

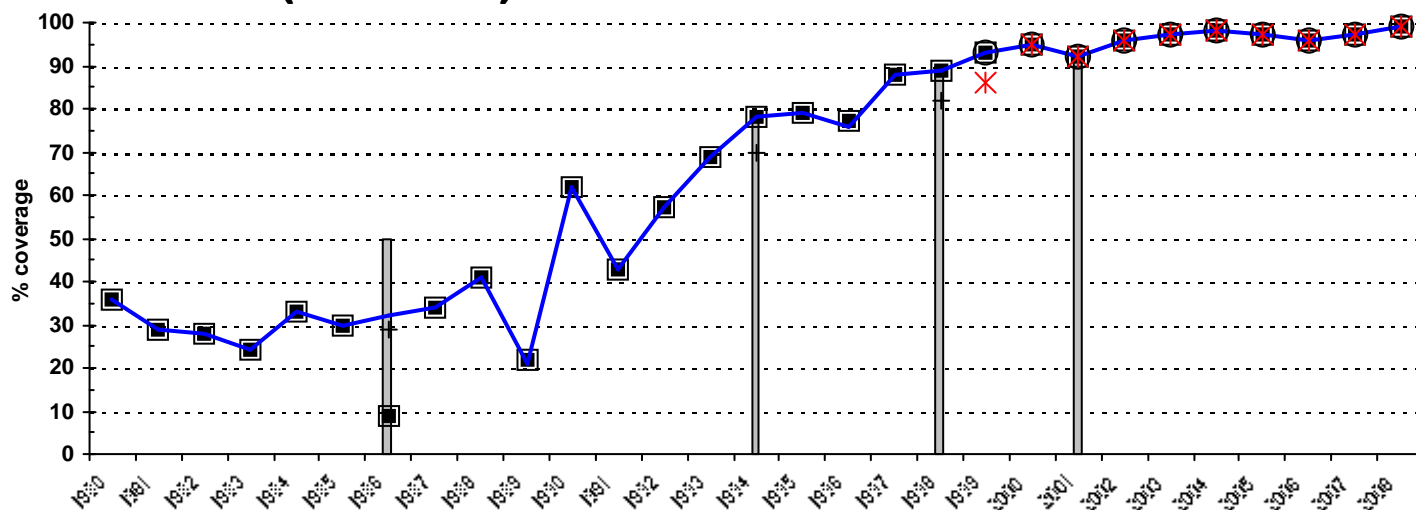
**WHO/UNICEF
Review of National Immunization Coverage
1980-2008**

Guatemala

July, 2009

Guatemala

BCG (1980-2008)



Description of trend

Trend follows WHO officially reported data, supported by surveys from 1994 onward. The decline in 1989 to 21% resulted from the lack of tin allocation of human and financial resources. During 1991 health service personnel were assigned to respond to a cholera outbreak. The national EPI program does not concur with the WHO/UNICEF estimates. UNICEF recommends a high quality survey to confirm reported coverage level.

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	36	36	36				
1981	29	29	29				
1982	28	28	28				
1983	24	24	24				
1984	33	33	33				
1985	30	30	30				
1986	32	9	9			50	29
1987	34	34	34				
1988	41	41	41				
1989	21	22	22				
1990	62	62	62				
1991	43	43	43				
1992	57	57	57				
1993	69	69	69				
1994	78	78	78			78	70
1995	79	79	79				
1996	76	77	77				
1997	88	88	88				
1998	89	89	89				
1999	93	93	93	93	86	90	82
2000	95	95	95	95	95		
2001	92	92	92	92	92	92	
2002	96	96	96	96	96		
2003	97	97	97	97	97		
2004	98	98	98	98	98		
2005	97	97	97	97	97		
2006	96	96	96	96	96		
2007	97	97	97	97	97		
2008	99	99	99	99	99		

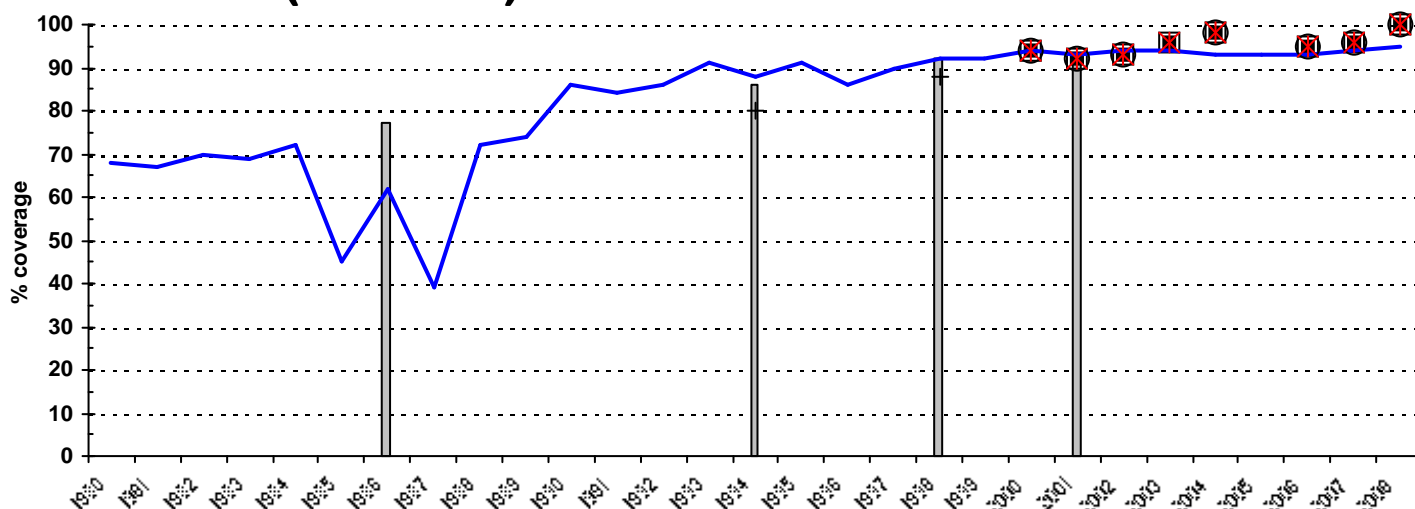
*Prior to 1998 national reports to WHO/UNICEF did not specify whether information was derived from administrative records, surveys or other sources.

**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.

Guatemala

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 are derived from the WHO/UNICEF estimates of DTP3 and the relationship between the levels of DTP3 cover 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. The national EPI program does not concur with the WHO/UNICEF estimates. UNICEF recommends a high quality survey to confirm reported coverage levels.

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	68						
1981	67						
1982	70						
1983	69						
1984	72						
1985	45						
1986	62					77	
1987	39						
1988	72						
1989	74						
1990	86						
1991	84						
1992	86						
1993	91						
1994	88					86	80
1995	91						
1996	86						
1997	90						
1998	92					92	88
1999	92						
2000	94	94	94	94	94		
2001	93	92	92	92	92	93	
2002	94	93	93	93	93		
2003	94	96	96	96	96		
2004	93	98	98	98	98		
2005	93	105	105	105	105		
2006	93	95	95	95	95		
2007	94	96	96	96	96		
2008	95	100	100	100	100		

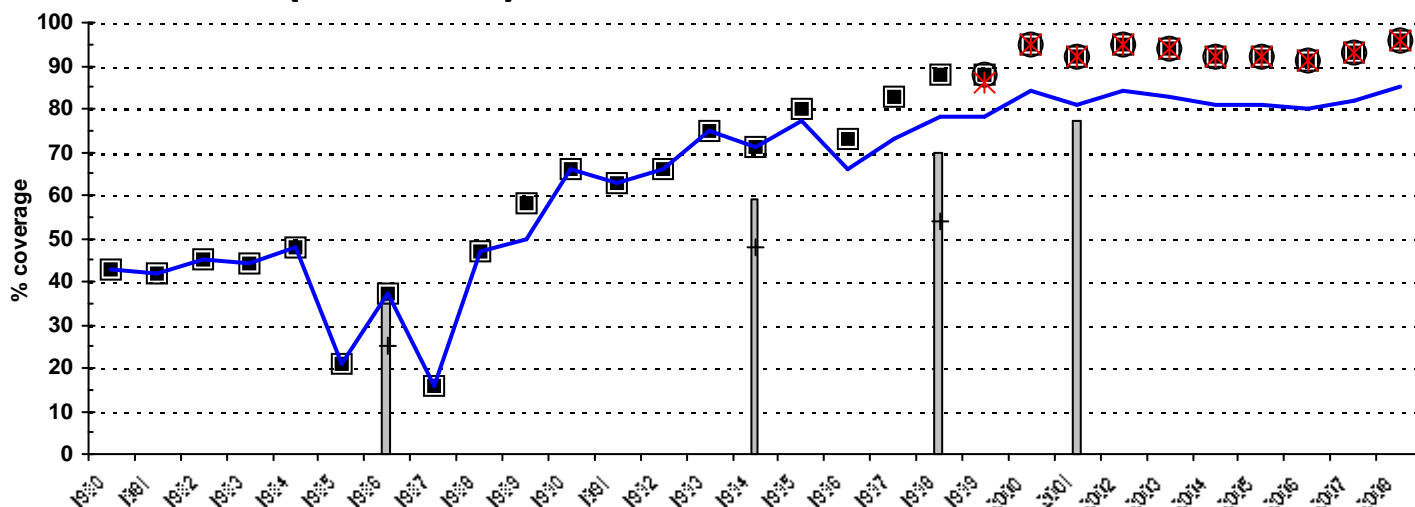
*Prior to 1998 national reports to WHO/UNICEF did not specify whether information was derived from administrative records, surveys or other sources.

**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.

Guatemala

DTP3 (1980-2008)



Description of trend

Trend follows officially reported data. Coverage was around 45% in the early 1980s, but dropped to 24% in 1985 due to a syringe shortage. Coverage levels in the mid 1980s are supported by the DHS 1987. The decline in 1987 resulted from a health employee strike. Survey data in mid/late 1990s suggest slightly lower coverage than officially reported. The trends in reported data are calibrated to the levels established by surveys which have been adjusted for recall bias. The national EPI program does not concur with the WHO/UNICEF estimates. UNICEF recommends a high quality survey to confirm reported coverage levels.

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	43	43	43				
1981	42	42	42				
1982	45	45	45				
1983	44	44	44				
1984	48	48	48				
1985	21	21	21				
1986	37	37	37			36	25
1987	16	16	16				
1988	47	47	47				
1989	50	58	58				
1990	66	66	66				
1991	63	63	63				
1992	66	66	66				
1993	75	75	75				
1994	71	71	71			59	48
1995	77	80	80				
1996	66	73	73				
1997	73	83	83				
1998	78	88	88			70	54
1999	78	88	88	88	86		
2000	84	95	95	95	95		
2001	81	92	92	92	92	77	
2002	84	95	95	95	95		
2003	83	94	94	94	94		
2004	81	92	92	92	92		
2005	81	92	92	92	92		
2006	80	91	91	91	91		
2007	82	93	93	93	93		
2008	85	96	96	96	96		

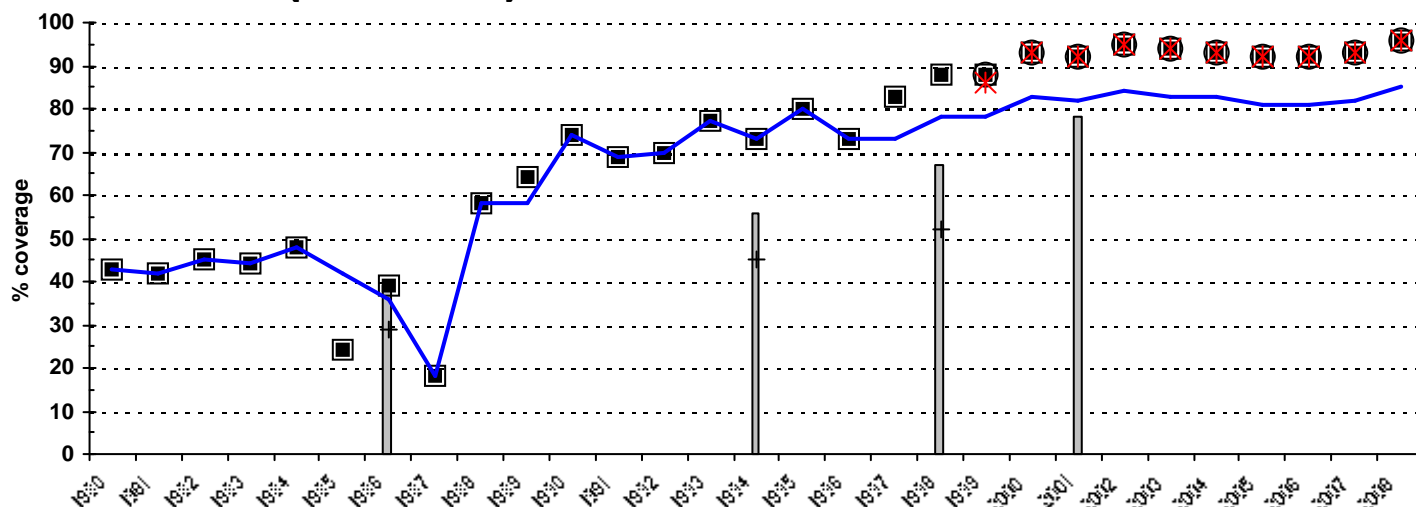
*Prior to 1998 national reports to WHO/UNICEF did not specify whether information was derived from administrative records, surveys or other sources.

**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.

Guatemala

Pol3 (1980-2008)



Description of trend

Trend follows officially reported data. Coverage dropped to 18% in 1987 due to a health system employee strike. Survey data supports the 1990s suggests slightly lower coverage than officially reported. The trends in reported data are calibrated to the levels established by surveys, adjusted for recall bias (high drop out rate due to mother's report). The national EPI program does not concur with the WHO/UNICEF estimate UNICEF recommends a high quality survey to confirm reported coverage levels.

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	43	43	43				
1981	42	42	42				
1982	45	45	45				
1983	44	44	44				
1984	48	48	48				
1985	42	24	24				
1986	36	39	39			39	29
1987	18	18	18				
1988	58	58	58				
1989	58	64	64				
1990	74	74	74				
1991	69	69	69				
1992	70	70	70				
1993	77	77	77				
1994	73	73	73			56	45
1995	80	80	80				
1996	73	73	73				
1997	73	83	83				
1998	78	88	88			67	52
1999	78	88	88	88	86		
2000	83	93	93	93	93		
2001	82	92	92	92	92	78	
2002	84	95	95	95	95		
2003	83	94	94	94	94		
2004	83	93	93	93	93		
2005	81	92	92	92	92		
2006	81	92	92	92	92		
2007	82	93	93	93	93		
2008	85	96	96	96	96		

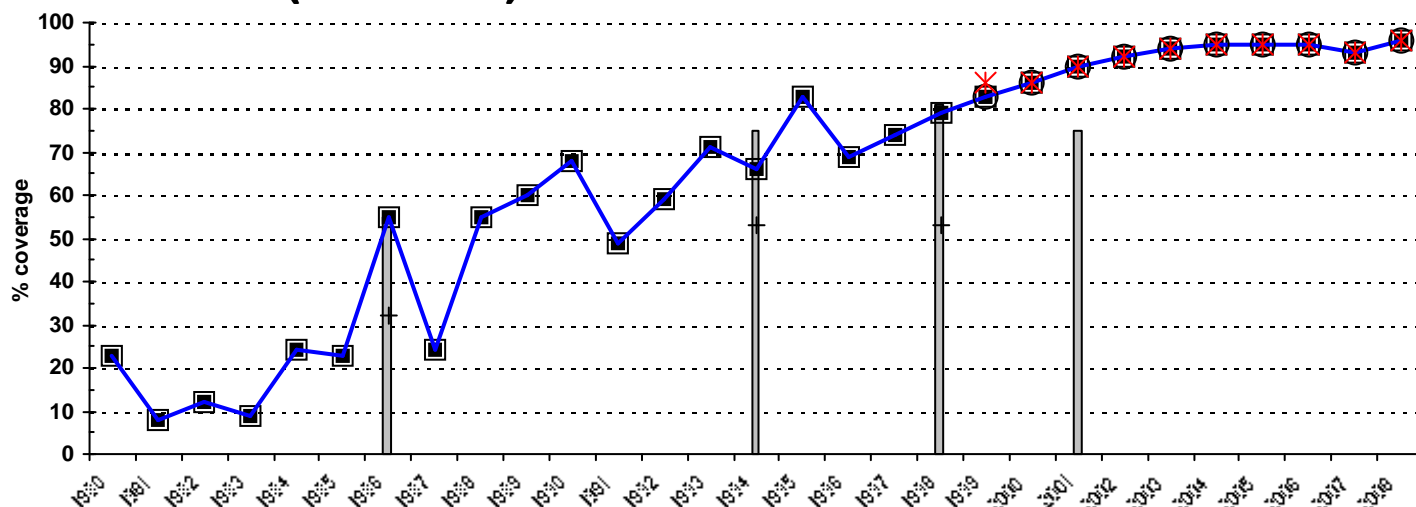
*Prior to 1998 national reports to WHO/UNICEF did not specify whether information was derived from administrative records, surveys or other sources.

**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.

Guatemala

MCV (1980-2008)



Description of trend

Trend follows officially reported data, supported by survey. A drop to 24% occurs in 1987 due to a health system employee strike. In 2001 Guatemala changed the national recommendation from a first dose of measles vaccination at nine months of age to MMR at 12 months of age. The 2001 coverage survey does not include vaccinations given during part of 2001. The national EPI program does not concur with the WHO/UNICEF estimates. UNICEF recommends a high quality survey to confirm reported coverage levels.

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	23	23	23				
1981	8	8	8				
1982	12	12	12				
1983	9	9	9				
1984	24	24	24				
1985	23	23	23				
1986	55	55	55			55	32
1987	24	24	24				
1988	55	55	55				
1989	60	60	60				
1990	68	68	68				
1991	49	49	49				
1992	59	59	59				
1993	71	71	71				
1994	66	66	66			75	53
1995	83	83	83				
1996	69	69	69				
1997	74	74	74				
1998	79	79	79			81	53
1999	83	83	83	83	86		
2000	86	86	86	86	86		
2001	90	90	90	90	90	75	
2002	92	92	92	92	92		
2003	94	94	94	94	94		
2004	95	95	95	95	95		
2005	95	95	95	95	95		
2006	95	95	95	95	95		
2007	93	93	93	93	93		
2008	96	96	96	96	96		

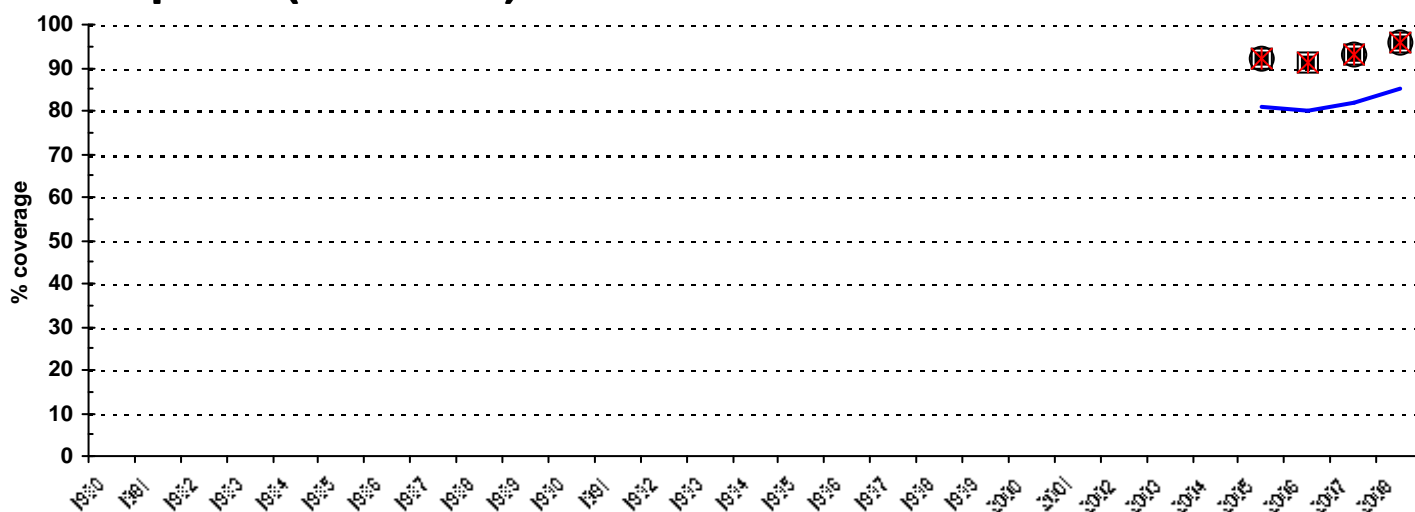
*Prior to 1998 national reports to WHO/UNICEF did not specify whether information was derived from administrative records, surveys or other sources.

**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.

Guatemala

HepB3 (1980-2008)



Description of trend

DTP-HepB-Hib vaccine introduced in 2005. Estimated coverage is based on reported data adjusted to reflect the same difference as between reported and estimated DTP3. The national EPI program does not concur with the WHO/UNICEF estimates. UNICEF recommends a high quality survey to confirm reported coverage levels.

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	81	92	92	92	92		
2006	80	91	91		91		
2007	82	93	93	93	93		
2008	85	96	96	96	96		

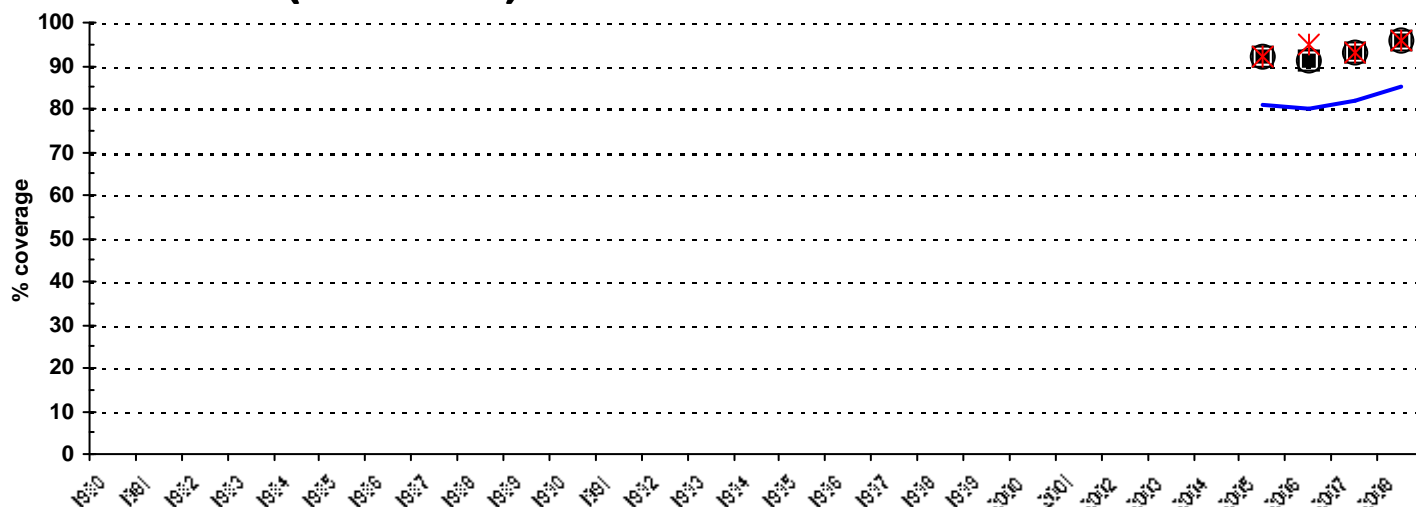
*Prior to 1998 national reports to WHO/UNICEF did not specify whether information was derived from administrative records, surveys or other sources.

**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.

Guatemala

Hib3 (1980-2008)



Description of trend

DTP-HepB-Hib vaccine introduced in 2005. Estimated coverage is based on reported data adjusted to reflect the same difference as between reported and estimated DTP3. The national EPI program does not concur with the WHO/UNICEF estimates. UNICEF recommends a high quality survey to confirm reported coverage levels.

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	81	92	92	92	92		
2006	80	91	91	91	95		
2007	82	93	93	93	93		
2008	85	96	96	96	96		

*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.

Guatemala

Details Survey Data

Year Source

Antigen	Confirmation method	% coverage	Compliance with schedule	Age group	Sample size	% cards seen	Survey year	Comments
2001 Guatemala, Encuesta Nacional de Salud Materno Infantil 2002								
BCG	Card or History	91.9		12-23 m	1487	68.6	2002	
DTP1	Card or History	93		12-23 m	1487	68.6	2002	
DTP3	Card or History	76.7		12-23 m	1487	68.6	2002	
Pol3	Card or History	78.1		12-23 m	1487	68.6	2002	
MCV	Card or History	74.7		12-23 m	1487	68.6	2002	

1998 Guatemala, Encuesta Nacional de Salud Materno Infantil 1998-1999

BCG	Card or History	90.4		12-23 m	848	68.4	1998/99	
BCG	C or H <12 month	82.1		12-23 m	848	68.4	1998/99	
BCG	C or H <12 month	77.2		24-35 m	868	60.1	1998/99	
BCG	C or H <12 month	70.8		36-47 m	849	54.9	1998/99	
BCG	C or H <12 month	68.4		48-59 m	843	46	1998/99	
DTP1	Card or History	92.4		12-23 m	848	68.4	1998/99	
DTP1	C or H <12 month	87.5		12-23 m	848	68.4	1998/99	
DTP1	C or H <12 month	80.2		24-35 m	868	60.1	1998/99	
DTP1	C or H <12 month	72.5		36-47 m	849	54.9	1998/99	
DTP1	C or H <12 month	68.5		48-59 m	843	46	1998/99	
DTP3	Card or History	70.4		12-23 m	848	68.4	1998/99	
DTP3	C or H <12 month	54.5		12-23 m	848	68.4	1998/99	
DTP3	C or H <12 month	50.8		24-35 m	868	60.1	1998/99	
DTP3	C or H <12 month	44		36-47 m	849	54.9	1998/99	
DTP3	C or H <12 month	49.2		48-59 m	843	46	1998/99	
Pol3	Card or History	66.7		12-23 m	848	68.4	1998/99	
Pol3	C or H <12 month	52.2		12-23 m	848	68.4	1998/99	
Pol3	C or H <12 month	48.7		24-35 m	868	60.1	1998/99	
Pol3	C or H <12 month	39		36-47 m	849	54.9	1998/99	
Pol3	C or H <12 month	42.4		48-59 m	843	46	1998/99	
MCV	Card or History	80.6		12-23 m	848	68.4	1998/99	
MCV	C or H <12 month	53		12-23 m	848	68.4	1998/99	
MCV	C or H <12 month	48.5		24-35 m	868	60.1	1998/99	
MCV	C or H <12 month	45.1		36-47 m	849	54.9	1998/99	
MCV	C or H <12 month	35.5		48-59 m	843	46	1998/99	

1994 Guatemala, Encuesta Nacional de Salud Materno Infantil 1995, 1996

BCG	Card or History	78.2		12-23 m	1810	54.2	1995	
BCG	C or H <12 month	69.6		12-23 m	1810	54.2	1995	
BCG	C or H <12 month	49.2		24-35 m	1711	48	1995	
BCG	C or H <12 month	55.9		36-47 m	1694	43.4	1995	
BCG	C or H <12 month	50.4		48-59 m	1572	32.7	1995	
DTP1	Card or History	85.5		12-23 m	1810	54.2	1995	
DTP1	C or H <12 month	80.4		12-23 m	1810	54.2	1995	
DTP1	C or H <12 month	73.9		24-35 m	1711	48	1995	
DTP1	C or H <12 month	74.7		36-47 m	1694	43.4	1995	
DTP1	C or H <12 month	69.8		48-59 m	1572	32.7	1995	
DTP3	Card or History	59.4		12-23 m	1810	54.2	1995	
DTP3	C or H <12 month	48.2		12-23 m	1810	54.2	1995	
DTP3	C or H <12 month	38.2		24-35 m	1711	48	1995	
DTP3	C or H <12 month	45.1		36-47 m	1694	43.4	1995	
DTP3	C or H <12 month	41.1		48-59 m	1572	32.7	1995	
Pol3	Card or History	55.9		12-23 m	1810	54.2	1995	
Pol3	C or H <12 month	45.2		12-23 m	1810	54.2	1995	

Guatemala

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	31.8		24-35 m	1711	48	1995	
Pol3	C or H <12 month	38.5		36-47 m	1694	43.4	1995	
Pol3	C or H <12 month	32.1		48-59 m	1572	32.7	1995	
MCV	Card or History	75.1		12-23 m	1810	54.2	1995	
MCV	C or H <12 month	53.4		12-23 m	1810	54.2	1995	
MCV	C or H <12 month	38.2		24-35 m	1711	48	1995	
MCV	C or H <12 month	42.6		36-47 m	1694	43.4	1995	
MCV	C or H <12 month	37.3		48-59 m	1572	32.7	1995	

1986 *Demographic and Health Surveys Comparative Studies No. 1, Immunization, Boerma et al., Institute for Resource Development/Macro Systems, 1990*

BCG	Card or History	50		12-23 m	823		1987	
BCG	C or H <12 month	29		12-23 m	823		1987	
DTP1	Card or History	77		12-23 m	823		1987	
DTP1	C or H <12 month			12-23 m	823		1987	
DTP3	Card or History	36		12-23 m	823		1987	
DTP3	C or H <12 month	25		12-23 m	823		1987	
Pol3	Card or History	39		12-23 m	823		1987	
Pol3	C or H <12 month	29		12-23 m	823		1987	
MCV	Card or History	55		12-23 m	823		1987	
MCV	C or H <12 month	32		12-23 m	823		1987	

Guatemala

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.

Guatemala

Year	PAB coverage estimate (%)
1980	1
1981	1
1982	1
1983	4
1984	6
1985	9
1986	13
1987	16
1988	22
1989	28
1990	44
1991	47
1992	50
1993	51
1994	53
1995	55
1996	57
1997	58
1998	59
1999	66
2000	67
2001	68
2002	68
2003	69
2004	70
2005	70
2006	70
2007	71
2008	71