

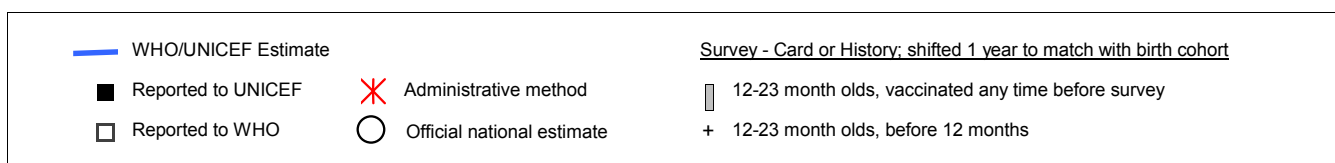
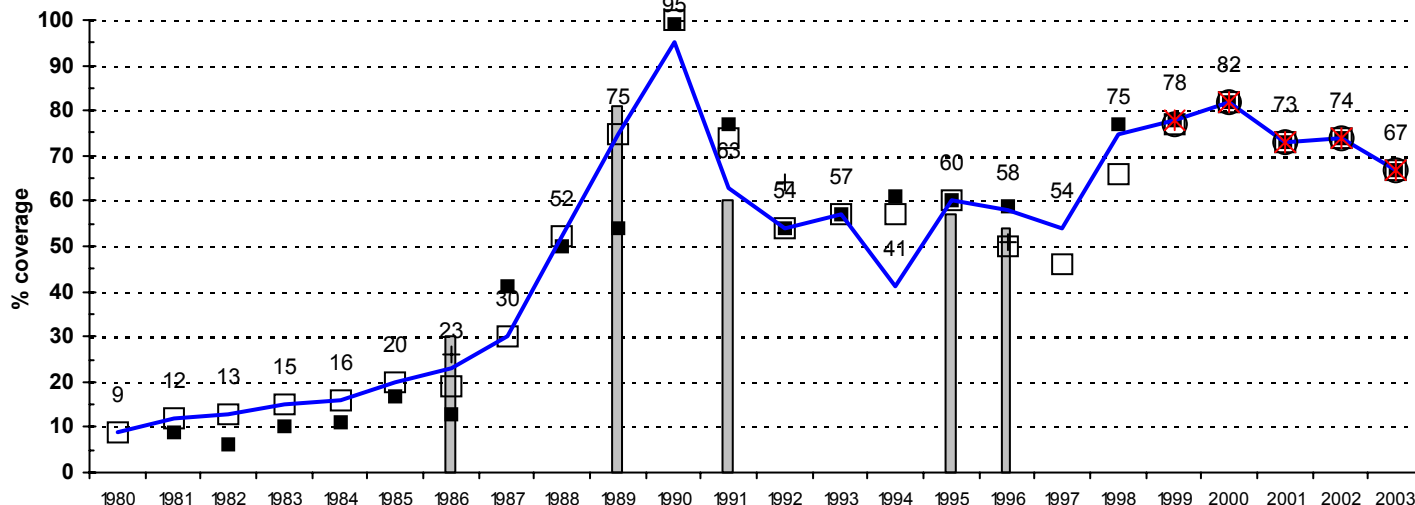


**WHO/UNICEF
Review of National Immunization Coverage
1980-2003**

Yemen

August, 2004

BCG (1980-2003)



Description of trend

Trend follows officially reported data which suggests a rapid increase in coverage in the late 1980s due to external donor support (vaccines, cold chain) and intensified efforts to reach UCI-goal. Survey data in 1986 and 1989 are not considered because only part of the country is covered (before unification). Coverage peaks in 1990, however 99% rate is slightly overestimating (miscalculation of population possible because north and south were united). Coverage is estimated to be 95% in 1990. The withdrawal of donor support after 1990 results in a drop in coverage, confirmed by survey data (DHS 1992). A further drop occurs in 1994 (to 41%) due to civil unrest in the country. Reported coverage for 1994 is an overestimate, possibly covering only part of the country. Coverage recovers in the mid 1990s to around 60%, confirmed by survey data (MICS 1996, DHS 1997) and increases further in the late 1990s due to the allocation and release of funds with a decline following 2000.

Data presented in chart

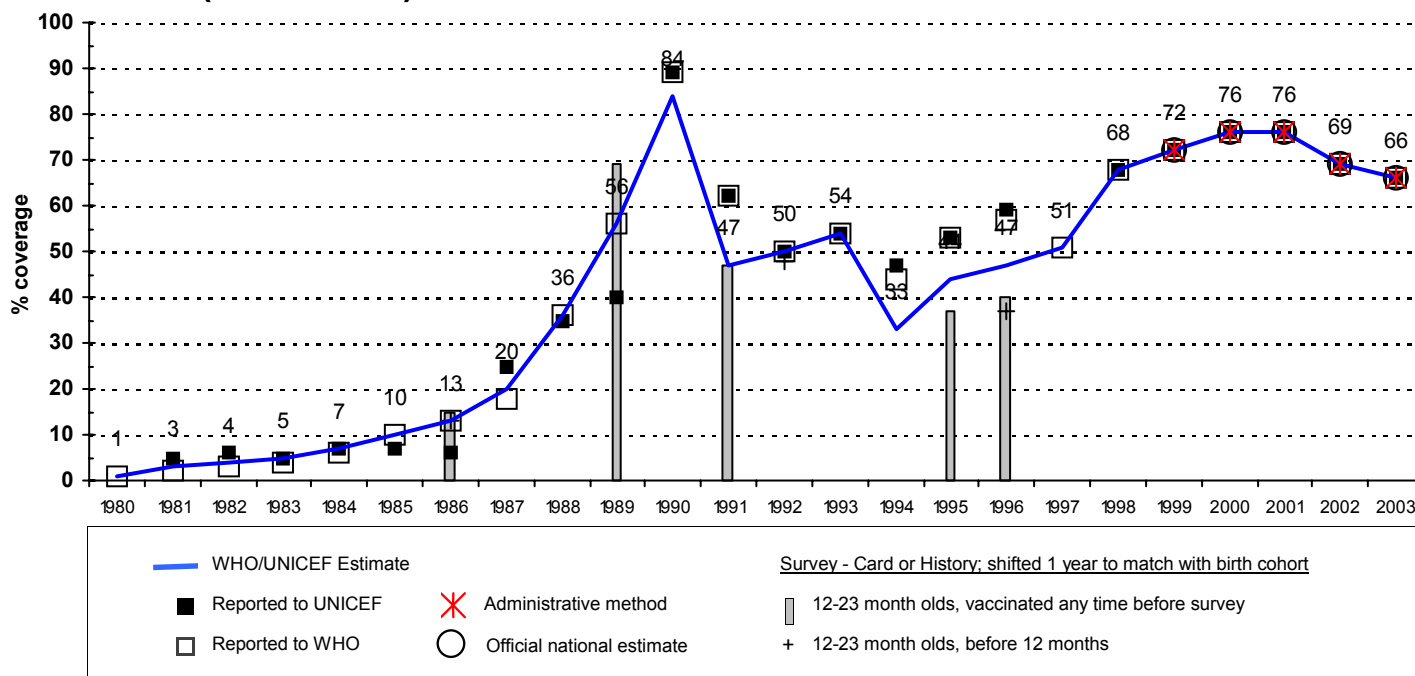
Year	WHO/UNICEF estimate (%)	Reported to:*		Government official estimate (%)	Reported doses administered (%)**	Survey data (%)***	
		WHO (%)	UNICEF (%)			Survey 12-23 months	Survey <12 months
1980	9	9					
1981	12	12	9				
1982	13	13	6				
1983	15	15	10				
1984	16	16	11				
1985	20	20	17				
1986	23	19	13			30	26
1987	30	30	41				
1988	52	52	50				
1989	75	75	54			81	
1990	95	100	99				
1991	63	74	77			60	
1992	54	54	54				64
1993	57	57	57				
1994	41	57	61				
1995	60	60	60			57	
1996	58	50	59			54	51
1997	54	46					
1998	75	66	77				
1999	78	77	78	77	78		
2000	82	82	82	82	82		
2001	73	73	73	73	73		
2002	74	74	74	74	74		
2003	67	67	67	67	67		

*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.

DTP3 (1980-2003)



Description of trend

Trend follows officially reported data suggesting a rapid increase in coverage in the late 1980s due to external donor support and intensified efforts to reach UCI-goal. Survey data in 1986 and 1989 are not considered (only part of the country covered). Coverage peaks in 1990, however 90% seems to be an overestimate (miscalculation of population possible because north and south were united). 1990 is estimated to be 84%. Withdrawal of donor support after 1990 results in a drop in coverage, confirmed by a survey (DHS 1992). A further drop occurs in 1994 due to civil unrest. Reported coverage for 1994 is an overestimate, possibly covering only part of the country. Coverage recovers in mid 1990s. Officially reported data shows higher coverage than survey data for 1995 and 1996 (MICS 1996, DHS 1997); a census in 1994 might have influenced the denominator. Coverage rates are therefore slightly lowered and are estimated to be around 45% in the mid 1990s. Due to the allocation and release of funds in the late 1990s coverage rates increase further with a decline following 2000.

Data presented in chart

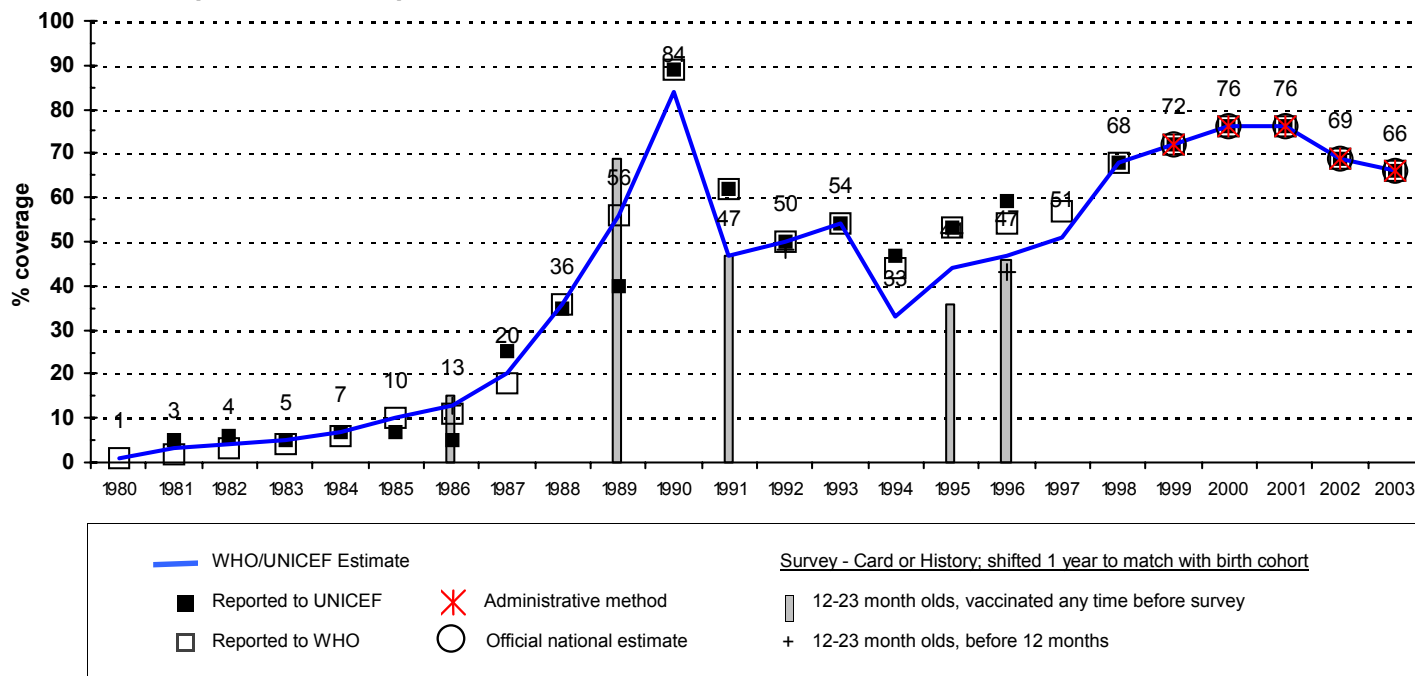
Year	WHO/UNICEF estimate (%)	Reported to:*		Government official estimate (%)	Reported doses administered (%)**	Survey data (%)***	
		WHO (%)	UNICEF (%)			Survey 12-23 months	Survey <12 months
1980	1	1					
1981	3	2	5				
1982	4	3	6				
1983	5	4	5				
1984	7	6	7				
1985	10	10	7				
1986	13	13	6			15	13
1987	20	18	25				
1988	36	36	35				
1989	56	56	40			69	
1990	84	89	89				
1991	47	62	62			47	
1992	50	50	50				48
1993	54	54	54				
1994	33	44	47				
1995	44	53	53			37	
1996	47	57	59			40	37
1997	51	51					
1998	68	68	68				
1999	72	72	72	72	72		
2000	76	76	76	76	76		
2001	76	76	76	76	76		
2002	69	69	69	69	69		
2003	66	66	66	66	66		

*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

Pol3 (1980-2003)



Description of trend

Trend follows officially reported data suggesting a rapid increase in coverage in the late 1980s due to external donor support and intensified efforts to reach UCI-goal. Survey data in 1986 and 1989 are not considered (only part of the country covered). Coverage peaks in 1990, however 90% seems to be an overestimate (miscalculation of population possible because north and south were united). 1990 is estimated to be 84%. Withdrawal of donor support after 1990 results in a drop in coverage, confirmed by a survey (DHS 1992). A further drop occurs in 1994 due to civil unrest. Reported coverage for 1994 is an overestimate, possibly covering only part of the country. Coverage recovers in mid 1990s. Officially reported data shows higher coverage than survey data for 1995 and 1996 (MICS 1996, DHS 1997); a census in 1994 might have influenced the denominator. Coverage rates are therefore slightly lowered and are estimated to be around 45% in the mid 1990s. Due to the allocation and release of funds in the late 1990s coverage rates increase further with a decline following 2000.

Data presented in chart

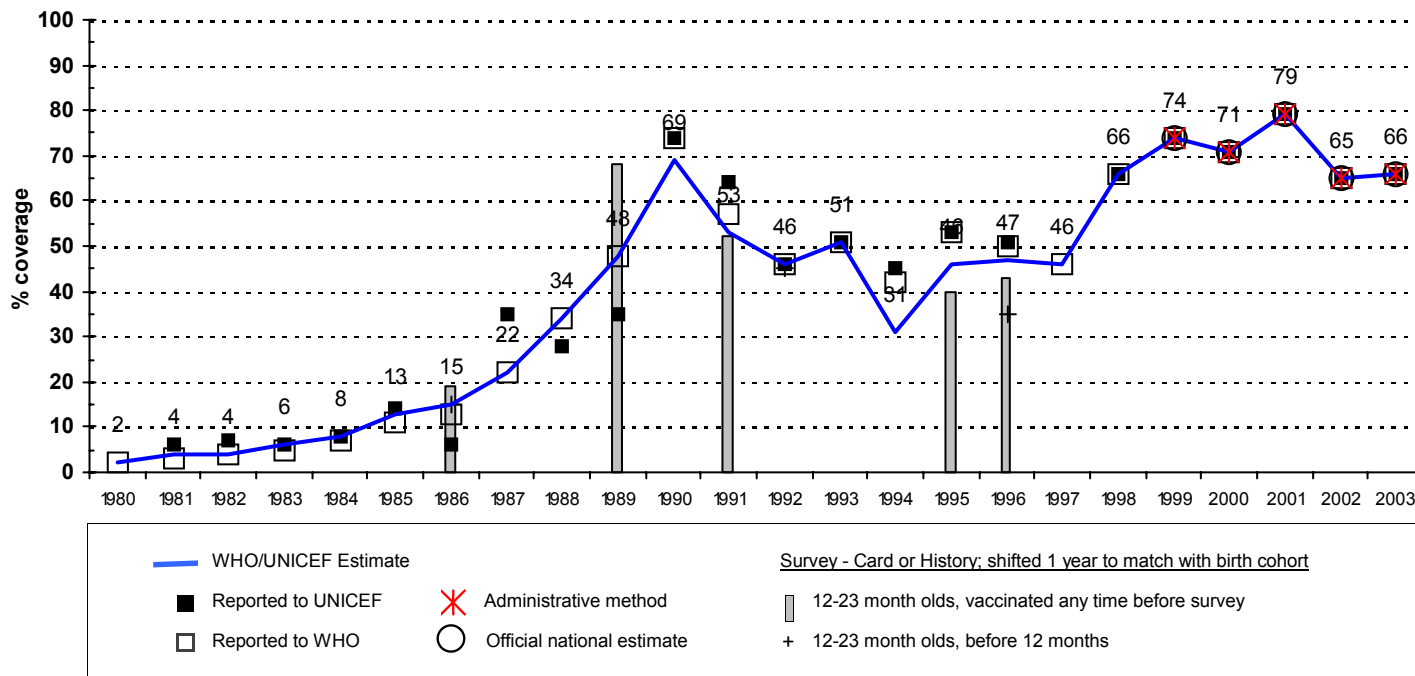
Year	WHO/UNICEF estimate (%)	Reported to:*		Government official estimate (%)	Reported doses administered (%)**	Survey data (%)***	
		WHO (%)	UNICEF (%)			Survey 12-23 months	Survey <12 months
1980	1	1					
1981	3	2	5				
1982	4	3	6				
1983	5	4	5				
1984	7	6	7				
1985	10	10	7				
1986	13	11	5			15	13
1987	20	18	25				
1988	36	36	35				
1989	56	56	40			69	
1990	84	89	89				
1991	47	62	62			47	
1992	50	50	50				48
1993	54	54	54				
1994	33	44	47				
1995	44	53	53			36	
1996	47	54	59			46	43
1997	51	57					
1998	68	68	68				
1999	72	72	72	72	72		
2000	76	76	76	76	76		
2001	76	76	76	76	76		
2002	69	69	69	69	69		
2003	66	66	66	66	66		

*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.

Measles (1980-2003)



Description of trend

Trend follows officially reported data suggesting a rapid increase in coverage in the late 1980s due to external donor support and intensified efforts to reach UCI-goal. Survey data in 1986 and 1989 are not considered (only part of the country covered). Coverage peaks in 1990, however 70% seems to be an overestimate (miscalculation of population possible because north and south were united). 1990 coverage is estimated to be 69%. Withdrawal of donor support after 1990 resulted in a drop in coverage, confirmed by a survey (DHS 1992). A further drop occurs in 1994 due to civil unrest. The reported numbers for 1994 are overestimates, possibly covering only part of country. Coverage recovers in mid 1990s. Officially reported data shows higher coverage than survey data for 1995 and 1996 (MICS 1996, DHS 1997; a 1994 census might have influenced the denominator. Coverage rates are therefore slightly lowered and estimated to be around 46% in mid 1990s. Due to the allocation and release of funds in late 1990s coverage rates increase further with a decline following 2000.

Data presented in chart

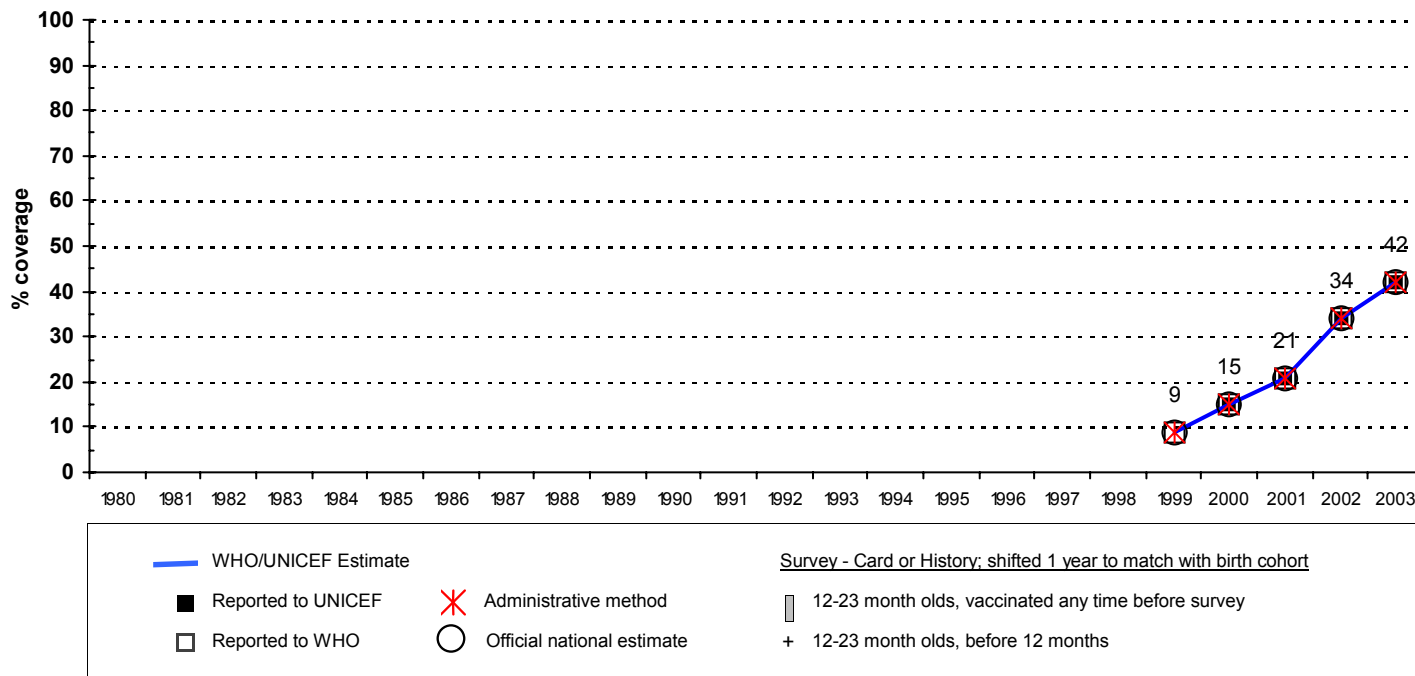
Year	WHO/UNICEF estimate (%)	Reported to:*		Government official estimate (%)	Reported doses administered (%)**	Survey data (%)***	
		WHO (%)	UNICEF (%)			Survey 12-23 months	Survey <12 months
1980	2	2	6				
1981	4	3	6				
1982	4	4	7				
1983	6	5	6				
1984	8	7	8				
1985	13	11	14				
1986	15	13	6			19	15
1987	22	22	35				
1988	34	34	28				
1989	48	48	35			68	
1990	69	74	74				
1991	53	57	64			52	
1992	46	46	46				45
1993	51	51	51				
1994	31	42	45				
1995	46	53	53			40	
1996	47	50	51			43	35
1997	46	46					
1998	66	66	66				
1999	74	74	74	74	74		
2000	71	71	71	71	71		
2001	79	79	79	79	79		
2002	65	65	65	65	65		
2003	66	66	66	66	66		

*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.

HepB3 (1980-2003)



Description of trend

Hepatitis b vaccine was introduced in April 1999. Estimate follows officially reported data.

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	9	9		9	9		
2000	15	15	15	15	15		
2001	21	21	21	21	21		
2002	34	34	34	34	34		
2003	42	42	42	42	42		

*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.

Yemen

Details Survey Data

Year Source

Antigen	Confirmation method	% coverage	Compliance with schedule	Age group	Sample size	% cards seen	Survey year	Comments
1996 Yemen Demographic and Maternal and Child Health Survey 1997, 1998								
BCG	Card or History	53.7		12-23 m	2188	30.8	1997	
BCG	C or H <12 month	51.2		12-23 m	2188	30.8	1997	
DPT1	Card or History	53.9		12-23 m	2188	30.8	1997	
DPT1	C or H <12 month	52.3		12-23 m	2188	30.8	1997	
DPT3	Card or History	39.7		12-23 m	2188	30.8	1997	
DPT3	C or H <12 month	37.3		12-23 m	2188	30.8	1997	
Pol3	Card or History	45.8		12-23 m	2188	30.8	1997	
Pol3	C or H <12 month	42.8		12-23 m	2188	30.8	1997	
MCV	Card or History	42.8		12-23 m	2188	30.8	1997	
MCV	C or H <12 month	35.1		12-23 m	2188	30.8	1997	
1995 Yemen MICS 1996								
BCG	Card or History	57.1		12-23 m			1996	
DPT1	Card or History	n.a.		12-23 m			1996	
DPT3	Card or History	37.1		12-23 m			1996	
Pol3	Card or History	36.4		12-23 m			1996	
MCV	Card or History	40		12-23 m			1996	
1992 National Immunization Programme Review								
BCG	C or H <12 month	64		12-23 m	209	36.8	1993	
DPT1	C or H <12 month	63		12-23 m	209	36.8	1993	
DPT3	C or H <12 month	48		12-23 m	209	36.8	1993	
Pol3	C or H <12 month	48		12-23 m	209	36.8	1993	
MCV	C or H <12 month	45		12-23 m	209	36.8	1993	
1991 Yemen Demographic and Maternal and Child Health Survey 1991/1992, 1994								
BCG	Card or History	60.4		12-23 m	1256	26.9	1991/92	Mother or respondent to Child's Questionnaire
DPT1	Card or History	61.3		12-23 m	1256	26.9	1991/92	Mother or respondent to Child's Questionnaire
DPT3	Card or History	47.3		12-23 m	1256	26.9	1991/92	Mother or respondent to Child's Questionnaire
Pol3	Card or History	47.3		12-23 m	1256	26.9	1991/92	Mother or respondent to Child's Questionnaire
MCV	Card or History	51.5		12-23 m	1256	26.9	1991/92	Mother or respondent to Child's Questionnaire
1989 Yemen, Immunization, Diarrhoeal Disease, Maternal and Child Mortality Survey 1990, Evaluation Series No. 5								
BCG	Card or History	81		12-23 m	634	62	1990	Weighted average (based on 30% rural, 70 % urban)
DPT1	Card or History	80		12-23 m	634	62	1990	Weighted average (based on 30% rural, 70 % urban)
DPT3	Card or History	69		12-23 m	634	62	1990	Weighted average (based on 30% rural, 70 % urban)
Pol3	Card or History	69		12-23 m	634	62	1990	Weighted average (based on 30% rural, 70 % urban)
MCV	Card or History	68		12-23 m	634	62	1990	Weighted average (based on 30% rural, 70 % urban)
1986 Report of Joint Government/WHO/Unicef EPI Coverage Review in the Yemen Arab Republic, 1987								
BCG	Card or History	30		12-23 m		22	1987	W.a.(based on 7% urban, 93% rural)
BCG	C or H <12 month	26		12-23 m		22	1987	W.a.(based on 7% urban, 93% rural)
DPT1	Card or History	30		12-23 m		22	1987	W.a.(based on 7% urban, 93% rural)
DPT1	C or H <12 month	27		12-23 m		22	1987	W.a.(based on 7% urban, 93% rural)
DPT3	Card or History	15		12-23 m		22	1987	W.a.(based on 7% urban, 93% rural)
DPT3	C or H <12 month	13		12-23 m		22	1987	W.a.(based on 7% urban, 93% rural)
Pol3	Card or History	15		12-23 m		22	1987	W.a.(based on 7% urban, 93% rural)

Details Survey Data

Year Source

Antigen	Confirmation method	% coverage	Compliance with schedule	Age group	Sample size	% cards seen	Survey year	Comments
Pol3	C or H <12 month	13		12-23 m		22	1987	W.a.(based on 7% urban, 93% rural)
MCV	Card or History	19		12-23 m		22	1987	W.a.(based on 7% urban, 93% rural)
MCV	C or H <12 month	15		12-23 m		22	1987	W.a.(based on 7% urban, 93% rural)

YEMEN

WHO/UNICEF estimates of the percent of children born in 2000-2003 protected against tetanus by vaccination of their mothers with tetanus toxoid (PAB)

In most instances PAB reflects the number of mothers receiving two doses of tetanus toxoid during pregnancy. In some cases the mother may have received an adequate number of doses of tetanus toxoid prior to the pregnancy, protecting the child even though no doses were received during the current pregnancy.

These estimates are based on data provided through the WHO/UNICEF Joint Reporting Form on Vaccine Preventable Diseases and have been supplemented by information from national household surveys conducted under the auspices of the National government and from data available in the published literature.

Year	WHO and UNICEF's estimate of the percent of newborn infants protected against neonatal tetanus through maternal immunization with tetanus toxoid	Explanation of WHO/UNICEF Estimate
2000	31	Official Estimate, Joint Reporting Form for 2000
2001	33	Reported by Country following previous Estimate Review
2002	39	Official Estimate, Joint Reporting Form for 2002
2003	31	Official Estimate, Joint Reporting Form for 2003