

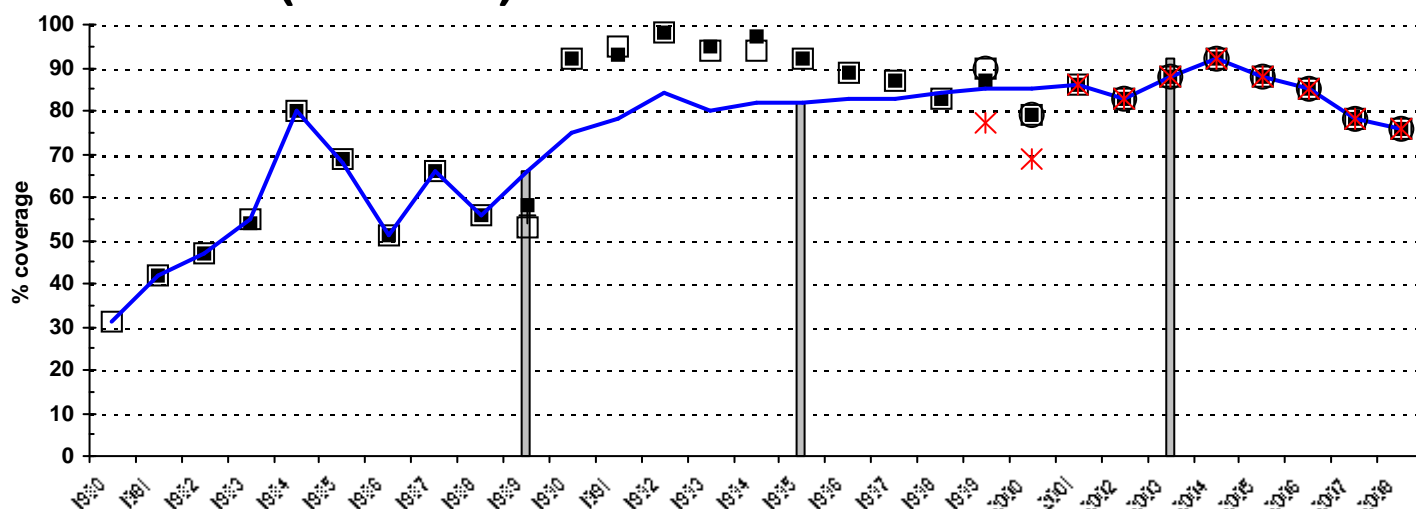
**WHO/UNICEF
Review of National Immunization Coverage
1980-2008**

Paraguay

July, 2009

Paraguay

BCG (1980-2008)



Description of trend

Estimates from 1980-1988 are based on national reports. From 1989, the trends in reported data are calibrated to the levels established by the surveys in 1989 and 1995. Survey results support reported coverage from 2001 onward. Estimates from 1995-2000 are interpolated between 1995 survey results and 2001 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	31	31					
1981	42	42	42				
1982	47	47	47				
1983	55	55	54				
1984	80	80	80				
1985	68	69	69				
1986	51	51	51				
1987	66	66	66				
1988	56	56	56				
1989	66	53	58			66	56
1990	75	92	92				
1991	78	95	93				
1992	84	98	98				
1993	80	94	95				
1994	82	94	97				
1995	82	92	92			82	
1996	83	89	89				
1997	83	87	87				
1998	84	83	83				
1999	85	90	87	90	77		
2000	85	79	79	79	69		
2001	86	86	86		86		
2002	83	83	83	83	83		
2003	88	88	88	88	88	92	
2004	92	92	92	92	92		
2005	88	88	88	88	88		
2006	85	85	85	85	85		
2007	78	78	78	78	78		
2008	76	76	76	76	76		

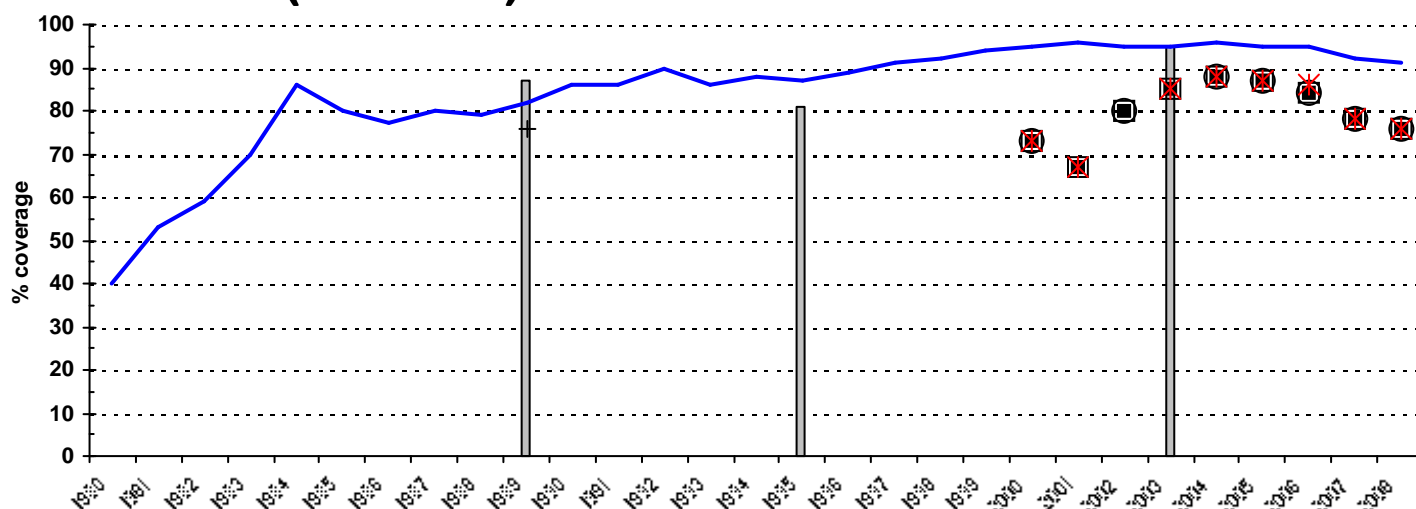
*Prior to 1998 national reports to WHO/UNICEF did not specify whether information was derived from administrative records, surveys or other sources.

**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.

Paraguay

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 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. Note that reported data for DTP1 are lower than that reported for DTP3.

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	40						
1981	53						
1982	59						
1983	70						
1984	86						
1985	80						
1986	77						
1987	80						
1988	79						
1989	82					87	76
1990	86						
1991	86						
1992	90						
1993	86						
1994	88						
1995	87					81	
1996	89						
1997	91						
1998	92						
1999	94						
2000	95	73	73	73	73		
2001	96	67	67		67		
2002	95	80	80	80			
2003	95	85	85		85	95	
2004	96	88	88	88	88		
2005	95	87	87	87	87		
2006	95	84	84	84	86		
2007	92	78	78	78	78		
2008	91	76	76	76	76		

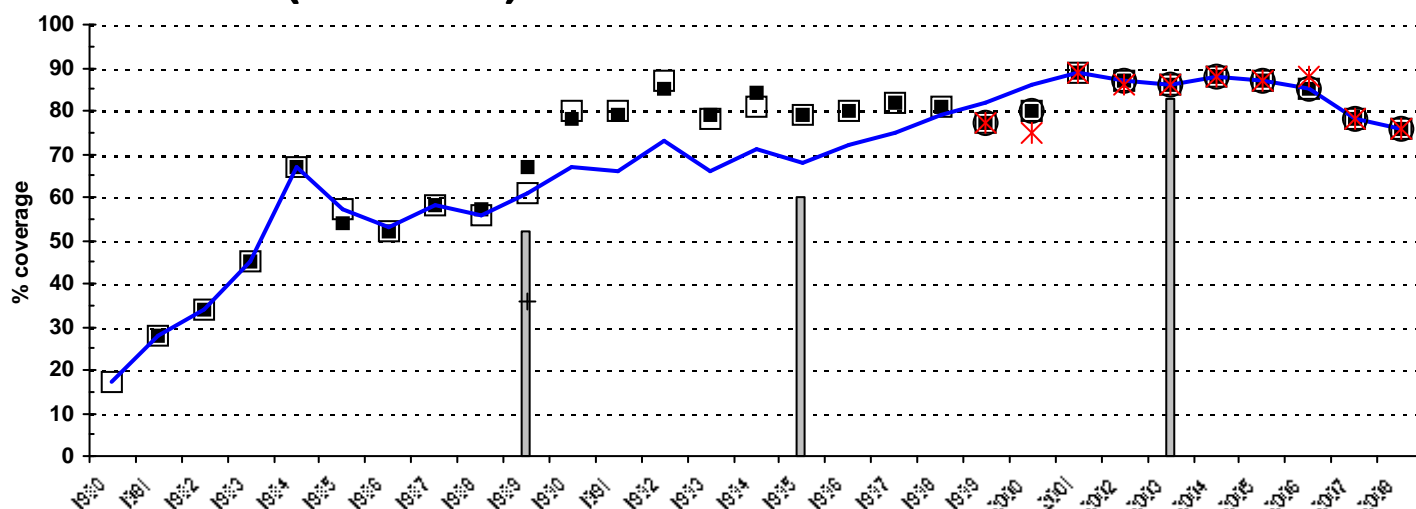
*Prior to 1998 national reports to WHO/UNICEF did not specify whether information was derived from administrative records, surveys or other sources.

**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.

Paraguay

DTP3 (1980-2008)



Description of trend

Estimates from 1980-1988 are based on national reports. From 1989, the trends in reported data are calibrated to the levels established by the surveys in 1989 and 1995. Survey results support reported coverage from 2001 onward. Estimates from 1995-2000 are interpolated between 1995 survey results and 2001 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	17	17					
1981	28	28	28				
1982	34	34	34				
1983	45	45	45				
1984	67	67	67				
1985	57	57	54				
1986	53	52	52				
1987	58	58	58				
1988	56	56	57				
1989	61	61	67			52	36
1990	67	80	78				
1991	66	80	79				
1992	73	87	85				
1993	66	78	79				
1994	71	81	84				
1995	68	79	79			60	
1996	72	80	80				
1997	75	82	82				
1998	79	81	81				
1999	82	77	77	77	77		
2000	86	80	80	80	75		
2001	89	89	89		89		
2002	87	87	87	87	86		
2003	86	86	86	86	86	83	
2004	88	88	88	88	88		
2005	87	87	87	87	87		
2006	85	85	85	85	88		
2007	78	78	78	78	78		
2008	76	76	76	76	76		

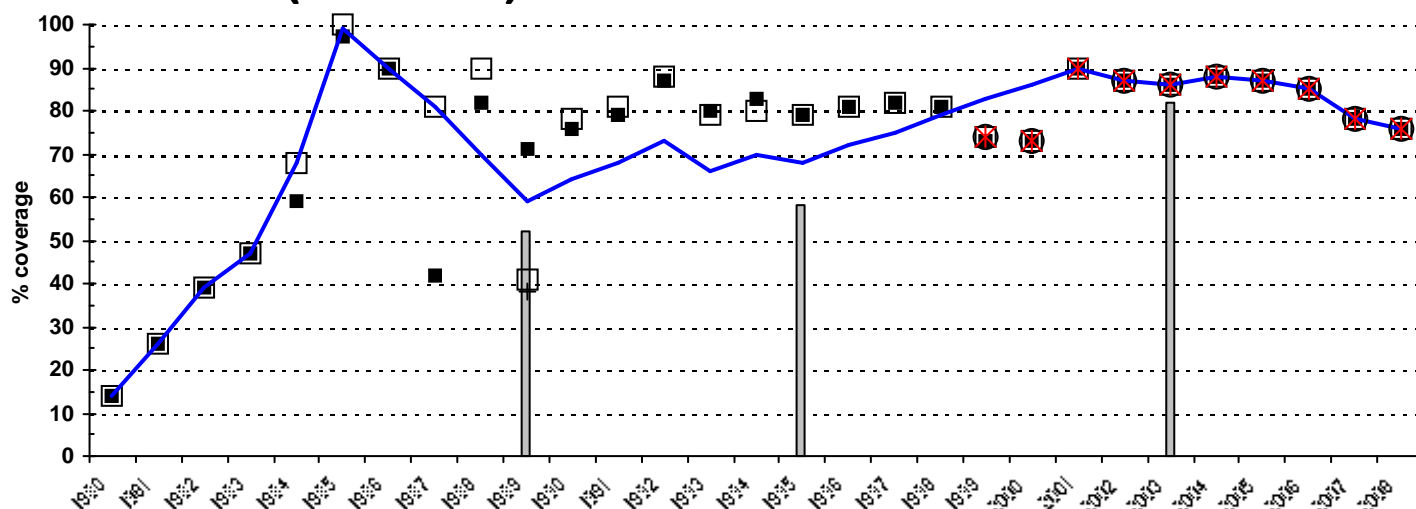
*Prior to 1998 national reports to WHO/UNICEF did not specify whether information was derived from administrative records, surveys or other sources.

**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.

Paraguay

Pol3 (1980-2008)



Description of trend

Estimates from 1980-1988 are based on national reports. From 1989, the trends in reported data are calibrated to the levels established by the surveys in 1989 and 1995. Survey results support reported coverage from 2001 onward. Estimates from 1995-2000 are interpolated between survey results and 2001 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	14	14	14				
1981	26	26	26				
1982	39	39	39				
1983	47	47	47				
1984	68	68	59				
1985	99	100	97				
1986	90	90	90				
1987	81	81	42				
1988	70	90	82				
1989	59	41	71			52	38
1990	64	78	76				
1991	68	81	79				
1992	73	88	87				
1993	66	79	80				
1994	70	80	83				
1995	68	79	79			58	
1996	72	81	81				
1997	75	82	82				
1998	79	81	81				
1999	83	74	73	74	74		
2000	86	73	73	73	73		
2001	90	90	90		90		
2002	87	87	87	87	87		
2003	86	86	86	86	86	82	
2004	88	88	88	88	88		
2005	87	87	87	87	87		
2006	85	85	85	85	85		
2007	78	78	78	78	78		
2008	76	76	76	76	76		

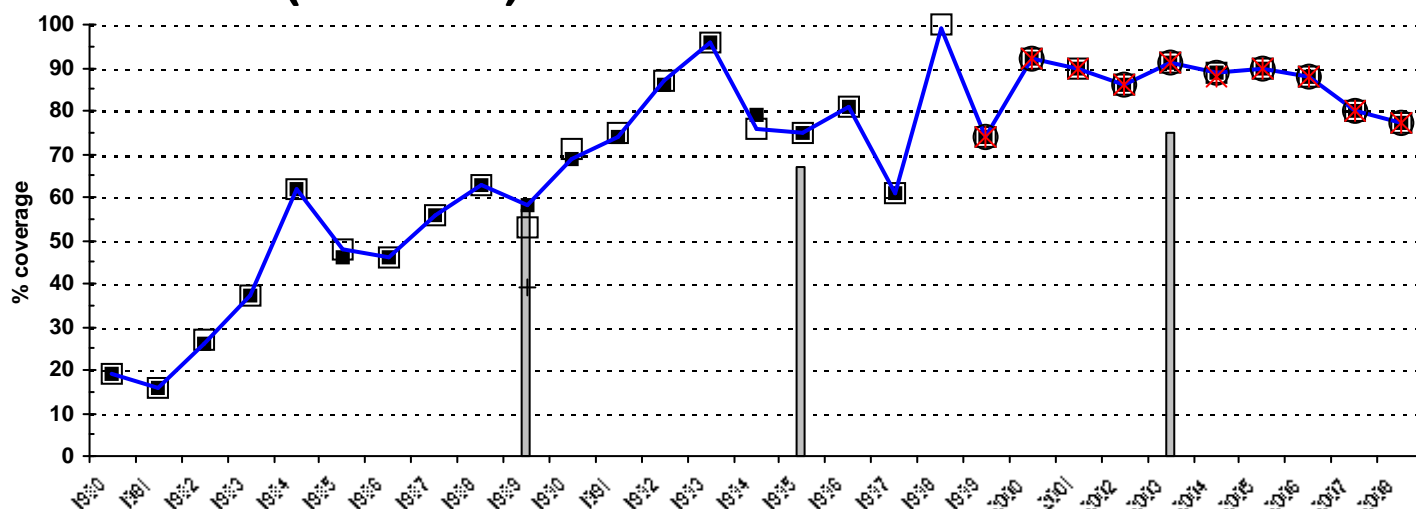
*Prior to 1998 national reports to WHO/UNICEF did not specify whether information was derived from administrative records, surveys or other sources.

**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.

Paraguay

MCV (1980-2008)



Description of trend

Trend follows officially reported data, supported by survey. Measles vaccination is recommended at 12 months of age. The 2003 survey result report information for children 12-23 months of age; possibly missing children vaccinated shortly after 12 months of age.

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	19	19	19				
1981	16	16	16				
1982	26	27	26				
1983	37	37	37				
1984	62	62	62				
1985	48	48	46				
1986	46	46	46				
1987	56	56	56				
1988	63	63	63				
1989	58	53	58			57	39
1990	69	71	69				
1991	74	75	74				
1992	87	87	86				
1993	96	96	96				
1994	76	76	79				
1995	75	75	75			67	
1996	81	81	81				
1997	61	61	61				
1998	99	100					
1999	74	74	74	74	74		
2000	92	92	92	92	92		
2001	90	90	90		90		
2002	86	86	86	86	86		
2003	91	91	91	91	91	75	
2004	89	89	89	89	88		
2005	90	90	90	90	90		
2006	88	88	88	88	88		
2007	80	80	80	80	80		
2008	77	77	77	77	77		

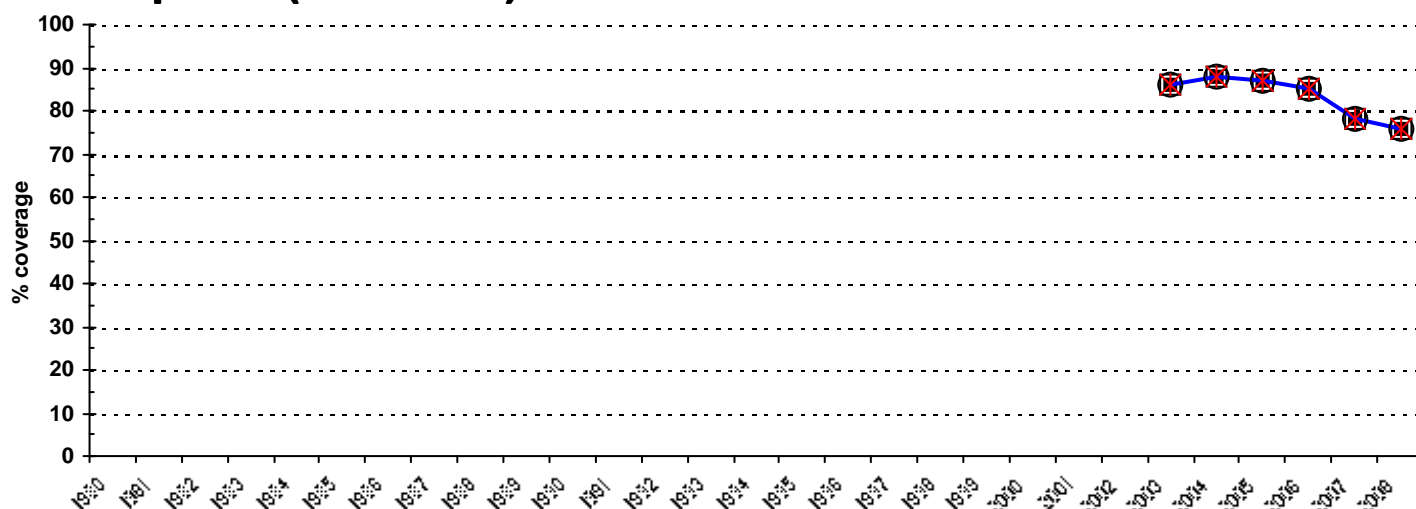
*Prior to 1998 national reports to WHO/UNICEF did not specify whether information was derived from administrative records, surveys or other sources.

**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.

Paraguay

HepB3 (1980-2008)



Description of trend

DTP-HepB-Hib combination vaccine introduced in 2001. Estimates 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							
1999							
2000							
2001							
2002							
2003	86	86	86	86	86		
2004	88	88	88	88	88		
2005	87	87	87	87	87		
2006	85	85	85	85	85		
2007	78	78	78	78	78		
2008	76	76	76	76	76		

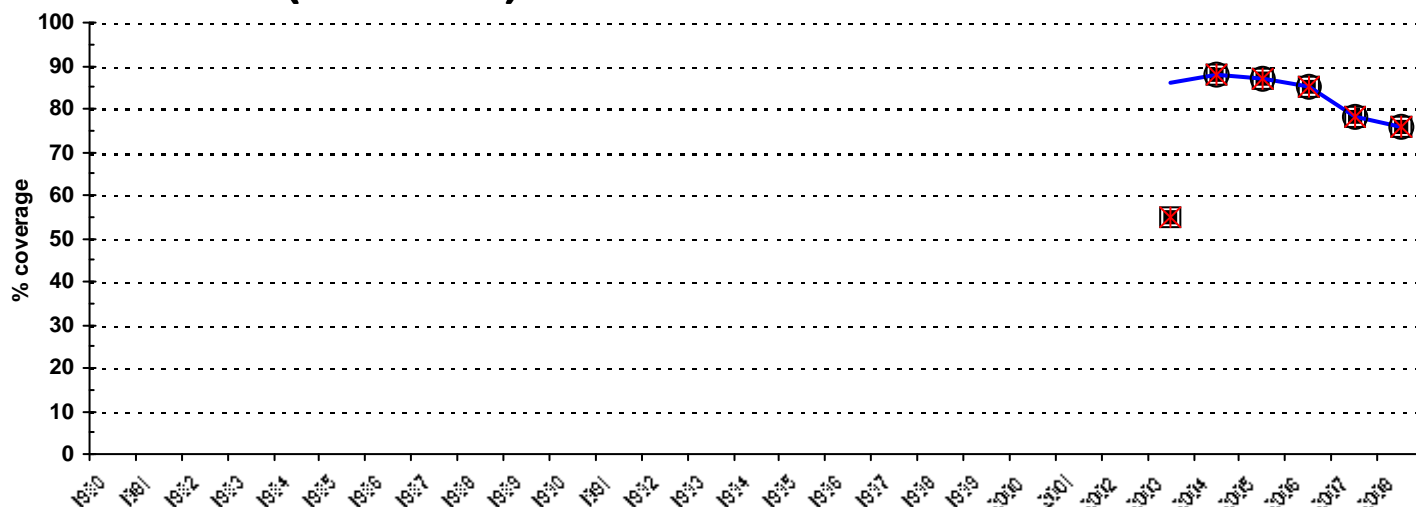
*Prior to 1998 national reports to WHO/UNICEF did not specify whether information was derived from administrative records, surveys or other sources.

**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.

Paraguay

Hib3 (1980-2008)



Description of trend

DTP-HepB-Hib combination vaccine introduced in 2001. Estimates are based on reported data. 2003 estimate is based on DTP3 coverage.

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	86	55	55		55		
2004	88	88	88	88	88		
2005	87	87	87	87	87		
2006	85	85	85	85	85		
2007	78	78	78	78	78		
2008	76	76	76	76	76		

*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.

Paraguay

Details Survey Data

Year Source

Antigen	Confirmation method	% coverage	Compliance with schedule	Age group	Sample size	% cards seen	Survey year	Comments
2003 Encuesta Nacional de Demografía y Salud Sexual y Reproductiva 2004 (ENDSSR-2004)								
BCG	Card or History	91.6		12-23 m	898	69.1	2004	Report at < http://www.cepep.org.py/endssr2004/default.html >
DTP1	Card or History	94.9		12-23 m	898	69.1	2004	Report at < http://www.cepep.org.py/endssr2004/default.html >
DTP3	Card or History	82.8		12-23 m	898	69.1	2004	Report at < http://www.cepep.org.py/endssr2004/default.html >
Pol3	Card or History	82.2		12-23 m	898	69.1	2004	Report at < http://www.cepep.org.py/endssr2004/default.html >
MCV	Card or History	75.2		12-23 m	898	69.1	2004	Report at < http://www.cepep.org.py/endssr2004/default.html >
PAB	n.a.	93.6		CBAW	4025	69.1	2004	Report at < http://www.cepep.org.py/endssr2004/default.html >

1995 Encuesta Nacional de Demografía y Salud Reproductiva 1995-1996, 1997

BCG	Card or History	81.8		12-23 m	564	36.6	1995/96
DTP1	Card or History	81.2		12-23 m	564	36.6	1995/96
DTP3	Card or History	60.5		12-23 m	564	36.6	1995/96
Pol3	Card or History	57.7		12-23 m	564	36.6	1995/96
MCV	Card or History	66.8		12-23 m	564	36.6	1995/96

1989 Encuesta Nacional de Demografía y Salud 1990, 1991

BCG	Card or History	66.2		12-23 m	815	50.3	1990
BCG	C or H <12 month	55.9		12-23 m	815	50.3	1990
BCG	C or H <12 month	44.4		24-35 m	819	44	1990
BCG	C or H <12 month	41.4		36-47 m	779	44.4	1990
BCG	C or H <12 month	42.9		48-59 m	770	36.9	1990
DTP1	Card or History	87		12-23 m	815	50.3	1990
DTP1	C or H <12 month	75.5		12-23 m	815	50.3	1990
DTP1	C or H <12 month	54.9		24-35 m	819	44	1990
DTP1	C or H <12 month	44.9		36-47 m	779	44.4	1990
DTP1	C or H <12 month	48		48-59 m	770	36.9	1990
DTP3	Card or History	51.9		12-23 m	815	50.3	1990
DTP3	C or H <12 month	35.7		12-23 m	815	50.3	1990
DTP3	C or H <12 month	33.7		24-35 m	819	44	1990
DTP3	C or H <12 month	31.8		36-47 m	779	44.4	1990
DTP3	C or H <12 month	33		48-59 m	770	36.9	1990
Pol3	Card or History	51.7		12-23 m	815	50.3	1990
Pol3	C or H <12 month	37.6		12-23 m	815	50.3	1990
Pol3	C or H <12 month	36.7		24-35 m	819	44	1990
Pol3	C or H <12 month	31.7		36-47 m	779	44.4	1990
Pol3	C or H <12 month	34.1		48-59 m	770	36.9	1990
MCV	Card or History	56.6		12-23 m	815	50.3	1990
MCV	C or H <12 month	38.6		12-23 m	815	50.3	1990
MCV	C or H <12 month	25.4		24-35 m	819	44	1990
MCV	C or H <12 month	19.4		36-47 m	779	44.4	1990
MCV	C or H <12 month	20.8		48-59 m	770	36.9	1990

Paraguay

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.

Paraguay

Year	PAB coverage estimate (%)
1980	26
1981	10
1982	11
1983	18
1984	30
1985	42
1986	53
1987	63
1988	65
1989	66
1990	66
1991	67
1992	85
1993	82
1994	79
1995	75
1996	71
1997	67
1998	61
1999	55
2000	47
2001	39
2002	61
2003	61
2004	68
2005	78
2006	81
2007	74
2008	74