

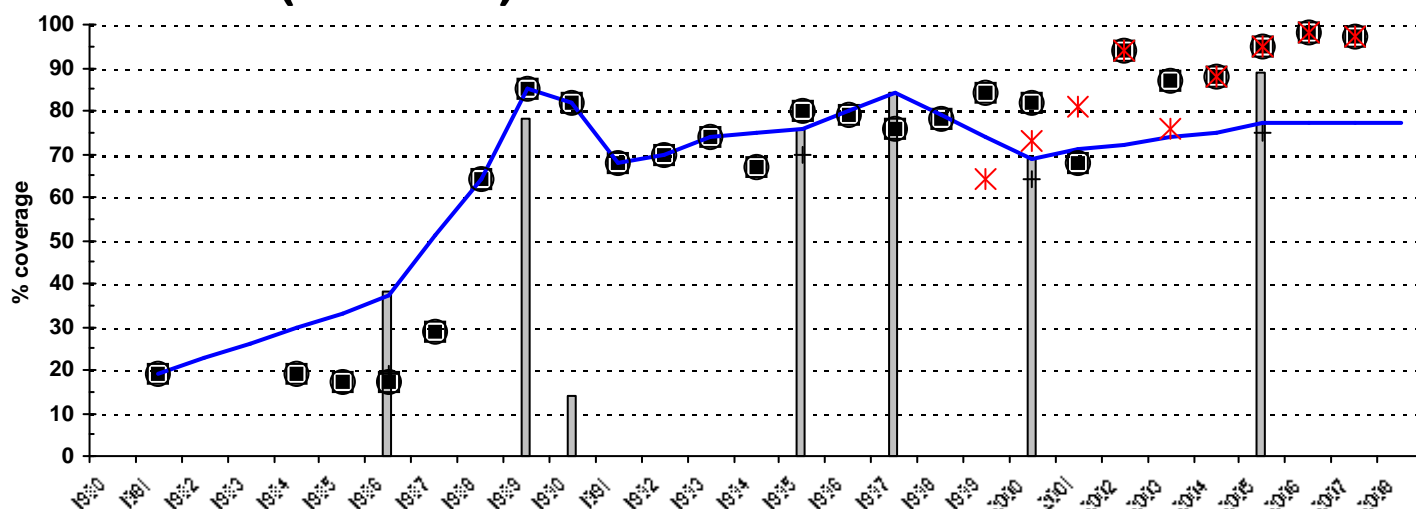
**WHO/UNICEF
Review of National Immunization Coverage
1980-2008**

Mali

July, 2009

Mali

BCG (1980-2008)



Description of trend

Estimates based on nationally reported data from 1980-1987. Data from 1988 are based on survey results. Estimates from 2005 onward are based on the 2005 DHS survey results. Results from a 2006 EPI review suggest higher 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	19	19	19	19			
1982	23						
1983	26						
1984	30	19	19	19			
1985	33	17	17	17			
1986	37	17	17	17		38	19
1987	51	29	29	29			
1988	64	64	64	64			
1989	85	85	85	85		78	
1990	82	82	82	82		14	
1991	68	68	68	68			
1992	70	70	70	70			
1993	74	74	74	74			
1994	75	67	67	67			
1995	76	80	80	80		76	70
1996	80	79	79	79			
1997	84	76	76	76		84	
1998	79	78	78	78			
1999	74	84	84	84	64		
2000	69	82	82	82	73	69	64
2001	71	68	68	68	81		
2002	72	94	94	94	94		
2003	74	87	87	87	76		
2004	75	88	88	88	88		
2005	77	95	95	95	95	89	75
2006	77	98	98	98	98		
2007	77	97	97	97	97		
2008	77	112	112	112	112		

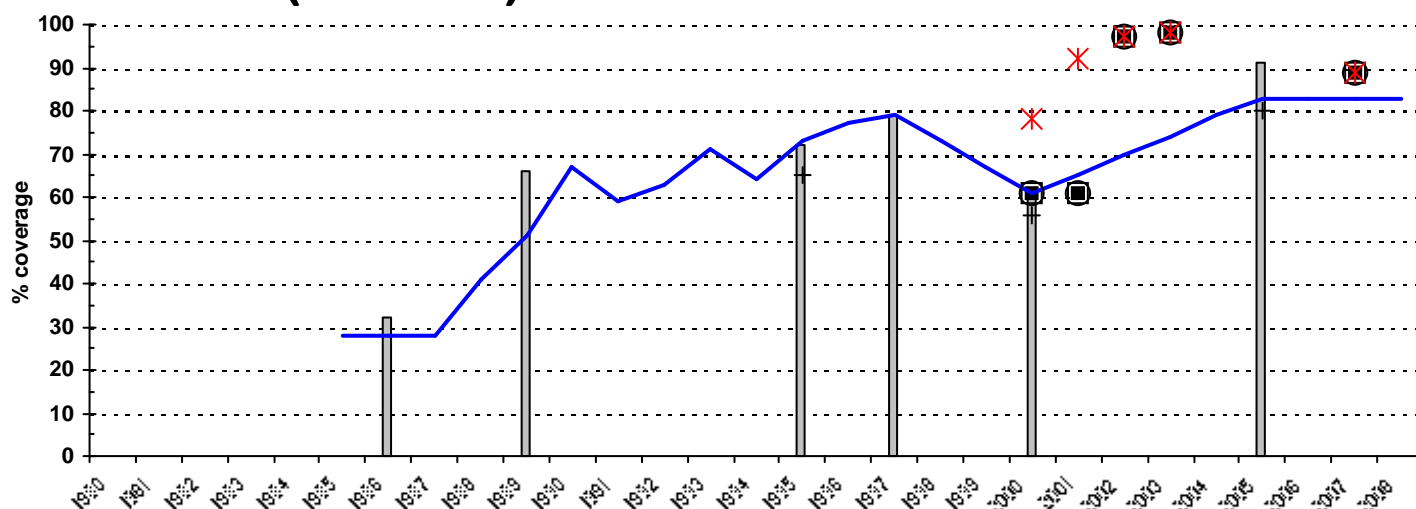
*Prior to 1998 national reports to WHO/UNICEF did not specify whether information was derived from administrative records, surveys or other sources.

**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.

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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 prior to 1997 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 1996. From 1997 DTP1 coverage is based on surveys. Estimates from 2005 onward are based on the 2006 DHS survey results. Results from a 2006 EPI review suggest higher 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	28						
1986	28					32	
1987	28						
1988	41						
1989	51					66	
1990	67						
1991	59						
1992	63						
1993	71						
1994	64						
1995	73					72	65
1996	77						
1997	79					79	
1998	73						
1999	67						
2000	61	61	61	61	78	61	56
2001	65	61	61	61	92		
2002	70	97	97	97	97		
2003	74	98	98	98	98		
2004	79	105	105	105	105		
2005	83	112	112	112	112	91	80
2006	83	108	108	108	108		
2007	83	89	89	89	89		
2008	83	122	122	122	122		

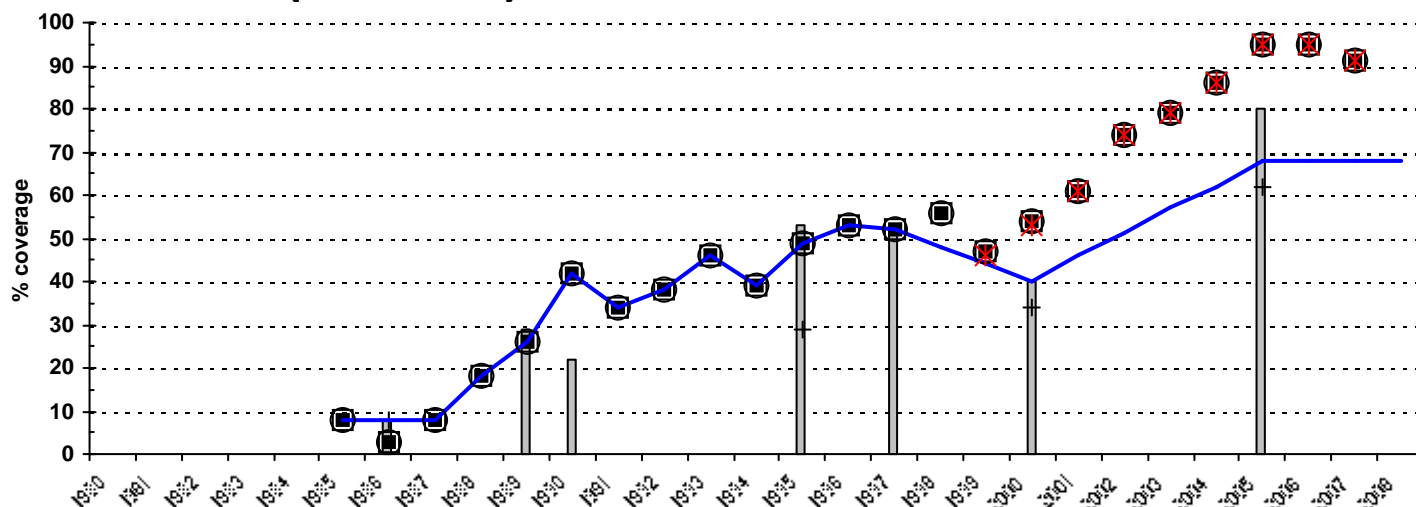
*Prior to 1998 national reports to WHO/UNICEF did not specify whether information was derived from administrative records, surveys or other sources.

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

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Mali

DTP3 (1980-2008)



Description of trend

Estimates based on nationally reported data from 1980-1997. In 2007, coverage was reported only in the part of the country where DTP was given separately from HepB and Hib. From 1997 coverage is based on survey. Estimates from 2005 onward are based on the 2005 DHS survey results. Results from a 2006 EPI review suggest higher 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	8	8	8	8			
1986	8	3	3	3		8	8
1987	8	8	8	8			
1988	18	18	18	18			
1989	26	26	26	26		29	
1990	42	42	42	42		22	
1991	34	34	34	34			
1992	38	38	38	38			
1993	46	46	46	46			
1994	39	39	39	39			
1995	49	49	49	49		53	29
1996	53	53	53	53			
1997	52	52	52	52		52	
1998	48	56	56	56			
1999	44	47	47	47	46		
2000	40	54	54	54	53	40	34
2001	46	61	61	61	61		
2002	51	74	74	74	74		
2003	57	79	79	79	79		
2004	62	86	86	86	86		
2005	68	95	95	95	95	80	62
2006	68	95	95	95	95		
2007	68	91	91	91	91		
2008	68	103	103	103	103		

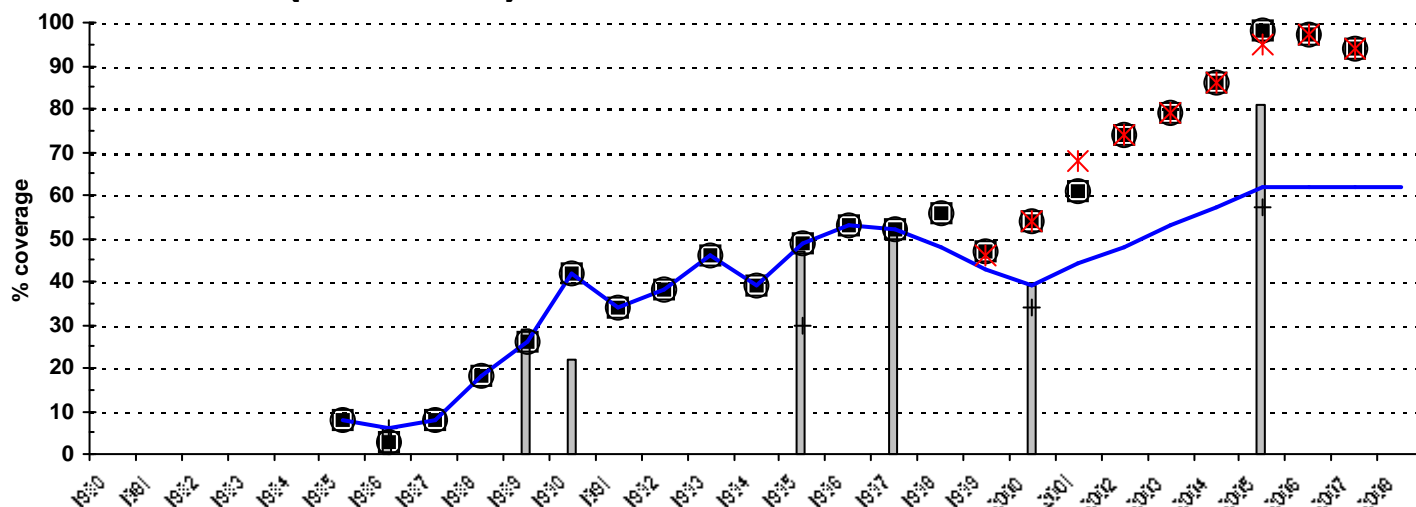
*Prior to 1998 national reports to WHO/UNICEF did not specify whether information was derived from administrative records, surveys or other sources.

**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.

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Pol3 (1980-2008)



Description of trend

Estimates based on nationally reported data from 1980-1997. Data from 1998 are based on survey results. Estimates from 2005 onward are on the 2005 DHS survey results. Results from a 2006 EPI review suggest higher 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	8	8	8	8			
1986	6	3	3	3		6	6
1987	8	8	8	8			
1988	18	18	18	18			
1989	26	26	26	26		29	
1990	42	42	42	42		22	
1991	34	34	34	34			
1992	38	38	38	38			
1993	46	46	46	46			
1994	39	39	39	39			
1995	49	49	49	49		47	30
1996	53	53	53	53			
1997	52	52	52	52		52	
1998	48	56	56	56			
1999	43	47	47	47	46		
2000	39	54	54	54	54	39	34
2001	44	61	61	61	68		
2002	48	74	74	74	74		
2003	53	79	79	79	79		
2004	57	86	86	86	86		
2005	62	98	98	98	95	81	57
2006	62	97	97	97	97		
2007	62	94	94	94	94		
2008	62	102	102	102	102		

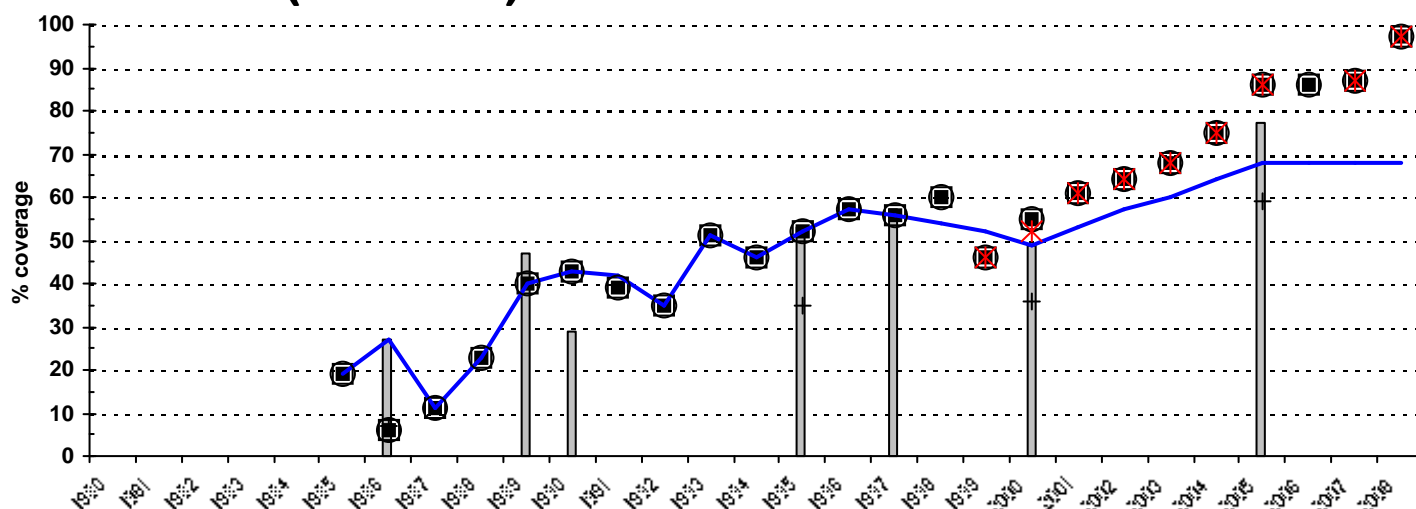
*Prior to 1998 national reports to WHO/UNICEF did not specify whether information was derived from administrative records, surveys or other sources.

**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.

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MCV (1980-2008)



Description of trend

Estimates based on nationally reported data from 1980-1987. Data from 1988 are based on survey results. Estimates from 2005 onward are based on the 2005 DHS survey results. Results from a 2006 EPI review suggest higher coverage.

Data presented in chart

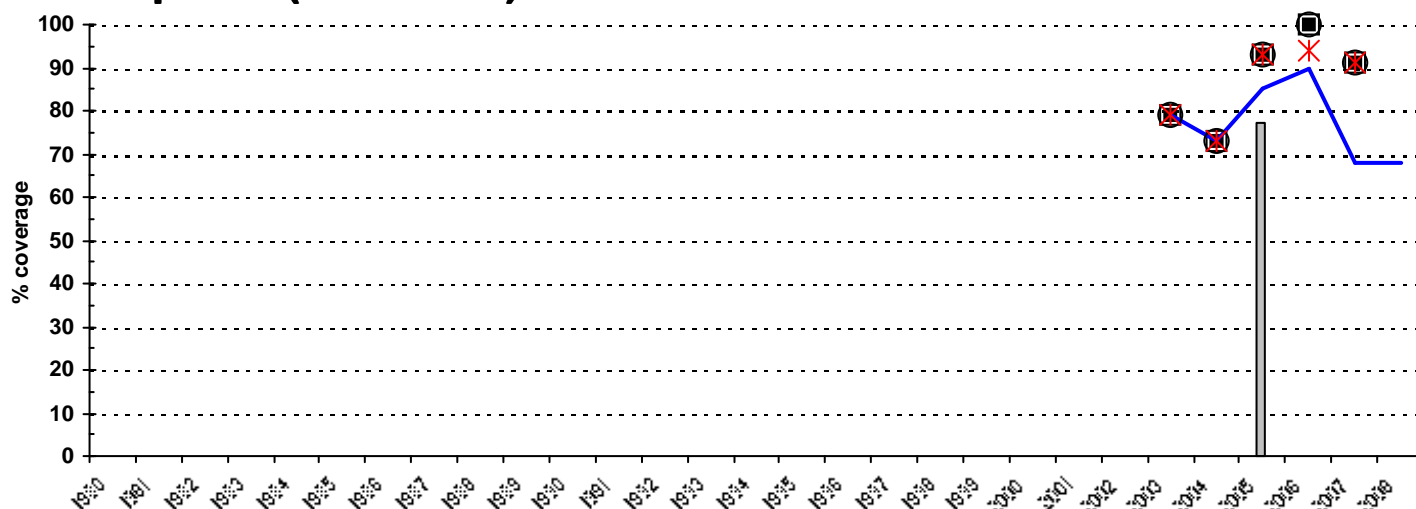
Year	WHO/ UNICEF estimate (%) —	Reported to:*		Government official estimate (%) ○	Reported doses administered (%)** ✕	Survey data (%)***	
		WHO (%) □	UNICEF (%) ■			Survey 12-23 months 	Survey <12 months +
1980							
1981							
1982							
1983							
1984							
1985	19	19	19	19			
1986	27	6	6	6		27	7
1987	11	11	11	11			
1988	23	23	23	23			
1989	40	40	40	40		47	
1990	43	43	43	43		29	
1991	42	39	39	39			
1992	35	35	35	35			
1993	51	51	51	51			
1994	46	46	46	46			
1995	52	52	52	52		53	35
1996	57	57	57	57			
1997	56	56	56	56		57	
1998	54	60	60	60			
1999	52	46	46	46	46		
2000	49	55	55	55	52		
2001	53	61	61	61	61	49	36
2002	57	64	64	64	64		
2003	60	68	68	68	68		
2004	64	75	75	75	75		
2005	68	86	86	86	86	77	59
2006	68	86	86	86	86		
2007	68	87	87	87	87		
2008	68	97	97	97	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.

HepB3 (1980-2008)



Description of trend

Hepatitis B introduced in 2001, nationally in 2003. In 2006 sensitization of the population for Pentavalent introduction led to higher levels of coverage but included children outside the target age group. Reported coverage of 100% was reduced to 90% to adjust for children vaccinated outside the target age group. For 2006 onward, coverage is based on DTP3 coverage estimates.

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	79	79	79	79	79		
2004	73	73	73	73	73		
2005	85	93	93	93	93	77	
2006	90	100	100	100	94		
2007	68	91	91	91	91		
2008	68	103	103	103	103		

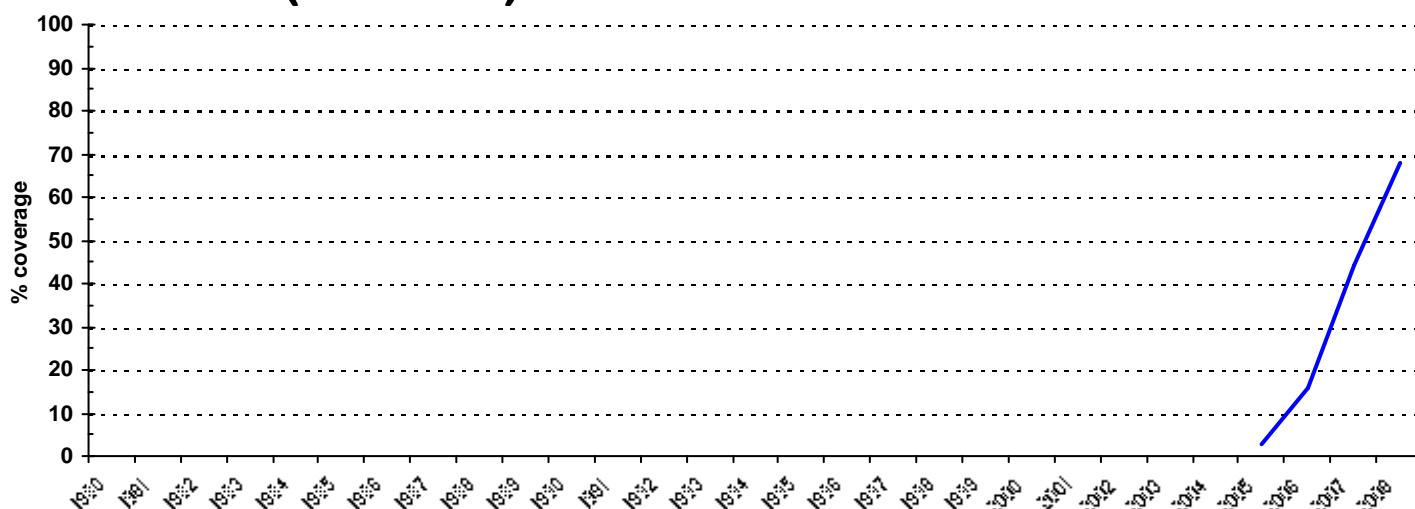
*Prior to 1998 national reports to WHO/UNICEF did not specify whether information was derived from administrative records, surveys or other sources.

**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.

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Hib3 (1980-2008)



Description of trend

DTP-HepB-Hib vaccine introduced in 2005 in 5% of the country with coverage of 51%. In 2006 100% coverage was reached in the national regional capitals - approximately 16% of the national target age group. In 2007, 94% coverage was reached in 47% of the country in which Pentavalent was given. In 2008 pentavalent vaccine became available nationally. Estimate for 2008 is based on DTP3 coverage estimates.

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	3						
2006	16						
2007	44						
2008	68	103	103	103	103		

*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.

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Details Survey Data

Year Source

Antigen	Confirmation method	% coverage	Compliance with schedule	Age group	Sample size	% cards seen	Survey year	Comments
2005 Enquête Démographique et de Santé du Mali, 2006								
BCG	Card or History	76.7		12-23 m	2626	60.8	2006	
BCG	C or H <12 month	75.1		12-23 m	2626	60.8	2006	
DTP1	Card or History	83.1		12-23 m	2626	60.8	2006	
DTP1	C or H <12 month	80.2		12-23 m	2626	60.8	2006	
DTP3	Card or History	67.6		12-23 m	2626	60.8	2006	
DTP3	C or H <12 month	61.9		12-23 m	2626	60.8	2006	
Pol3	Card or History	61.9		12-23 m	2626	60.8	2006	
Pol3	C or H <12 month	56.6		12-23 m	2626	60.8	2006	
MCV	Card or History	68.4		12-23 m	2626	60.8	2006	
MCV	C or H <12 month	59.1		12-23 m	2626	60.8	2006	
PAB	n.a.	56.2		CBAW	9086		2006	
2005 République du Mali, Programme élargi du vaccination, Revue externe éà-								
BCG	Card or History	89	Crude	12-23 m	1710	78	2006	
DTP1	Card or History	91	Crude	12-23 m	1710	78	2006	
DTP3	Card or History	80	Crude	12-23 m	1710	78	2006	
Pol3	Card or History	81	Crude	12-23 m	1710	78	2006	
MCV	Card or History	77	Crude	12-23 m	1710	78	2006	
HepB	Card or History	77	Crude	12-23 m	1710	78	2006	
2000 Enquête Démographique et de Santé Mali 2001, 2002								
BCG	Card or History	69		12-23 m	2197	48.3	2001	
BCG	C or H <12 month	63.7		12-23 m	2197	48.3	2001	
DTP1	Card or History	61		12-23 m	2197	48.3	2001	
DTP1	C or H <12 month	55.9		12-23 m	2197	48.3	2001	
DTP3	Card or History	39.6		12-23 m	2197	48.3	2001	
DTP3	C or H <12 month	33.9		12-23 m	2197	48.3	2001	
Pol3	Card or History	39.4		12-23 m	2197	48.3	2001	
Pol3	C or H <12 month	33.9		12-23 m	2197	48.3	2001	
MCV	Card or History	48.7		12-23 m	2197	48.3	2001	
MCV	C or H <12 month	36.2		12-23 m	2197	48.3	2001	
1997 Enquete de couverture vaccinale au Mali 1998								
BCG	Card or History	84		12-23 m	1521	57	1998	
DTP1	Card or History	79		12-23 m	1521	57	1998	
DTP3	Card or History	52		12-23 m	1521	57	1998	
Pol3	Card or History	52		12-23 m	1521	57	1998	
MCV	Card or History	57		12-23 m	1521	57	1998	
1995 Enquête a Indicateurs Multiples au Mali (EIM) 1996								
BCG	Card or History	75.9		12-23 m		57.2	1996	
DTP1	Card or History			12-23 m		57.2	1996	
DTP3	Card or History	52.7		12-23 m		57.2	1996	
Pol3	Card or History	47.2		12-23 m		57.2	1996	
MCV	Card or History	53.2		12-23 m		57.2	1996	
1995 Enquête Démographique et de Santé Mali 1995-1996								
BCG	Card or History	76.3		12-23 m	1562	56.2	1995/96	
BCG	C or H <12 month	69.6		12-23 m	1562	56.2	1995/96	

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Details Survey Data

Year Source

Antigen	Confirmation method	% coverage	Compliance with schedule	Age group	Sample size	% cards seen	Survey year	Comments
DTP1	Card or History	71.6		12-23 m	1562	56.2	1995/96	
DTP1	C or H <12 month	64.6		12-23 m	1562	56.2	1995/96	
DTP3	Card or History	37.5		12-23 m	1562	56.2	1995/96	
DTP3	C or H <12 month	28.7		12-23 m	1562	56.2	1995/96	
Pol3	Card or History	39.1		12-23 m	1562	56.2	1995/96	
Pol3	C or H <12 month	29.9		12-23 m	1562	56.2	1995/96	
MCV	Card or History	50.8		12-23 m	1562	56.2	1995/96	
MCV	C or H <12 month	35.2		12-23 m	1562	56.2	1995/96	

1990 *Bilan Diagnostic du Developpement Humain Durable au Mali, 1995*

BCG	Card or History	13.8		12-23 m			1991	
DTP1	Card or History			12-23 m			1991	
DTP3	Card or History	22.2		12-23 m			1991	
Pol3	Card or History	22.2		12-23 m			1991	
MCV	Card or History	28.6		12-23 m			1991	

1989 *Enquete de couverture vaccinale au Mali 1990*

BCG	Card or History	78		12-23 m		68	1990	
DTP1	Card or History	66		12-23 m		68	1990	
DTP3	Card or History	29		12-23 m		68	1990	
Pol3	Card or History	29		12-23 m		68	1990	
MCV	Card or History	47		12-23 m		68	1990	

1989 *Rapport d'Evaluation de la Couverture Vaccinale au Mali, 1990*

PAB	Card or History	18		Women 15-49		42	1990	Births last year
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1986 *Demographic and Health Surveys Comparative Studies No. 1, Immunization, Boerma et al., Institute for Resource Development/Macro Systems, 1990*

BCG	Card or History	38		12-23 m	554		1987	
BCG	C or H <12 month	19		12-23 m	554		1987	
DTP1	Card or History	32		12-23 m	554		1987	
DTP1	C or H <12 month			12-23 m	554		1987	
DTP3	Card or History	8		12-23 m	554		1987	
DTP3	C or H <12 month	8		12-23 m	554		1987	
Pol3	Card or History	6		12-23 m	554		1987	
Pol3	C or H <12 month	6		12-23 m	554		1987	
MCV	Card or History	27		12-23 m	554		1987	
MCV	C or H <12 month	7		12-23 m	554		1987	

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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.

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Year	PAB coverage estimate (%)
1980	
1981	1
1982	2
1983	2
1984	3
1985	4
1986	5
1987	10
1988	24
1989	36
1990	45
1991	45
1992	36
1993	36
1994	34
1995	36
1996	36
1997	37
1998	38
1999	43
2000	50
2001	52
2002	59
2003	60
2004	86
2005	86
2006	89
2007	90
2008	92