

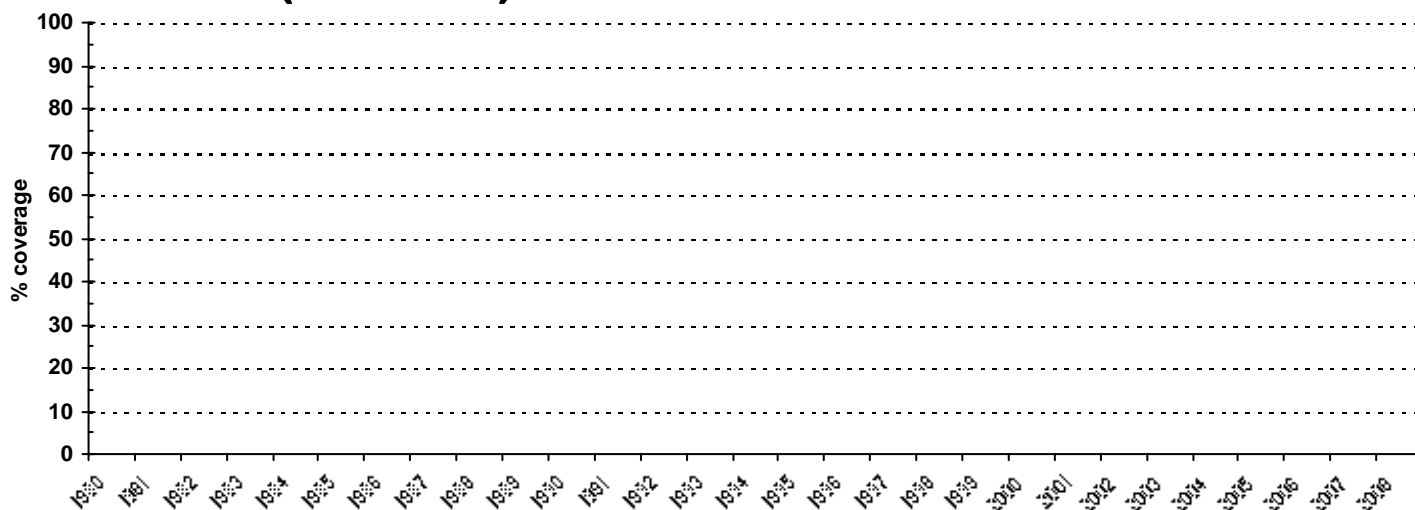
**WHO/UNICEF
Review of National Immunization Coverage
1980-2008**

Bahrain

July, 2009

Bahrain

BCG (1980-2008)



Description of trend

BCG given to expatriate newborns from endemic countries only; no estimates made.

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							
2005							
2006							
2007							
2008							

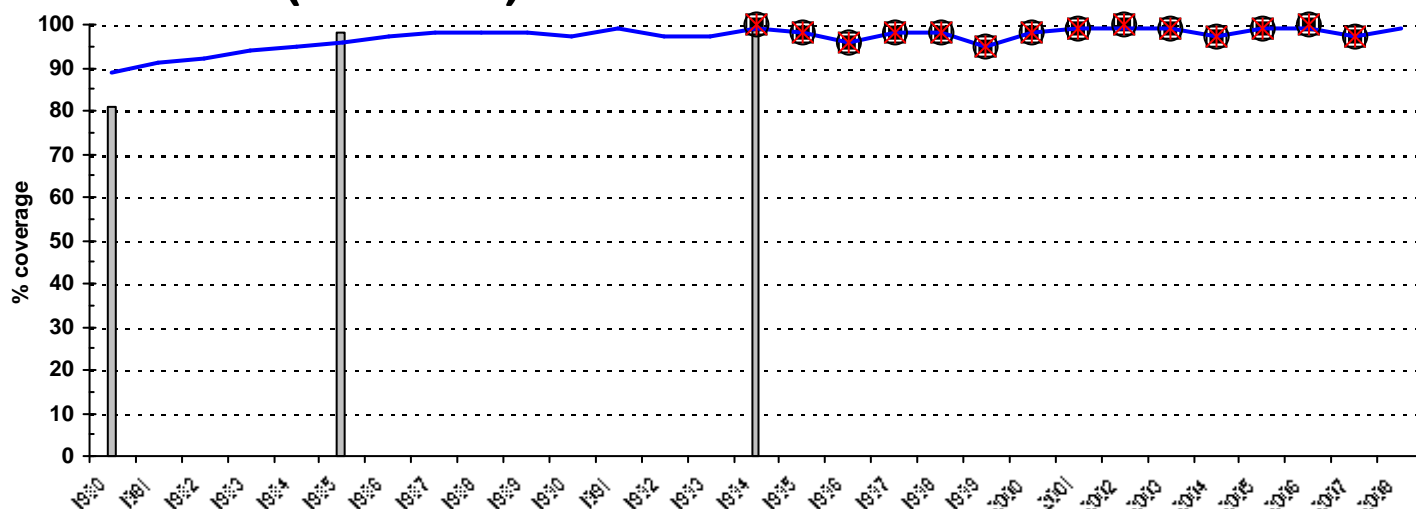
*Prior to 1998 national reports to WHO/UNICEF did not specify whether information was derived from administrative records, surveys or other sources.

**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.

Bahrain

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 1994 onward. The DTP1 estimates from 1994 onward are based on these reports. For years prior to 1994 the estimates are derived from the WHO/UNICEF estimates of DTP3 and the relationship between the levels of DTP3 coverage and the drop-out between DTP1 and DTP3. This relationship results from an analysis of 282 surveys conducted in 101 countries which were published between 1980 and 2004.

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	89					81	
1981	91						
1982	92						
1983	94						
1984	95						
1985	96					98	
1986	97						
1987	98						
1988	98						
1989	98						
1990	97						
1991	99						
1992	97						
1993	97						
1994	99	100	100	100	100	99	
1995	98	98	98	98	98		
1996	96	96	96	96	96		
1997	98	98	98	98	98		
1998	98	98	98	98	98		
1999	95	95	95	95	95		
2000	98	98	98	98	98		
2001	99	99	99	99	99		
2002	99	100	100	100	100		
2003	99	99	99	99	99		
2004	97	97	97	97	97		
2005	99	99	99	99	99		
2006	99	100	100	100	100		
2007	97	97	97	97	97		
2008	99						

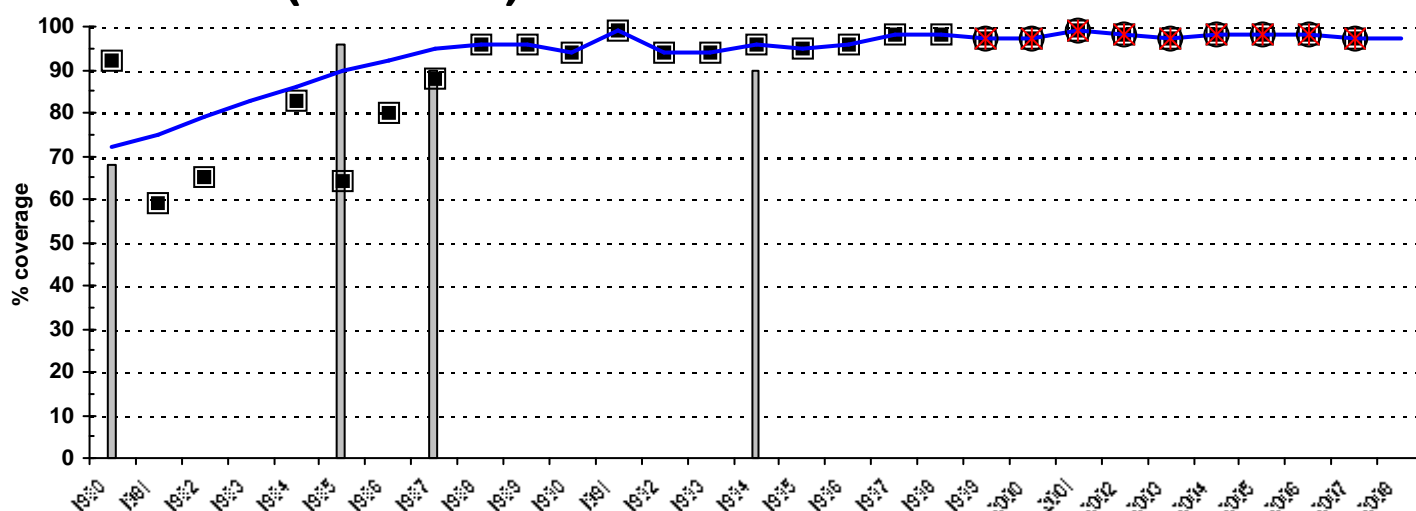
*Prior to 1998 national reports to WHO/UNICEF did not specify whether information was derived from administrative records, surveys or other sources.

**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.

Bahrain

DTP3 (1980-2008)



Description of trend

Survey data for that year (Review of the EPI Bahrain, 1980) reports a coverage rate of 68%. Since the beginning of the program implied a change in the method of reporting and calculating, the drop officially reported in 1980 probably represents a problem with the data and not a drop in program performance. Survey data for 1985 (Diarrhoeal Diseases Morbidity, Mortality and Treatment rates and immunization coverage, 1986 reports 96.5%. Officially reported data that suggests a much lower coverage is believed to be underestimating actual coverage levels due to miscalculation and underreporting. Coverage estimates from the late 1980s are based on officially reported data confirmed by survey data for 1994 (Bahrain Family Health Survey, 1995).

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	72	92	92			68	
1981	75	59	59				
1982	79	65	65				
1983	83						
1984	86	83	83				
1985	90	64	64			96	
1986	92	80	80				
1987	95	88	88			90	
1988	96	96	96				
1989	96	96	96				
1990	94	94	94				
1991	99	99	99				
1992	94	94	94				
1993	94	94	94				
1994	96	96	96			90	
1995	95	95	95				
1996	96	96	96				
1997	98	98	98				
1998	98	98	98				
1999	97	97	97	97	97		
2000	97	97	97	97	97		
2001	99	99	99	99	99		
2002	98	98	98	98	98		
2003	97	97	97	97	97		
2004	98	98	98	98	98		
2005	98	98	98	98	98		
2006	98	98	98	98	98		
2007	97	97	97	97	97		
2008	97						

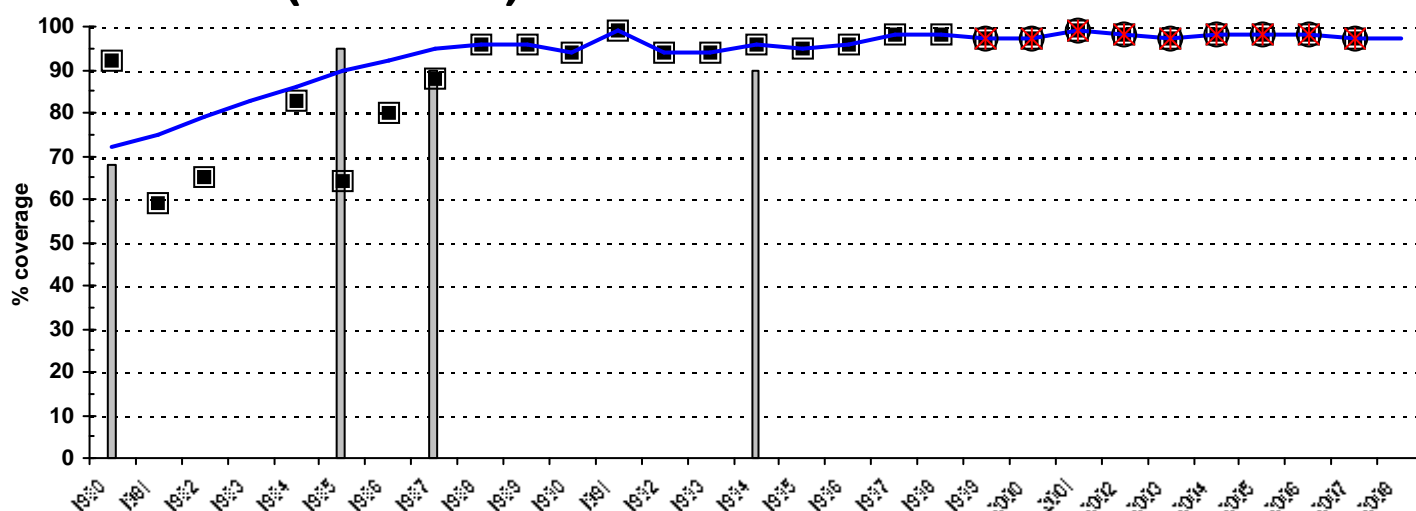
*Prior to 1998 national reports to WHO/UNICEF did not specify whether information was derived from administrative records, surveys or other sources.

**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.

Bahrain

Pol3 (1980-2008)



Description of trend

Survey data for that year (Review of the EPI Bahrain, 1980) reports a coverage rate of 68%. Since the beginning of the program implied a change in the method of reporting and calculating, the drop officially reported in 1980 probably represents a problem with the data and not a drop in program performance. Survey data for 1985 (Diarrhoeal Diseases Morbidity, Mortality and Treatment rates and immunization coverage, 1986) reports 95%. Officially reported data that suggests a much lower coverage is believed to be underestimating actual coverage levels due to miscalculation and underreporting. Coverage estimates from the late 1980s are based on officially reported data confirmed by survey data for 1994 (Bahrain Family Health Survey, 1995).

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	72	92	92			68	
1981	75	59	59				
1982	79	65	65				
1983	83						
1984	86	83	83				
1985	90	64	64			95	
1986	92	80	80				
1987	95	88	88			90	
1988	96	96	96				
1989	96	96	96				
1990	94	94	94				
1991	99	99	99				
1992	94	94	94				
1993	94	94	94				
1994	96	96	96			90	
1995	95	95	95				
1996	96	96	96				
1997	98	98	98				
1998	98	98	98				
1999	97	97	97	97	97		
2000	97	97	97	97	97		
2001	99	99	99	99	99		
2002	98	98	98	98	98		
2003	97	97	97	97	97		
2004	98	98	98	98	98		
2005	98	98	98	98	98		
2006	98	98	98	98	98		
2007	97	97	97	97	97		
2008	97						

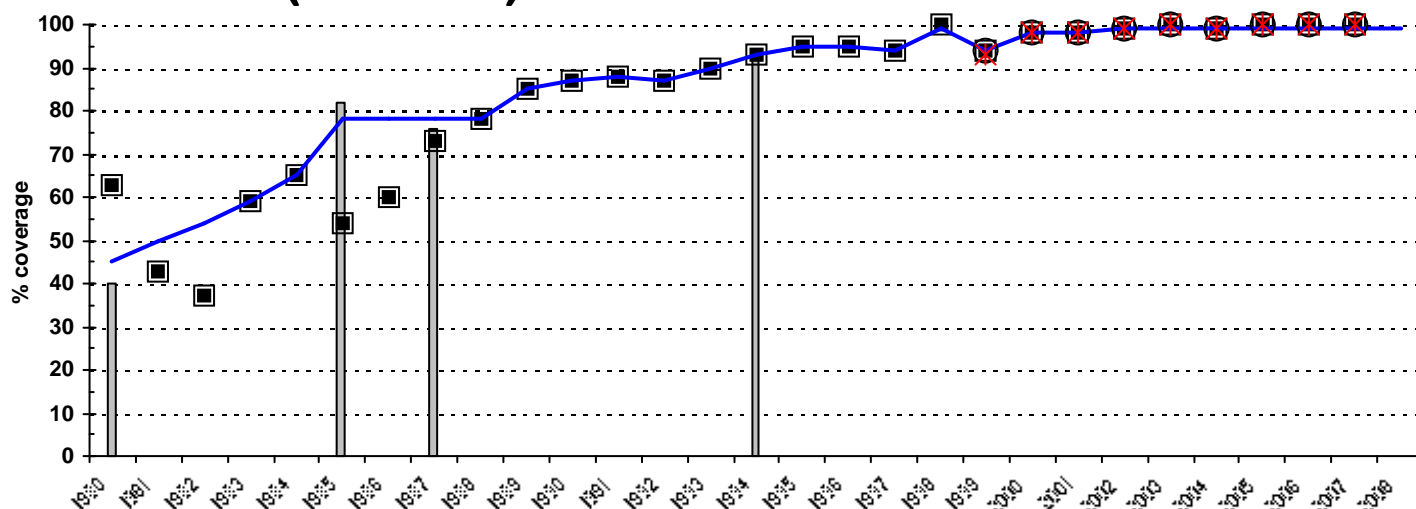
*Prior to 1998 national reports to WHO/UNICEF did not specify whether information was derived from administrative records, surveys or other sources.

**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.

Bahrain

MCV (1980-2008)



Description of trend

Survey data for that year (Review of the EPI Bahrain, 1980) reports a coverage rate of 40%. Since the beginning of the program implied a change in the method of reporting and calculating, the drop officially reported in 1980 probably represents a problem with the data and not a drop in program performance. Survey data for 1985 (Diarrhoeal Diseases Morbidity, Mortality and Treatment rates and immunization coverage, 1986 reports 82.5%. Officially reported data that suggests a much lower coverage is believed to be underestimating actual coverage levels due to miscalculation and underreporting. Coverage estimates from the late 1980s are based on officially reported data confirmed by survey data for 1994 (Bahrain Family Health Survey, 1995).

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	45	63	63			40	
1981	50	43	43				
1982	54	37	37				
1983	59	59	59				
1984	65	65	65				
1985	78	54	54			82	
1986	78	60	60				
1987	78	73	73			76	
1988	78	78	78				
1989	85	85	85				
1990	87	87	87				
1991	88	88	88				
1992	87	87	87				
1993	90	90	90				
1994	93	93	93			94	
1995	95	95	95				
1996	95	95	95				
1997	94	94	94				
1998	99	100	100				
1999	94	94	94	94	93		
2000	98	98	98	98	98		
2001	98	98	98	98	98		
2002	99	99	99	99	99		
2003	99	100	100	100	100		
2004	99	99	99	99	99		
2005	99	100	100	100	100		
2006	99	100	100	100	100		
2007	99	100	100	100	100		
2008	99						

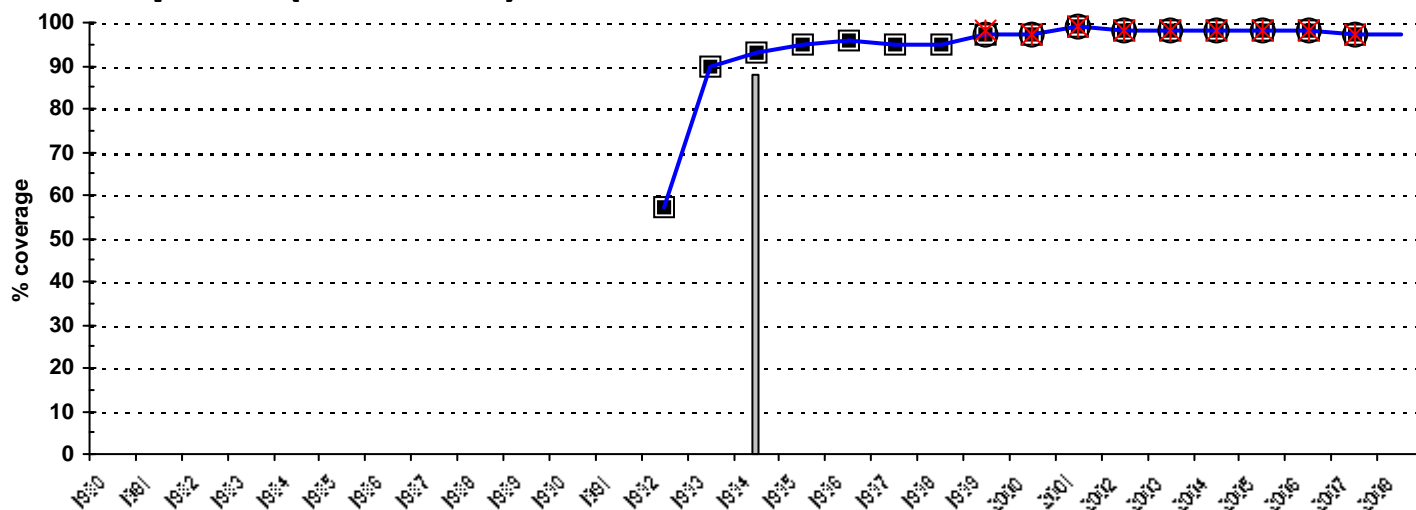
*Prior to 1998 national reports to WHO/UNICEF did not specify whether information was derived from administrative records, surveys or other sources.

**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.

Bahrain

HepB3 (1980-2008)



Description of trend

Hepatitis B vaccine was introduced in 1991. Estimated immunization coverage levels are based on reported data confirmed by survey.

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	57	57	57				
1993	90	90	90				
1994	93	93	93			88	
1995	95	95	95				
1996	96	96	96				
1997	95	95	95				
1998	95	95	95				
1999	97	97	97	97	98		
2000	97	97	97	97	97		
2001	99	99	99	99	99		
2002	98	98	98	98	98		
2003	98	98	98	98	98		
2004	98	98	98	98	98		
2005	98	98	98	98	98		
2006	98	98	98	98	98		
2007	97	97	97	97	97		
2008	97						

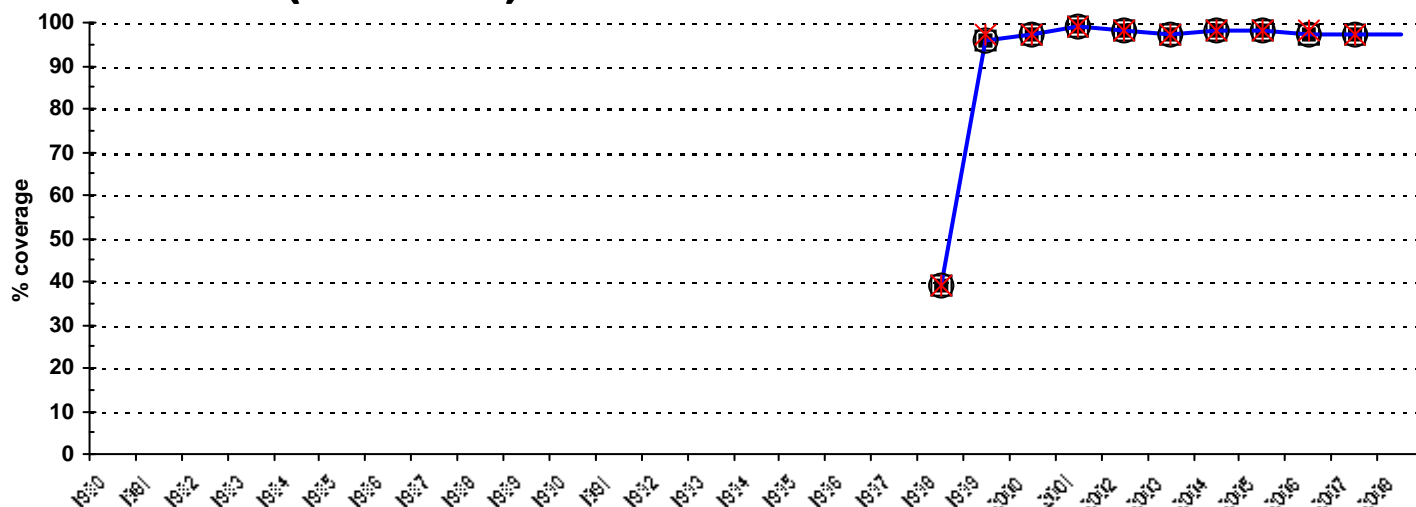
*Prior to 1998 national reports to WHO/UNICEF did not specify whether information was derived from administrative records, surveys or other sources.

**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.

Bahrain

Hib3 (1980-2008)



Description of trend

Hib vaccine introduced in June 1998. Estimated immunization coverage levels are based on 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	39	39	39	39	39		
1999	96	96	96	96	97		
2000	97	97	97	97	97		
2001	99	99	99	99	99		
2002	98	98	98	98	98		
2003	97	97	97	97	97		
2004	98	98	98	98	98		
2005	98	98	98	98	98		
2006	97	97	97	97	98		
2007	97	97	97	97	97		
2008	97						

*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.

Bahrain

Details Survey Data

Year Source

Antigen	Confirmation method	% coverage	Compliance with schedule	Age group	Sample size	% cards seen	Survey year	Comments
1994 Bahrain Family Health Survey 1995, 2000								
BCG	Card or History			12-23 m	637	82.4	1995	
DTP1	Card or History	98.7		12-23 m	637	82.4	1995	
DTP3	Card or History	90.1		12-23 m	637	82.4	1995	
Pol3	Card or History	89.8		12-23 m	637	82.4	1995	
MCV	Card or History	94.4		12-23 m	637	82.4	1995	
HepB	Card or History	88.2		12-23 m	637	82.4	1995	
1987 MOH, reported in response to draft estimates, June 2001.								
DTP3	Card or History	90		12-24 m	144		1988	Confirmation method assumed
Pol3	Card or History	90		12-24 m	144		1988	Confirmation method assumed
MCV	Card or History	76		12-24 m	144		1988	Confirmation method assumed
1985 Diarrhoeal Diseases Morbidity, Mortality and Treatment Rates and Immunization Coverage, 1986								
BCG	Card or History			12-24 m	809		1986	
DTP1	Card or History	97.9		12-24 m	809		1986	
DTP3	Card or History	96.5		12-24 m	809		1986	
Pol3	Card or History	95		12-24 m	809		1986	
MCV	Card or History	82.5		12-24 m	809		1986	
1980 Review of the EPI Bahrain 1980								
BCG	Card or History			12-23 m	215		1980	
DTP1	Card or History	81		12-23 m	215		1980	
DTP3	Card or History	68		12-23 m	215		1980	
Pol3	Card or History	68		12-23 m	215		1980	
MCV	Card or History	40		12-23 m	215		1980	

Bahrain

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.

Bahrain

Year	PAB coverage estimate (%)
1980	5
1981	36
1982	25
1983	31
1984	34
1985	34
1986	18
1987	13
1988	28
1989	27
1990	48
1991	44
1992	51
1993	57
1994	56
1995	59
1996	63
1997	72
1998	80
1999	76
2000	77
2001	75
2002	71
2003	70
2004	70
2005	78
2006	65
2007	63
2008	63