	
2000 Routine Immunization and Maternal Care, CES, 2001								
BCG	C or H <12 month	72.8		12-23 m		57.2	2001	
DTP1	C or H <12 month	71.1		12-23 m		57.2	2001	

India

Details Survey Data

Year Source

Antigen	Confirmation method	% coverage	Compliance with schedule	Age group	Sample size	% cards seen	Survey year	Comments
DTP3	C or H <12 month	63.6		12-23 m		57.2	2001	
Pol3	C or H <12 month	70.4		12-23 m		57.2	2001	
MCV	C or H <12 month	55.6		12-23 m		57.2	2001	

1999 India, Multiple Indicator Cluster Survey India (MICS-II) 2000

BCG	Card or History	67.7		12-23 m			2000	
DTP1	Card or History	64.4		12-23 m			2000	
DTP3	Card or History	46.6		12-23 m			2000	
Pol3	Card or History	58.9		12-23 m			2000	
MCV	Card or History	50.4		12-23 m			2000	

1998 Evaluation of Routine Immunization 1998-99

BCG	Card or History	72.3		12-23 m	7855	48.5	1998/99	Confirmation Method assumed
DTP1	Card or History	72.8		12-23 m	7855	48.5	1998/99	Confirmation Method assumed
DTP3	Card or History	68.6		12-23 m	7855	48.5	1998/99	Confirmation Method assumed
Pol3	Card or History	68.6		12-23 m	7855	48.5	1998/99	Confirmation Method assumed
MCV	Card or History	55.2		12-23 m	7855	48.5	1998/99	Confirmation Method assumed

1998 National Family Health Survey, India 1998-99

BCG	Card or History	71.6		12-23 m		33.7	1998/99	
BCG	C or H <12 month	69.1		12-23 m		33.7	1998/99	
BCG	C or H <12 month	65.2		24-35 m	9813	24	1998/99	
DTP1	Card or History	71.4		12-23 m		33.7	1998/99	
DTP1	C or H <12 month	68.8		12-23 m		33.7	1998/99	
DTP1	C or H <12 month	64.1		24-35 m	9813	24	1998/99	
DTP3	Card or History	55.1		12-23 m		33.7	1998/99	
DTP3	C or H <12 month	52.1		12-23 m		33.7	1998/99	
DTP3	C or H <12 month	49.6		24-35 m	9813	24	1998/99	
Pol3	Card or History	62.8		12-23 m		33.7	1998/99	
Pol3	C or H <12 month	59.2		12-23 m		33.7	1998/99	
Pol3	C or H <12 month	59.6		24-35 m	9813	24	1998/99	
MCV	Card or History	50.7		12-23 m		33.7	1998/99	
MCV	C or H <12 month	41.7		12-23 m		33.7	1998/99	
MCV	C or H <12 month	41.3		24-35 m	9813	24	1998/99	

1997 Evaluation of Routine Immunization 1997-98

BCG	Card or History	81		24-35 m	2673		1997/98	Confirmation Method assumed
DTP1	Card or History			24-35 m	2673		1997/98	Confirmation Method assumed
DTP3	Card or History	77		24-35 m	2673		1997/98	Confirmation Method assumed
Pol3	Card or History	77		24-35 m	2673		1997/98	Confirmation Method assumed
MCV	Card or History	72		24-35 m	2673		1997/98	Confirmation Method assumed

1997 Evaluation of Routine Immunization 1998-99

DTP3	Card or History	77		12-23 m			1996/97	as DPT3/OPV3 is the same in 1998/1999, it is assumed to be the same for 1997 too
Pol3	Card or History	77		12-23 m			1996/97	Confirmation Method assumed

1996 Evaluation of Routine Immunization 1997-98

BCG	Card or History	79		12-23 m	7295	56	1997/98	Confirmation Method assumed
DTP1	Card or History			12-23 m	7295	56	1997/98	Confirmation Method assumed
DTP3	Card or History	73		12-23 m	7295	56	1997/98	Confirmation Method assumed

India

Details Survey Data

Year Source

Antigen	Confirmation method	% coverage	Compliance with schedule	Age group	Sample size	% cards seen	Survey year	Comments
Pol3	Card or History	73		12-23 m	7295	56	1997/98	Confirmation Method assumed
MCV	Card or History	66		12-23 m	7295	56	1997/98	Confirmation Method assumed

1991 India, National Family Health Survey (MCH and Family Planning) 1992-93, 1995

BCG	Card or History	62.2		12-23 m	11853	30.6	1992/93	
BCG	C or H <12 month	58.7		12-23 m	11853	30.6	1992/93	
BCG	C or H <12 month	52.4		24-35 m	10646	21.6	1992/93	
BCG	C or H <12 month	44		36-47 m	11342	13.2	1992/93	
DTP1	Card or History	66.3		12-23 m	11853	30.6	1992/93	
DTP1	C or H <12 month	62.4		12-23 m	11853	30.6	1992/93	
DTP1	C or H <12 month	55.6		24-35 m	10646	21.6	1992/93	
DTP1	C or H <12 month	46.1		36-47 m	11342	13.2	1992/93	
DTP3	Card or History	51.7		12-23 m	11853	30.6	1992/93	
DTP3	C or H <12 month	46.9		12-23 m	11853	30.6	1992/93	
DTP3	C or H <12 month	43		24-35 m	10646	21.6	1992/93	
DTP3	C or H <12 month	36.1		36-47 m	11342	13.2	1992/93	
Pol3	Card or History	53.4		12-23 m	11853	30.6	1992/93	
Pol3	C or H <12 month	48.3		12-23 m	11853	30.6	1992/93	
Pol3	C or H <12 month	44.6		24-35 m	10646	21.6	1992/93	
Pol3	C or H <12 month	37.6		36-47 m	11342	13.2	1992/93	
MCV	Card or History	42.2		12-23 m	11853	30.6	1992/93	
MCV	C or H <12 month	32.7		12-23 m	11853	30.6	1992/93	
MCV	C or H <12 month	29.3		24-35 m	10646	21.6	1992/93	
MCV	C or H <12 month	24.1		36-47 m	11342	13.2	1992/93	

India

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.

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.

India

Year	PAB coverage estimate (%)
1980	20
1981	26
1982	35
1983	38
1984	43
1985	49
1986	55
1987	65
1988	72
1989	70
1990	81
1991	82
1992	83
1993	84
1994	84
1995	83
1996	82
1997	84
1998	84
1999	85
2000	85
2001	83
2002	87
2003	86
2004	86
2005	86
2006	86
2007	86
2008	86