

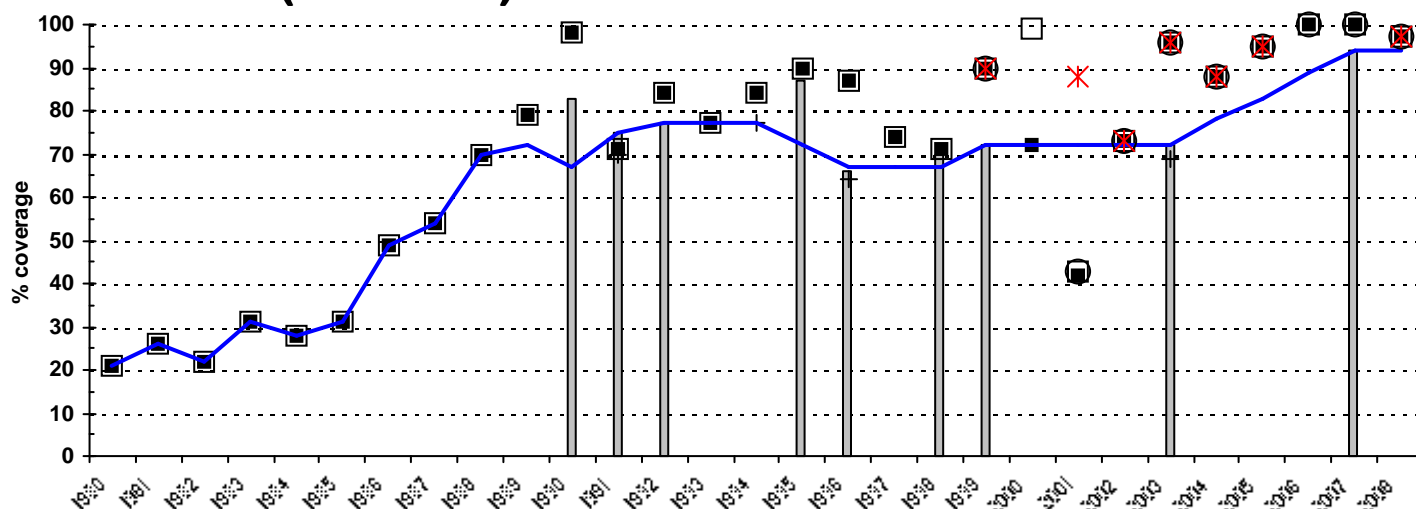
**WHO/UNICEF
Review of National Immunization Coverage
1980-2008**

Madagascar

July, 2009

Madagascar

BCG (1980-2008)



Description of trend

Trend follows officially reported data in the 1980s. The 1990 WHO officially reported data seem to be an overestimate; survey data suggest a of 75% in 1991 and also quotes coverage for older births cohorts (before 12 months) that support the slight upward trend between 1989 and 1994. The continuing rise in coverage after 1994 suggested by officially reported data contrasts survey data. Estimates since 1999 are based on survey results.

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	21	21	21				
1981	26	26	26				
1982	22	22	22				
1983	31	31	31				
1984	28	28	28				
1985	31	31	31				
1986	49	49	49				
1987	54	54	54				
1988	70	70	70				
1989	72	79	79				
1990	67	98	98			83	
1991	75	71	71			75	70
1992	77	84	84			77	
1993	77	77	77				
1994	77	84	84				77
1995	72	90	90			87	
1996	67	87	87			66	64
1997	67	74	74				
1998	67	71	71			70	
1999	72	90	90	90	90	72	
2000	72	99	72	102	102		
2001	72	43	42	43	88		
2002	72	73	73	73	73		
2003	72	96	96	96	96	72	69
2004	78	88	88	88	88		
2005	83	95	95	95	95		
2006	89	100	100	100	101		
2007	94	100	100	100	103	94	
2008	94	97	97	97	97		

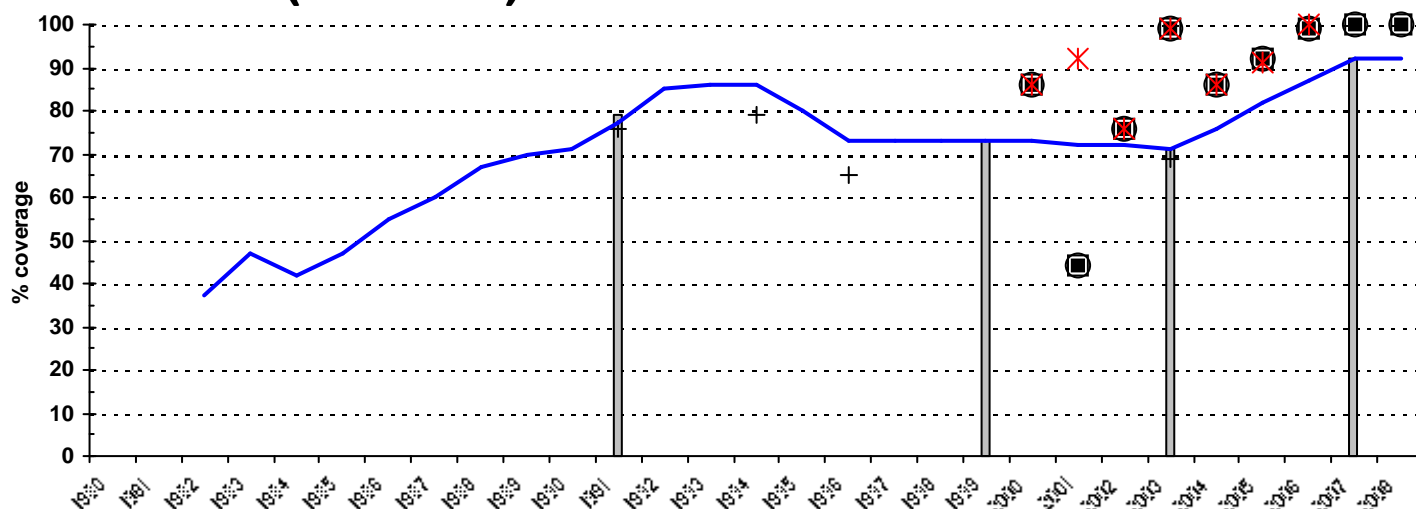
*Prior to 1998 national reports to WHO/UNICEF did not specify whether information was derived from administrative records, surveys or other sources.

**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.

Madagascar

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.) From 1999 the estimates are based on survey 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	37						
1983	47						
1984	42						
1985	47						
1986	55						
1987	60						
1988	67						
1989	70						
1990	71						
1991	77					79	76
1992	85						
1993	86						
1994	86						79
1995	80						
1996	73						65
1997	73						
1998	73						
1999	73						
2000	73	86	86	86	86	73	
2001	72	44	44	44	92		
2002	72	76	76	76	76		
2003	71	99	99	99	99	71	69
2004	76	86	86	86	86		
2005	82	92	92	92	91		
2006	87	99	99	99	100		
2007	92	100	100	100	104	92	
2008	92	100	100	100	101		

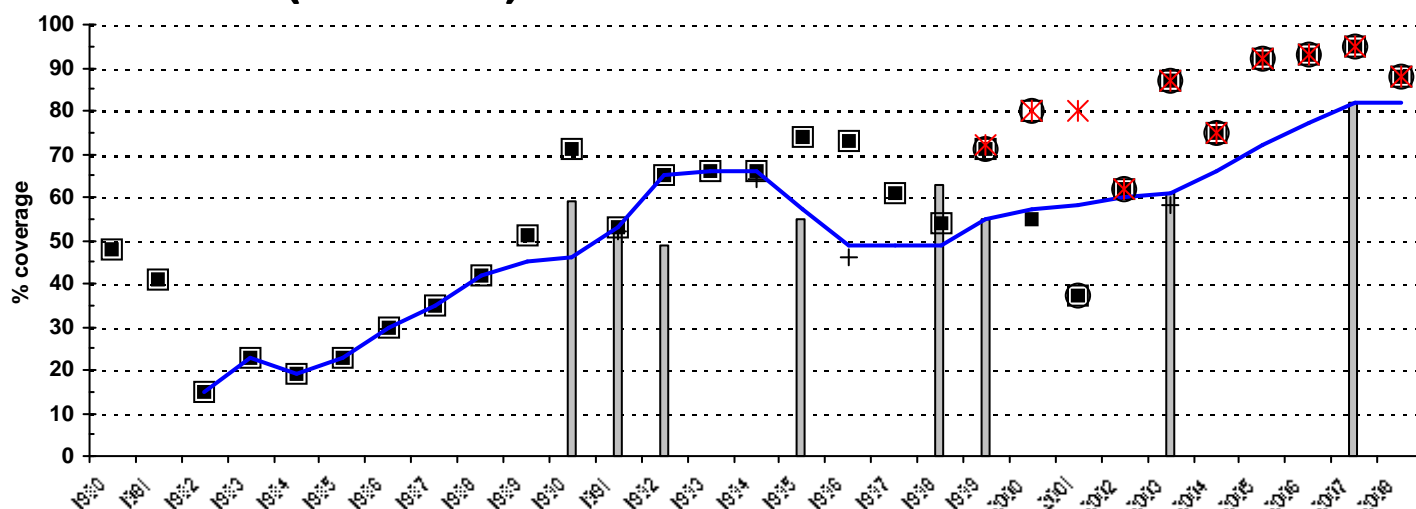
*Prior to 1998 national reports to WHO/UNICEF did not specify whether information was derived from administrative records, surveys or other sources.

**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.

Madagascar

DTP3 (1980-2008)



Description of trend

Trend follows officially reported data in the 1980s. The 1990 WHO officially reported data seem to be an overestimate; survey data suggest a of 54% in 1991 (DHS 1992) and also quote coverage for older births cohorts (before 12 months) that support the slight upward trend between 1989 and 1991. The continuing rise in coverage after 1994 suggested by officially reported data contrasts survey data in 1996. Estimates sin 1999 are based on survey results.

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		48	48				
1981		41	41				
1982	15	15	15				
1983	23	23	23				
1984	19	19	19				
1985	23	23	23				
1986	30	30	30				
1987	35	35	35				
1988	42	42	42				
1989	45	51	51				
1990	46	71	71			59	
1991	53	53	53			54	52
1992	65	65	65			49	
1993	66	66	66				
1994	66	66	66				64
1995	57	74	74			55	
1996	49	73	73				46
1997	49	61	61				
1998	49	54	54			63	
1999	55	71	71	71	72	55	
2000	57	80	55	80	80		
2001	58	37	37	37	80		
2002	60	62	62	62	62		
2003	61	87	87	87	87	61	58
2004	66	75	75	75	75		
2005	72	92	92	92	92		
2006	77	93	93	93	93		
2007	82	95	95	95	95	82	
2008	82	88	88	88	88		

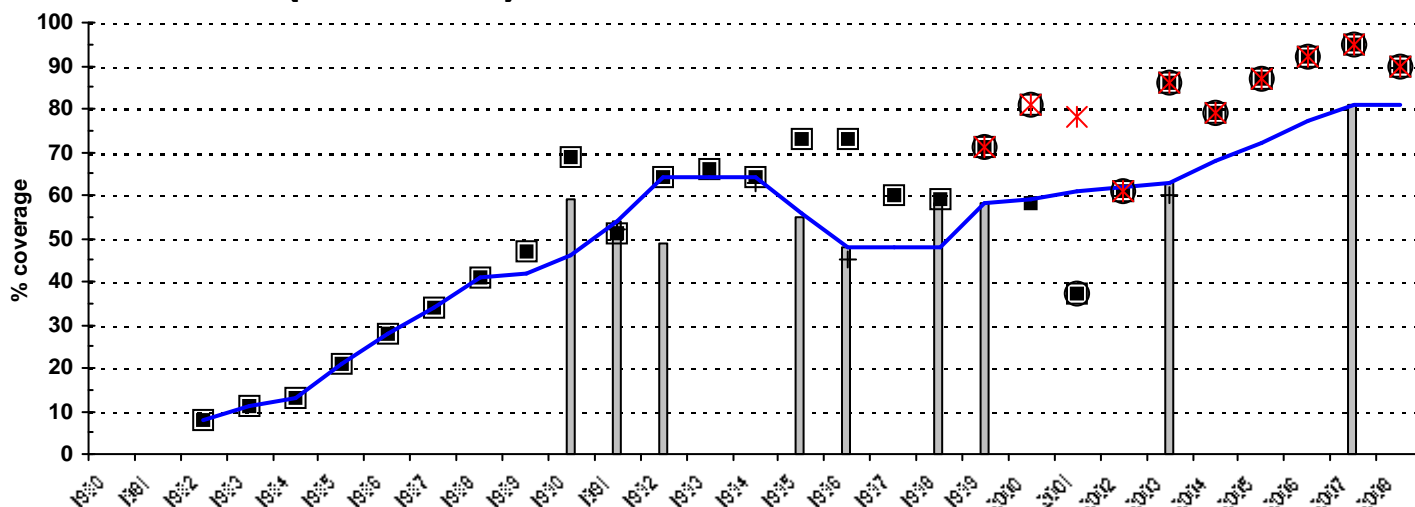
*Prior to 1998 national reports to WHO/UNICEF did not specify whether information was derived from administrative records, surveys or other sources.

**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.

Madagascar

Pol3 (1980-2008)



Description of trend

Trend follows officially reported data in the 1980s. The 1990 WHO officially reported data seem to be an overestimate; survey data suggest a 54% in 1991 (DHS 1992) and also quote coverage for older births cohorts (before 12 months) that support the slight upward trend between 1991. The continuing rise in coverage after 1994 as suggested by officially reported data contrasts survey data. Estimates since 1999 are bas survey results.

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	8	8	8				
1983	11	11	11				
1984	13	13	13				
1985	21	21	21				
1986	28	28	28				
1987	34	34	34				
1988	41	41	41				
1989	42	47	47				
1990	46	69	69			59	
1991	54	51	51			54	52
1992	64	64	64			49	
1993	64	66	66				
1994	64	64	64				63
1995	56	73	73			55	
1996	48	73	73			48	45
1997	48	60	60				
1998	48	59	59			58	
1999	58	71	71	71	71	58	
2000	59	81	58	81	81		
2001	61	37	37	37	78		
2002	62	61	61	61	61		
2003	63	86	86	86	86	63	60
2004	68	79	79	79	79		
2005	72	87	87	87	87		
2006	77	92	92	92	92		
2007	81	95	95	95	95	81	
2008	81	90	90	90	90		

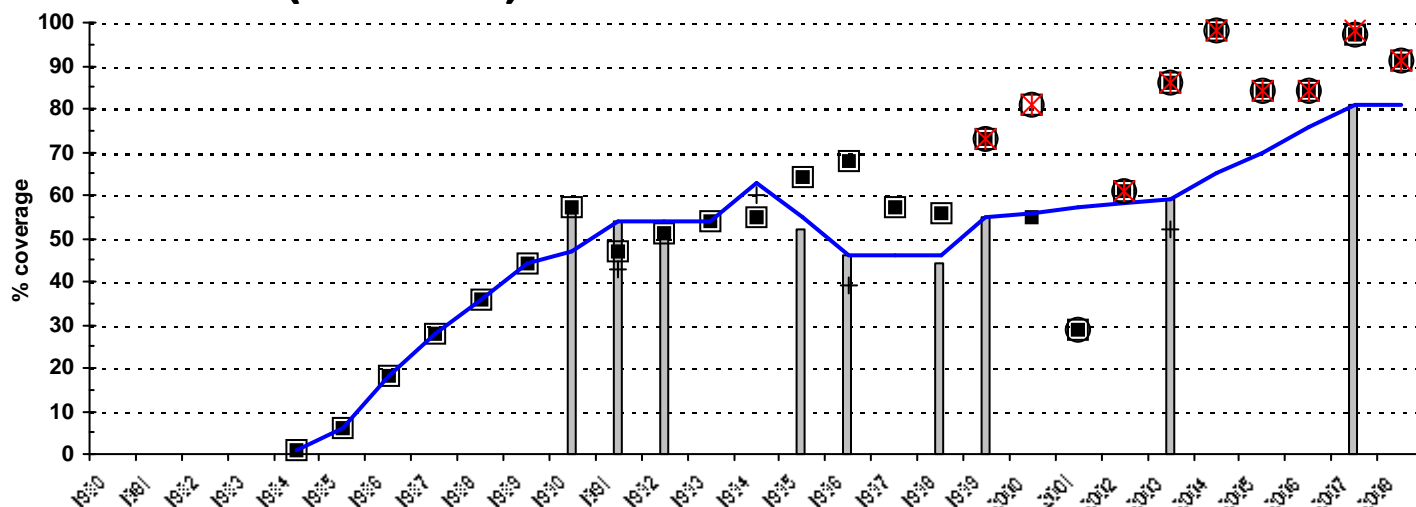
*Prior to 1998 national reports to WHO/UNICEF did not specify whether information was derived from administrative records, surveys or other sources.

**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.

Madagascar

MCV (1980-2008)



Description of trend

Estimated coverage for those years is based primarily on the DHS 1992. After 1994, administrative and survey data show a contrasting trend whereas officially reported data shows a continuing rise. Estimates since 1999 are based on survey results.

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	1	1	1				
1985	6	6	6				
1986	18	18	18				
1987	28	28	28				
1988	36	36	36				
1989	44	44	44				
1990	47	57	57			56	
1991	54	47	47			54	43
1992	54	51	51			51	
1993	54	54	54				
1994	63	55	55				60
1995	55	64	64			52	
1996	46	68	68			46	39
1997	46	57	57				
1998	46	56	56			44	
1999	55	73	73	73	73	55	
2000	56	81	55	81	81		
2001	57	29	29	29			
2002	58	61	61	61	61		
2003	59	86	86	86	86	59	52
2004	65	98	98	98	98		
2005	70	84	84	84	84		
2006	76	84	84	84	84		
2007	81	97	97	97	98	81	
2008	81	91	91	91	91		

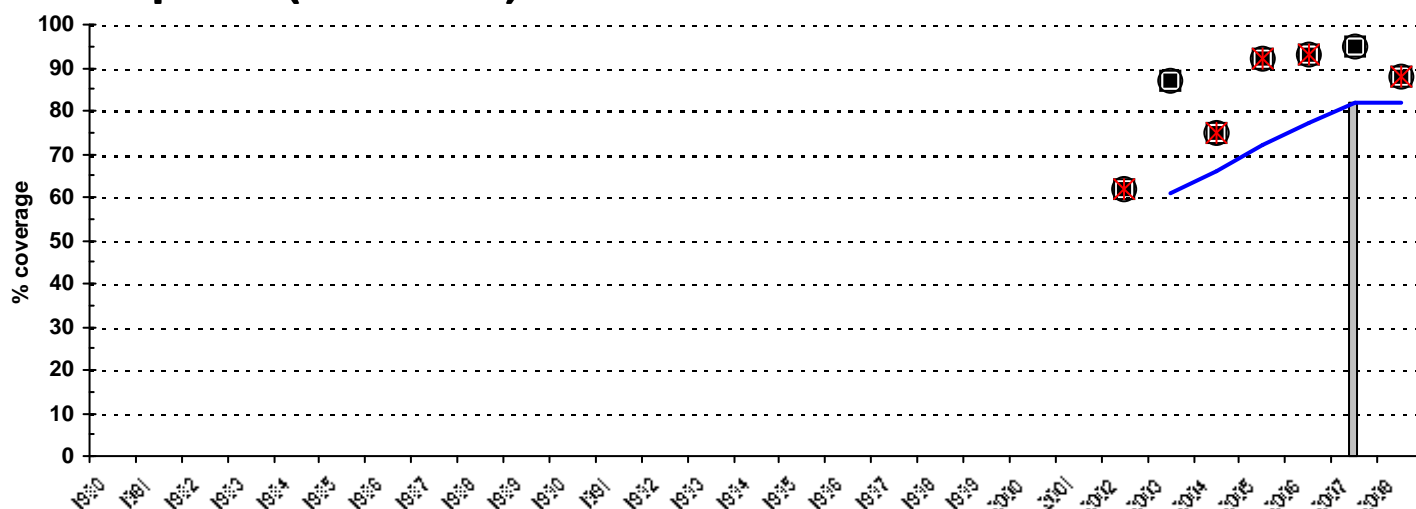
*Prior to 1998 national reports to WHO/UNICEF did not specify whether information was derived from administrative records, surveys or other sources.

**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.

Madagascar

HepB3 (1980-2008)



Description of trend

DTP-Hepatitis B vaccine introduced in 2002. Estimates from 2003 are based on DTP3 estimates and survey results.

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		62	62	62	62		
2003	61	87	87	87			
2004	66	75	75	75	75		
2005	72	92	92	92	92		
2006	77	93	93	93	93		
2007	82	95	95	95		82	
2008	82	88	88	88	88		

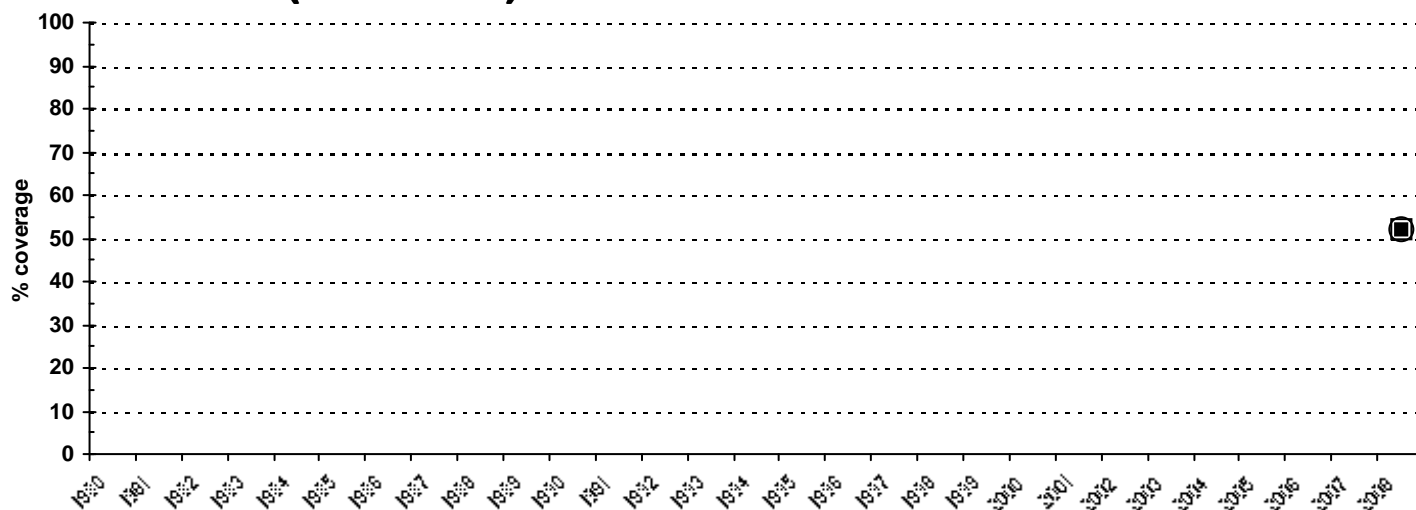
*Prior to 1998 national reports to WHO/UNICEF did not specify whether information was derived from administrative records, surveys or other sources.

**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.

Madagascar

Hib3 (1980-2008)



Description of trend

DTP-HepB-Hib pentavalent combination vaccination introduced in 2008. 52% coverage was achieved in 25% of the target population.

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	13	52	52	52			

*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.

Madagascar

Details Survey Data

Year Source

Antigen	Confirmation method	% coverage	Compliance with schedule	Age group	Sample size	% cards seen	Survey year	Comments
2007 Enquête sur la couverture vaccinale à Madagascar 2008								
BCG	Card or History	94.2		12-23 m	6632	72	2008	
DTP1	Card or History	92.3		12-23 m	6632	72	2008	
DTP3	Card or History	81.9		12-23 m	6632	72	2008	
Pol3	Card or History	81		12-23 m	6632	72	2008	
MCV	Card or History	81		12-23 m	6632	72	2008	
HepB	Card or History	81.9		12-23 m	6632	72	2008	
PAB	n.a.	35.4		CBAW	4801	68.7	2008	

2003 République de Madagascar Enquête Démographique et de Santé 2003-2004

BCG	History	23.8		12-23 m	1287	50.2	2003/2004	
BCG	Card or history	71.8		12-23 m	1287	50.2	2003/2004	
BCG	Card	48		12-23 m	1287	50.2	2003/2004	
BCG	C or H <12 month	69.4		12-23 m	1287	50.2	2003/2004	
DTP1	History	23.6		12-23 m	1287	50.2	2003/2004	
DTP1	Card or history	71.3		12-23 m	1287	50.2	2003/2004	
DTP1	Card or history	69.1		12-23 m	1287	50.2	2003/2004	
DTP1	Card	47.7		12-23 m	1287	50.2	2003/2004	
DTP3	History	18.7		12-23 m	1287	50.2	2003/2004	
DTP3	Card or history	58.5		12-23 m	1287	50.2	2003/2004	
DTP3	Card or history	61.4		12-23 m	1287	50.2	2003/2004	
DTP3	Card	42.7		12-23 m	1287	50.2	2003/2004	
Pol3	History	19.2		12-23 m	1287	50.2	2003/2004	
Pol3	Card or history	63.2		12-23 m	1287	50.2	2003/2004	
Pol3	Card or history	60.2		12-23 m	1287	50.2	2003/2004	
Pol3	Card	44		12-23 m	1287	50.2	2003/2004	
MCV	History	17.3		12-23 m	1287	50.2	2003/2004	
MCV	Card or history	52.2		12-23 m	1287	50.2	2003/2004	
MCV	Card or history	59		12-23 m	1287	50.2	2003/2004	
MCV	Card	41.7		12-23 m	1287	50.2	2003/2004	

1999 Madagascar MICS 2000

BCG	Card or History	71.7		12-23 m		48.3	2000	
DTP1	Card or History	73.4		12-23 m		48.3	2000	
DTP3	Card or History	54.7		12-23 m		48.3	2000	
Pol3	Card or History	57.5		12-23 m		48.3	2000	
MCV	Card or History	55.1		12-23 m		48.3	2000	
PAB	Card or History	47.8		Women 15-49			2000	

1998 Madagascar EPM 1999

BCG	Card or History	70		12-23 m			1999	
DTP3	Card or History	63		12-23 m			1999	
Pol3	Card or History	58		12-23 m			1999	
MCV	Card or History	44		12-23 m			1999	

1996 Enquête Démographique et de Santé Madagascar 1997, 1998

BCG	Card or History	66		12-23 m	1209	49.7	1997	
BCG	C or H <12 month	63.8		12-23 m	1209	49.7	1997	
DTP1	C or H <12 month	65		12-23 m	1209	49.7	1997	
DTP3	C or H <12 month	45.7		12-23 m	1209	49.7	1997	
Pol3	Card or History	47.7		12-23 m	1209	49.7	1997	

Madagascar

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	44.9		12-23 m	1209	49.7	1997	
MCV	Card or History	46		12-23 m	1209	49.7	1997	
MCV	C or H <12 month	39		12-23 m	1209	49.7	1997	

1995 Madagascar Enquete Nationale de Couverture Vaccinale 1996

BCG	Card or History	87		12-23 m			1996	
DTP3	Card or History	55		12-23 m			1996	
Pol3	Card or History	55		12-23 m			1996	
MCV	Card or History	52		12-23 m			1996	

1994 Enquête par Grappes a Indicateurs Multiples Madagascar 1995, Rapport Preliminaire, 1996

BCG	C or H <12 month	76.9		12-23 m			1995	
DTP1	C or H <12 month	79.4		12-23 m			1995	
DTP3	C or H <12 month	64.4		12-23 m			1995	
Pol3	C or H <12 month	63.4		12-23 m			1995	
MCV	C or H <12 month	60		12-23 m			1995	

1992 Madagascar Enquete Nationale de Couverture Vaccinale 1993

BCG	Card or History	77		12-23 m			1993	
DTP3	Card or History	49		12-23 m			1993	
Pol3	Card or History	49		12-23 m			1993	
MCV	Card or History	51		12-23 m			1993	

1991 Madagascar, Enquête Nationale Démographique et Sanitaire 1992, 1994

BCG	Card or History	75		12-23 m	1072	59.1	1992	
BCG	C or H <12 month	68.9		12-23 m	1072	59.1	1992	
BCG	C or H <12 month	69.6		24-35 m	982	58.3	1992	
BCG	C or H <12 month	62.2		36-47 m	906	51.3	1992	
BCG	C or H <12 month	53.1		48-59 m	909	48.2	1992	
DTP1	Card or History	78.8		12-23 m	1072	59.1	1992	
DTP1	C or H <12 month	73.1		12-23 m	1072	59.1	1992	
DTP1	C or H <12 month	75.8		24-35 m	982	58.3	1992	
DTP1	C or H <12 month	63.1		36-47 m	906	51.3	1992	
DTP1	C or H <12 month	57.8		48-59 m	909	48.2	1992	
DTP3	Card or History	53.8		12-23 m	1072	59.1	1992	
DTP3	C or H <12 month	47.7		12-23 m	1072	59.1	1992	
DTP3	C or H <12 month	52.1		24-35 m	982	58.3	1992	
DTP3	C or H <12 month	44.1		36-47 m	906	51.3	1992	
DTP3	C or H <12 month	38.2		48-59 m	909	48.2	1992	
Pol3	Card or History	53.8		12-23 m	1072	59.1	1992	
Pol3	C or H <12 month	47.6		12-23 m	1072	59.1	1992	
Pol3	C or H <12 month	52.1		24-35 m	982	58.3	1992	
Pol3	C or H <12 month	44.1		36-47 m	906	51.3	1992	
Pol3	C or H <12 month	38.2		48-59 m	909	48.2	1992	
MCV	Card or History	54		12-23 m	1072	59.1	1992	
MCV	C or H <12 month	39.1		12-23 m	1072	59.1	1992	
MCV	C or H <12 month	43		24-35 m	982	58.3	1992	
MCV	C or H <12 month	39.2		36-47 m	906	51.3	1992	
MCV	C or H <12 month	31		48-59 m	909	48.2	1992	

1990 Madagascar Enquete Nationale de Couverture Vaccinale 1991

BCG	Card or History	83		12-23 m			1991	
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Madagascar

Details Survey Data

Year Source

Antigen	Confirmation method	% coverage	Compliance with schedule	Age group	Sample size	% cards seen	Survey year	Comments
DTP3	Card or History	59		12-23 m			1991	
Pol3	Card or History	59		12-23 m			1991	
MCV	Card or History	56		12-23 m			1991	

Madagascar

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.

Madagascar

Year	PAB coverage estimate (%)
1980	
1981	
1982	1
1983	15
1984	20
1985	26
1986	35
1987	37
1988	42
1989	44
1990	45
1991	35
1992	35
1993	33
1994	36
1995	38
1996	35
1997	47
1998	48
1999	54
2000	58
2001	60
2002	61
2003	62
2004	63
2005	66
2006	71
2007	72
2008	76