

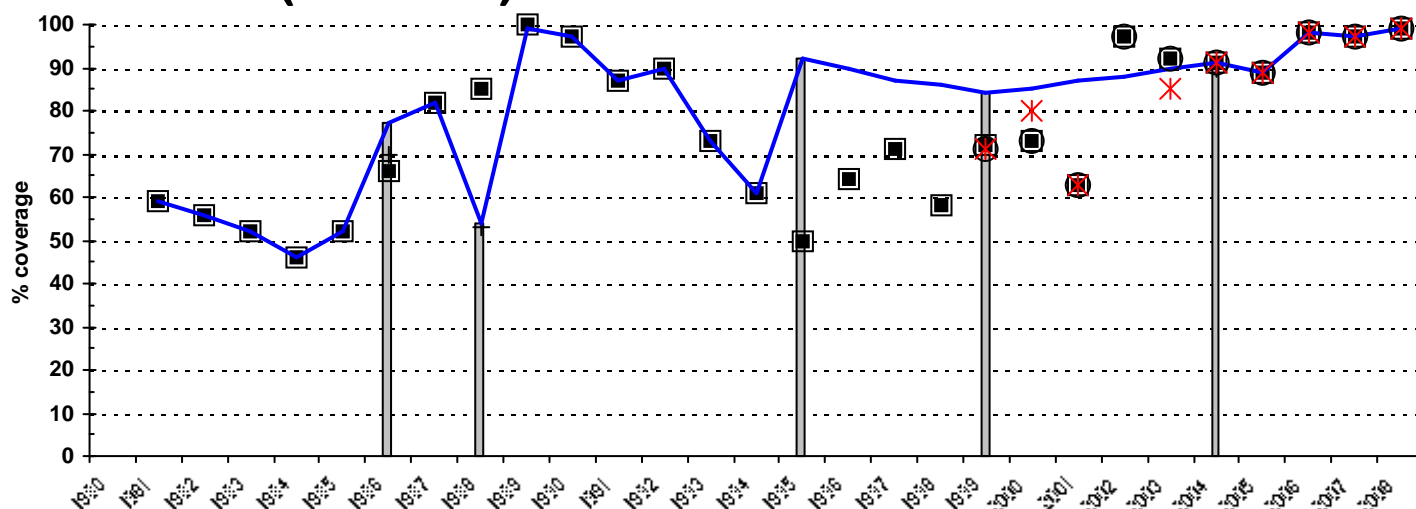
**WHO/UNICEF
Review of National Immunization Coverage
1980-2008**

Burundi

July, 2009

Burundi

BCG (1980-2008)



Description of trend

Estimates from 1981-1994 are based on nationally reported data. The steep increase to 96% in 1990 is probably due to the infusion of resour to reach the UCI goal. In the early 1990s a weakening in the system can be observed with coverage declining to 62% in 1994. Fluctuating lev officially reported data between 1995 and 2001 are most likely due to poor reporting. Survey data for 1995 shows a coverage rate of 92% (N 1996). Estimates 1999-2004 are based on survey results. In 2002 and 2004 data quality audits were conducted for the Vaccine Fund and the results suggest inadequacies in the routine reporting system. Estimates from 2004 are based on reported data supported 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	59	59	59				
1982	56	56	56				
1983	52	52	52				
1984	46	46	46				
1985	52	52	52				
1986	77	66	66			77	70
1987	82	82	82				
1988	54	85	85			54	53
1989	99	100	100				
1990	97	97	97				
1991	87	87	87				
1992	90	90	90				
1993	73	73	73				
1994	61	61	61				
1995	92	50	50			92	
1996	90	64	64				
1997	87	71	71				
1998	86	58	58				
1999	84	72	72	71	71	84	
2000	85	73	73	73	80		
2001	87	63	63	63	63		
2002	88	97	97	97	113		
2003	90	92	92	92	85		
2004	91	91	91	91	91	91	90
2005	89	89	89	89	89		
2006	98	98	98	98	98		
2007	97	97	97	97	97		
2008	99	99	99	99	99		

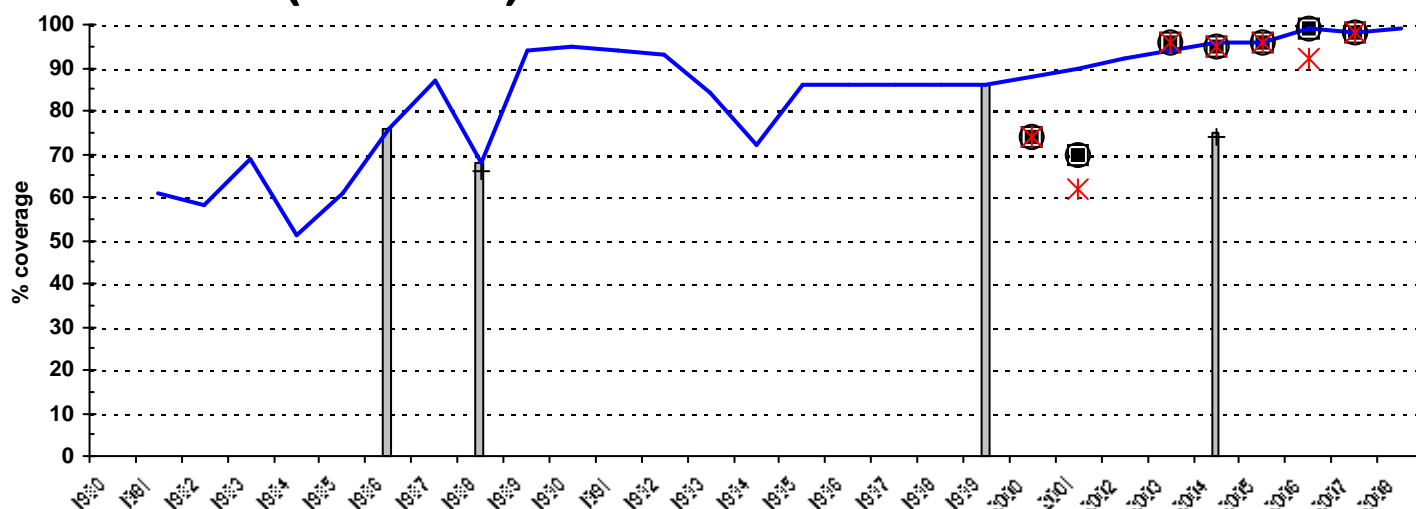
*Prior to 1998 national reports to WHO/UNICEF did not specify whether information was derived from administrative records, surveys or other sources.

**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.

Burundi

DTP1 (1980-2008)



Description of trend

WHO and UNICEF began requesting data on DTP1 coverage in 2001. The estimates from 1981 to 1998 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, unless survey data available. This relationship results from an analysis of 282 surveys conducted in 101 countries which were published between 1980 and 2004 calibrated to the level of the survey data. Estimates from 1999-2003 are based on the MICS 2000 and reported data in 2004. Estimates from 2004 are based on reported data (the 2005 MICS DTP results are inconsistent with results for other antigens possibly due to the introduction DTP-HepB-Hib pentavalent vaccine in 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							
1981	61						
1982	58						
1983	69						
1984	51						
1985	61						
1986	76					76	
1987	87						
1988	68					68	66
1989	94						
1990	95						
1991	94						
1992	93						
1993	84						
1994	72						
1995	86						
1996	86						
1997	86						
1998	86						
1999	86					86	
2000	88	74	74	74	74		
2001	90	70	70	70	62		
2002	92	110	110	110	109		
2003	94	96	96	96	96		
2004	96	95	95	95	95	75	74
2005	96	96	96	96	96		
2006	99	99	99	99	99		
2007	98	98	98	98	98		
2008	99	102	102	102	102		

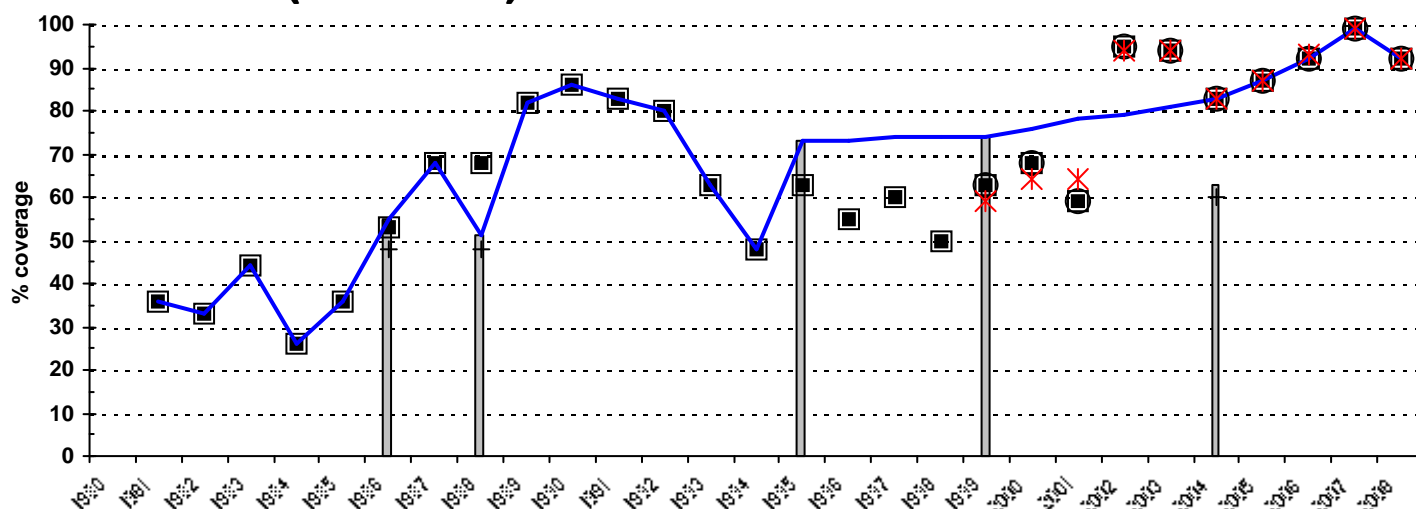
*Prior to 1998 national reports to WHO/UNICEF did not specify whether information was derived from administrative records, surveys or other sources.

**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.

Burundi

DTP3 (1980-2008)



Description of trend

Estimates from 1981-1994 are based on nationally reported data. The steep increase in 1990 is probably due to the infusion of resources to the UCI goal. In the early 1990s a weakening in the system can be observed with coverage declining to 62% in 1994. Fluctuating levels in off reported data between 1995 and 2001 are most likely due to poor reporting. Survey data for 1995 shows a coverage rate of 92% (MICS 199 Estimates form 1999-2003 are based on the MICS 2000 and reported data in 2004. In 2002 and 2004 data quality audits were conducted for Vaccine Fund and the results suggest inadequacies in the routine reporting system. Estimates from 2004 are based on reported data (the 20 MICS DTP results are inconsistent with results for other antigens possibly due to the introduction of DTP-HepB-Hib pentavalent vaccine in 20

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	36	36	36				
1982	33	33	33				
1983	44	44	44				
1984	26	26	26				
1985	36	36	36				
1986	55	53	53			55	48
1987	68	68	68				
1988	51	68	68			51	48
1989	82	82	82				
1990	86	86	86				
1991	83	83	83				
1992	80	80	80				
1993	63	63	63				
1994	48	48	48				
1995	73	63	63			73	
1996	73	55	55				
1997	74	60	60				
1998	74	50	50				
1999	74	63	63	63	59	74	
2000	76	68	68	68	64		
2001	78	59	59	59	64		
2002	79	95	95	95	94		
2003	81	94	94	94	94		
2004	83	83	83	83	83	63	60
2005	87	87	87	87	87		
2006	92	92	92	92	93		
2007	99	99	99	99	99		
2008	92	92	92	92	92		

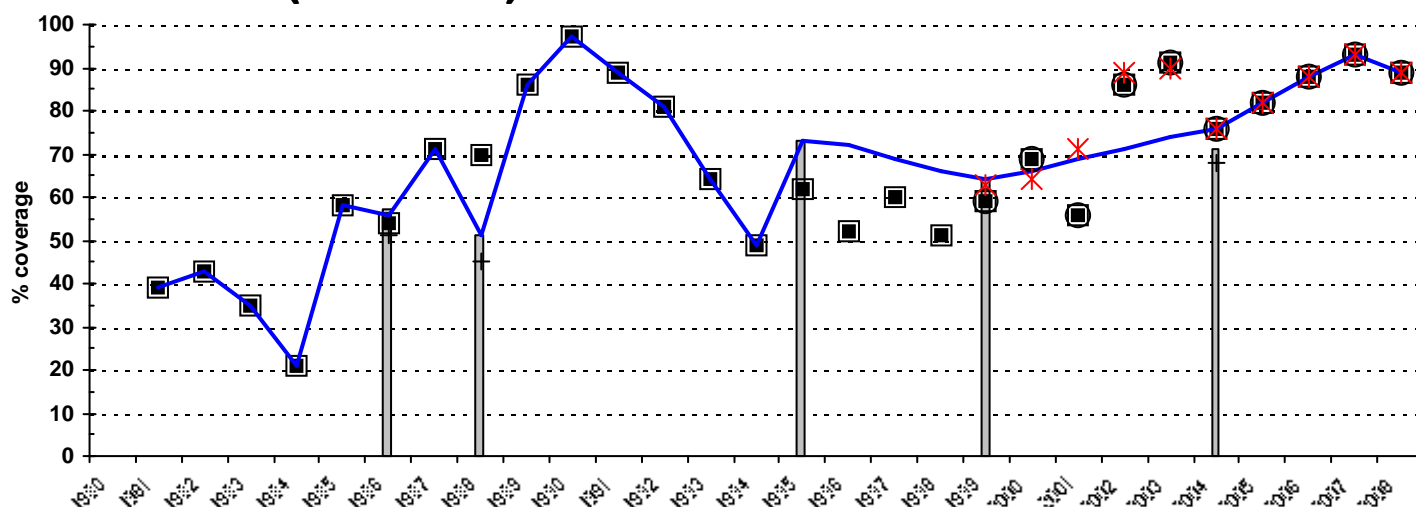
*Prior to 1998 national reports to WHO/UNICEF did not specify whether information was derived from administrative records, surveys or other sources.

**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.

Burundi

Pol3 (1980-2008)



Description of trend

Coverage increases probably because of UCI efforts and reaches 97% in 1990. Fluctuating levels in officially reported data between 1995 and are most likely due to poor reporting. Survey data for 1995 shows a coverage rate of 73% (MICS 1996). Estimates from 1999-2003 are based on survey results. In 2002 and 2004 data quality audits were conducted for the Vaccine Fund and the results suggest inadequacies in the routine reporting system. Estimates from 2004 are based on reported data supported 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	39	39	39				
1982	43	43	43				
1983	35	35	35				
1984	21	21	21				
1985	58	58	58				
1986	56	54	54			57	51
1987	71	71	71				
1988	51	70	70			51	45
1989	86	86	86				
1990	97	97	97				
1991	89	89	89				
1992	81	81	81				
1993	64	64	64				
1994	49	49	49				
1995	73	62	62			73	
1996	72	52	52				
1997	69	60	60				
1998	66	51	51				
1999	64	59	59	59	63	64	
2000	66	69	69	69	64		
2001	69	56	56	56	71		
2002	71	86	86	86	89		
2003	74	91	91	91	90		
2004	76	76	76	76	76	71	68
2005	82	82	82	82	82		
2006	88	88	88	88	88		
2007	93	93	93	93	93		
2008	89	89	89	89	89		

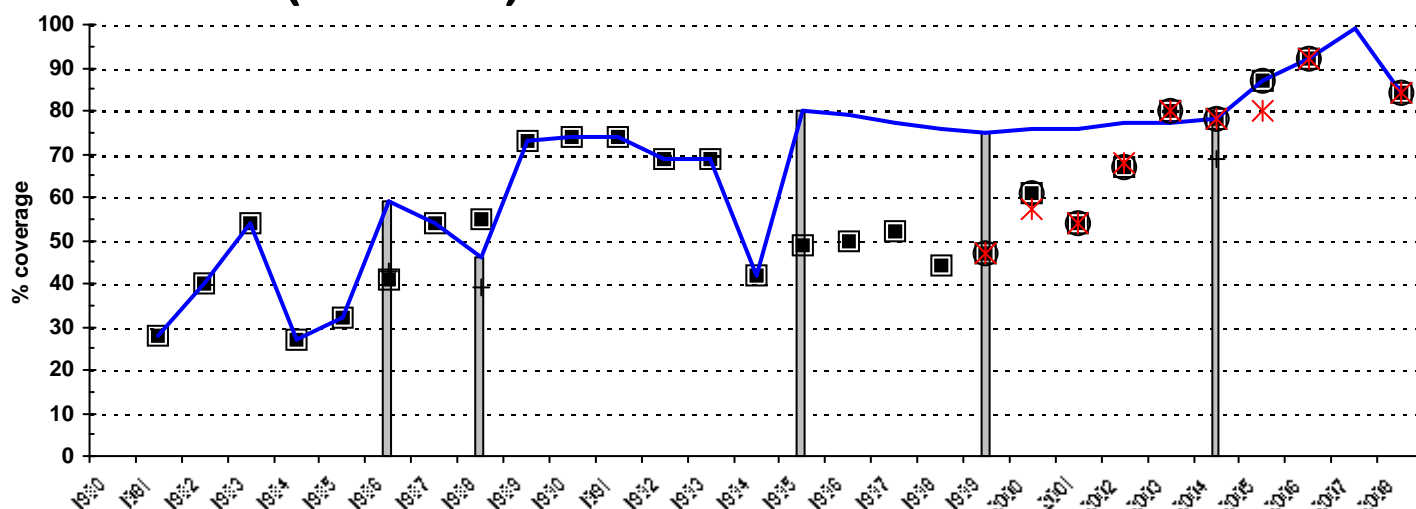
*Prior to 1998 national reports to WHO/UNICEF did not specify whether information was derived from administrative records, surveys or other sources.

**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.

Burundi

MCV (1980-2008)



Description of trend

Coverage increases to 74% probably due to increased UCI efforts. Fluctuating levels in officially reported data between 1995 and 2001 are most likely due to poor reporting. Survey data reports a coverage rate of 80% (MICS 1996). Estimates for 1999-2003 are based on survey results. 2002 and 2004 data quality audits were conducted for the Vaccine Fund and the results suggest inadequacies in the routine reporting system. Estimates from 2004 are based on reported data supported 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	28	28	28				
1982	40	40	40				
1983	54	54	54				
1984	27	27	27				
1985	32	32	32				
1986	59	41	41			59	43
1987	54	54	54				
1988	46	55	55			46	39
1989	73	73	73				
1990	74	74	74				
1991	74	74	74				
1992	69	69	69				
1993	69	69	69				
1994	42	42	42				
1995	80	49	49			80	
1996	79	50	50				
1997	77	52	52				
1998	76	44	44				
1999	75	47	47	47	47	75	
2000	76	61	61	61	57		
2001	76	54	54	54	54		
2002	77	67	67	67	68		
2003	77	80	80	80	80		
2004	78	78	78	78	78	78	69
2005	87	87	87	87	80		
2006	92	92	92	92	92		
2007	99	102	102	102	102		
2008	84	84	84	84	84		

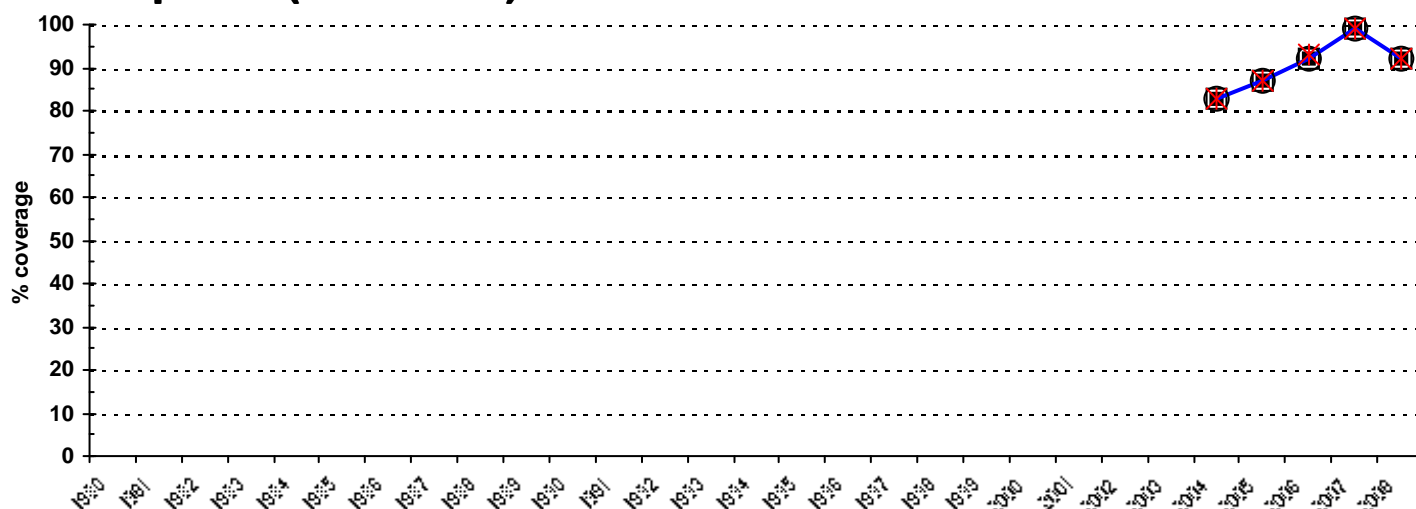
*Prior to 1998 national reports to WHO/UNICEF did not specify whether information was derived from administrative records, surveys or other sources.

**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.

Burundi

HepB3 (1980-2008)



Description of trend

DTP-HepB-Hib pentavalent combination vaccine was introduced in 2004. Estimates are based on reported data supported by DTP3 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							
2003							
2004	83	83	83	83	83		
2005	87	87	87	87	87		
2006	92	92	92	92	93		
2007	99	99	99	99	99		
2008	92	92	92	92	92		

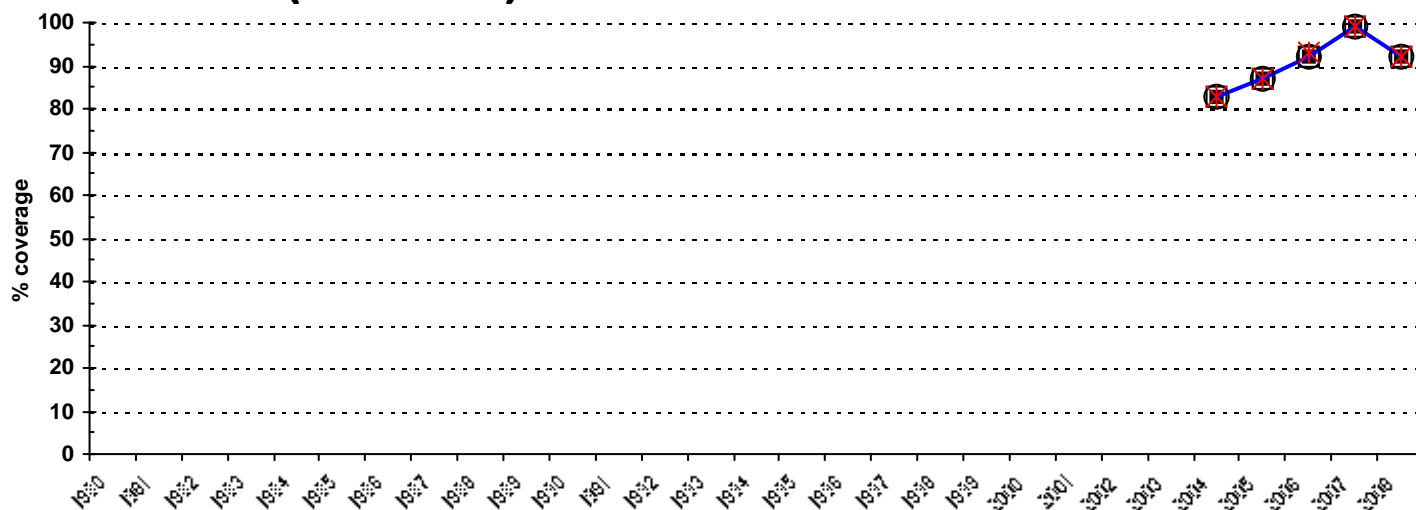
*Prior to 1998 national reports to WHO/UNICEF did not specify whether information was derived from administrative records, surveys or other sources.

**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.

Burundi

Hib3 (1980-2008)



Description of trend

DTP-HepB-Hib pentavalent combination vaccine was introduced in 2004. Estimates are based on reported data supported by DTP3 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							
2003							
2004	83	83	83	83	83		
2005	87	87	87	87	87		
2006	92	92	92	92	93		
2007	99	99	99	99	99		
2008	92	92	92	92	92		

*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.

Burundi

Details Survey Data

Year Source

Antigen	Confirmation method	% coverage	Compliance with schedule	Age group	Sample size	% cards seen	Survey year	Comments
2004 Enquête Nationale d'Évaluation des Conditions de vie de l'Enfant et de la Femme au Burundi - 2005								
BCG	Card or History	90.7		12-23 m	1453	63.8	2005	
BCG	C or H <12 month	90.2		12-23 m	1453	63.8	2005	
DTP1	Card or History	74.9		12-23 m	1453	63.8	2005	
DTP1	C or H <12 month	73.9		12-23 m	1453	63.8	2005	
DTP3	Card or History	62.7		12-23 m	1453	63.8	2005	
DTP3	C or H <12 month	60.1		12-23 m	1453	63.8	2005	
Pol3	Card or History	71		12-23 m	1453	63.8	2005	
Pol3	C or H <12 month	67.5		12-23 m	1453	63.8	2005	
MCV	Card or History	77.9		12-23 m	1453	63.8	2005	
MCV	C or H <12 month	68.8		12-23 m	1453	63.8	2005	
PAB	Card or History	76		CBAW	2986		2005	
1999 Enquête Nationale d'Evaluation des Conditions de vie de l'Enfant et de la Femme au Burundi, Rapport Préliminaire, 2000								
BCG	Card or History	84.3		12-23 m	598	61.9	2000	
DTP1	Card or History	85.9		12-23 m	598	61.9	2000	
DTP3	Card or History	74.4		12-23 m	598	61.9	2000	
Pol3	Card or History	64.5		12-23 m	598	61.9	2000	
MCV	Card or History	74.8		12-23 m	598	61.9	2000	
1995 Burundi Report, MICS, 1996								
BCG	Card or History	92		12-23 m	278	77	1996	
DTP1	Card or History			12-23 m	278	77	1996	
DTP3	Card or History	73		12-23 m	278	77	1996	
Pol3	Card or History	73		12-23 m	278	77	1996	
MCV	Card or History	80		12-23 m	278	77	1996	
1988 Rapport des enquêtes nationales sur la couverture vaccinale chez les enfants de 12-23 months et sur le taux de séropositivité contre le tétanos chez les femmes qui ont récemment donné naissance, 1989								
BCG	Card or History	54		12-23 m	201	71	1989	Weighted average
BCG	C or H <12 month	53		12-23 m	201	71	1989	Weighted average
DTP1	Card or History	68		12-23 m	201	71	1989	Weighted average
DTP1	C or H <12 month	66		12-23 m	201	71	1989	Weighted average
DTP3	Card or History	51		12-23 m	201	71	1989	Weighted average
DTP3	C or H <12 month	48		12-23 m	201	71	1989	Weighted average
Pol3	Card or History	51		12-23 m	201	71	1989	Weighted average
Pol3	C or H <12 month	45		12-23 m	201	71	1989	Weighted average
MCV	Card or History	46		12-23 m	201	71	1989	Weighted average
MCV	C or H <12 month	39		12-23 m	201	71	1989	Weighted average
1986 Demographic and Health Surveys Comparative Studies No. 1, Immunization, Boerma et al., Institute for Resource Development/Macro Systems, 1990								
BCG	Card or History	77		12-23 m	663		1987	
BCG	C or H <12 month	70		12-23 m	663		1987	
DTP1	Card or History	76		12-23 m	663		1987	
DTP1	C or H <12 month			12-23 m	663		1987	
DTP3	Card or History	55		12-23 m	663		1987	
DTP3	C or H <12 month	48		12-23 m	663		1987	
Pol3	Card or History	57		12-23 m	663		1987	
Pol3	C or H <12 month	51		12-23 m	663		1987	

Burundi

Details Survey Data

Year Source

Antigen	Confirmation method	% coverage	Compliance with schedule	Age group	Sample size	% cards seen	Survey year	Comments
MCV	Card or History	59		12-23 m	663		1987	
MCV	C or H <12 month	43		12-23 m	663		1987	

Burundi

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.

Burundi

Year	PAB coverage estimate (%)
1980	
1981	
1982	
1983	11
1984	16
1985	21
1986	35
1987	53
1988	59
1989	65
1990	67
1991	69
1992	70
1993	67
1994	71
1995	61
1996	61
1997	60
1998	44
1999	35
2000	51
2001	55
2002	63
2003	65
2004	66
2005	65
2006	66
2007	76
2008	78