

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

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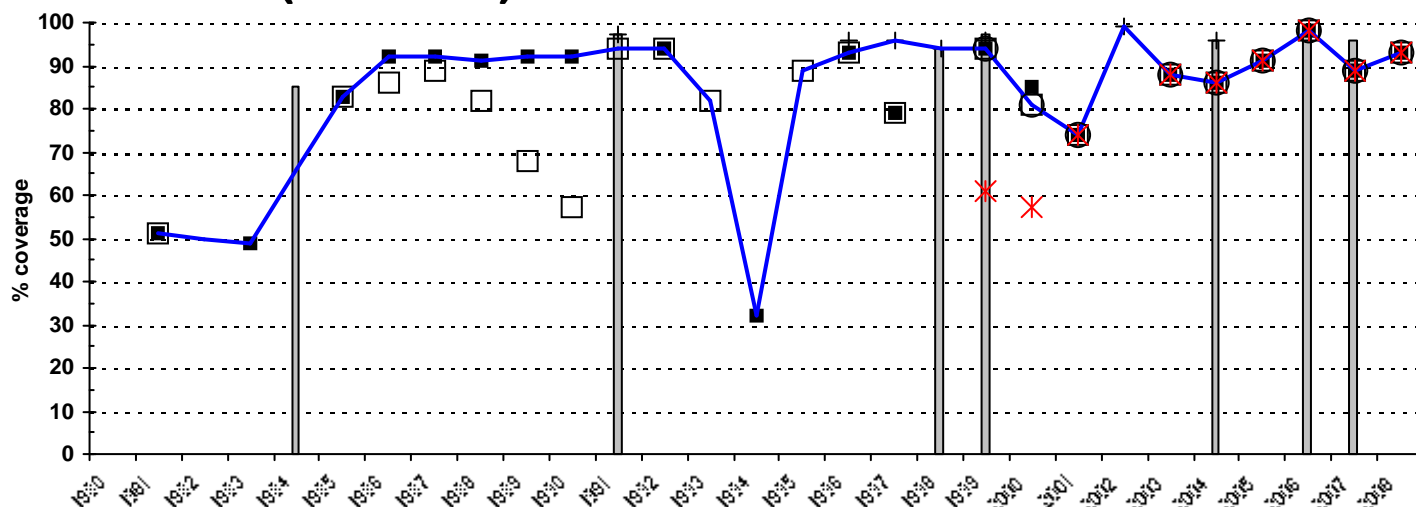
***Rwanda***

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**July, 2009**

# Rwanda

## BCG (1980-2008)



### Description of trend

Estimated immunization coverage levels are based on reported data, supported by survey results. A dramatic drop in 1994 to 32% can be attributed to the conflict in the country.

### 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	51	51	51				
1982	50						
1983	49		49				
1984	66					85	
1985	83	83	83				
1986	92	86	92				
1987	92	89	92				
1988	91	82	91				
1989	92	68	92				
1990	92	57	92				
1991	94	94				97	97
1992	94	94	94				
1993	82	82					
1994	32		32				
1995	89	89					
1996	93	93	93				96
1997	96	79	79				96
1998	94					94	94
1999	94	94	94	94	61	97	96
2000	81	81	85	81	57		
2001	74	74	74	74	74		
2002	99	101	101	101	101		99
2003	88	88	88	88	88		
2004	86	86	86	86	86	96	96
2005	91	91	91	91	91		
2006	98	98	98	98	98	98	
2007	89	89	89	89	89	96	
2008	93	93	93	93	93		

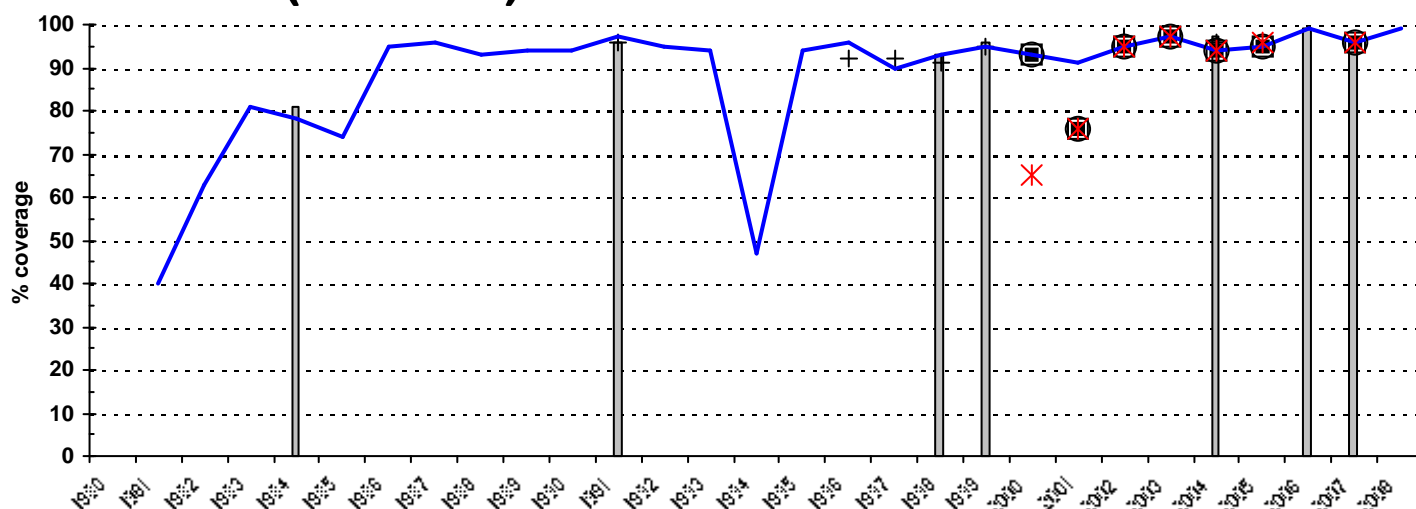
\*Prior to 1998 national reports to WHO/UNICEF did not specify whether information was derived from administrative records, surveys or other sources.

\*\*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.

# Rwanda

## 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. Estimates for 2000 onward are based on these reports except for 2001 where reported DTP1 coverage is less than reported DTP3 coverage. Estimates for other years 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.

### 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	63						
1982	81						
1983	74						
1984	78					81	
1985	95						
1986	96						
1987	93						
1988	94						
1989	94						
1990	97						
1991	95					96	96
1992	94						
1993	47						
1994	94						
1995	96						92
1996	90						92
1997	93						
1998	95					93	91
1999	93					96	95
2000	93	93	93	93	65		
2001	91	76	76	76	76		
2002	95	95	95	95	95		97
2003	97	97	97	97	97		
2004	94	94	94	94	94	97	96
2005	95	95	95	95	96		
2006	99	104	104	104	104	99	
2007	96	96	96	96	96	95	
2008	99	102	102	102	102		

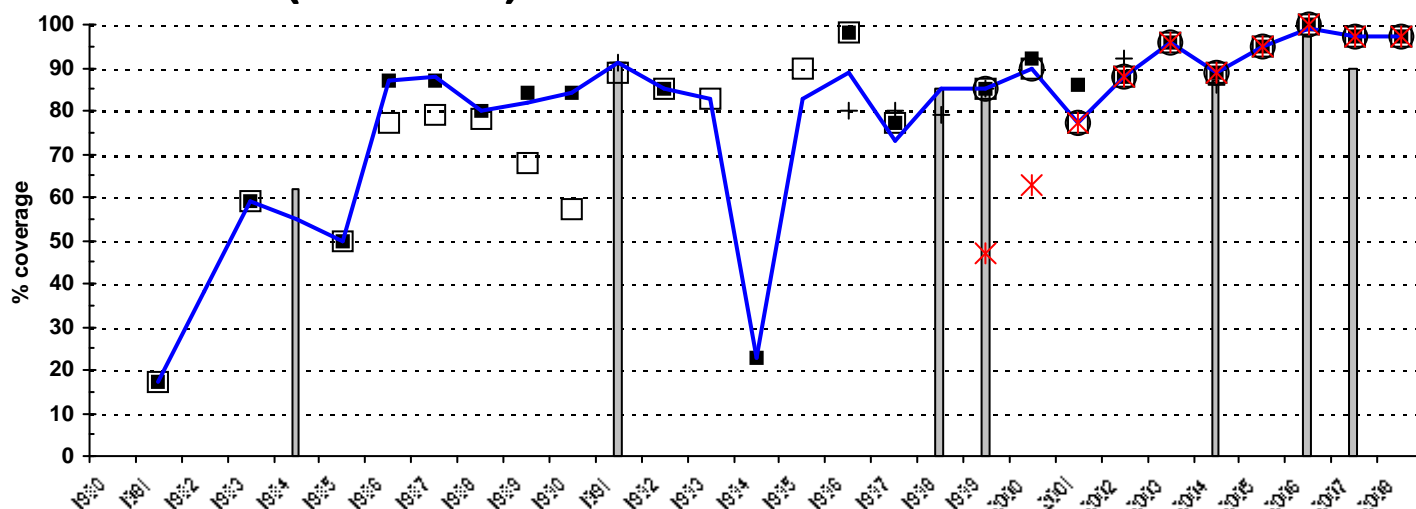
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\*\*Coverage based on registration of doses administered by health care providers.

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# Rwanda

## DTP3 (1980-2008)



### Description of trend

Estimated immunization coverage levels are based on reported data, supported by survey results. The dramatic drop in 1994 can be attributed to the conflict in the country. The estimate for 1996 is calibrated to 5% points lower to reflect drop-out levels found in pre-1990 official reports and surveys.

### 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	17	17	17				
1982	38						
1983	59	59	59				
1984	55					62	
1985	50	50	50				
1986	87	77	87				
1987	88	79	87				
1988	80	78	80				
1989	82	68	84				
1990	84	57	84				
1991	91	89				91	91
1992	85	85	85				
1993	83	83					
1994	23		23				
1995	83	90					
1996	89	98	98				80
1997	73	77	77				80
1998	85					85	79
1999	85	85	85	85	47	86	85
2000	90	90	92	90	63		
2001	77	77	86	77	77		
2002	88	88	88	88	88		92
2003	96	96	96	96	96		
2004	89	89	89	89	89	87	86
2005	95	95	95	95	95		
2006	99	100	100	100	100	97	
2007	97	97	97	97	97	90	
2008	97	97	97	97	97		

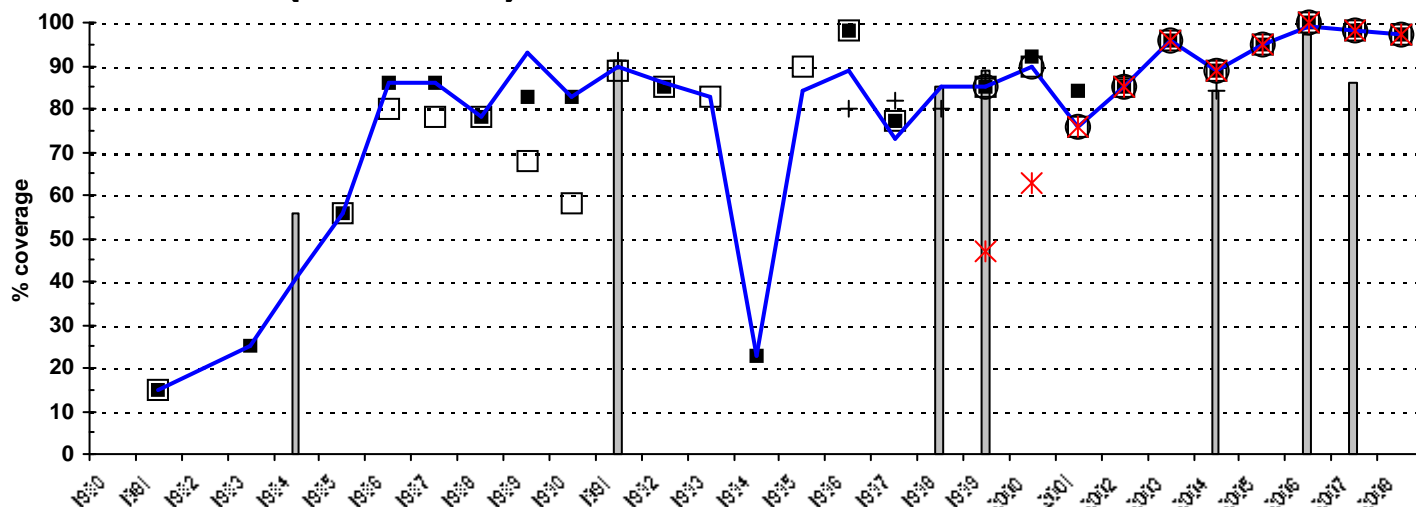
\*Prior to 1998 national reports to WHO/UNICEF did not specify whether information was derived from administrative records, surveys or other sources.

\*\*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.

# Rwanda

## Pol3 (1980-2008)



### Description of trend

Estimated immunization coverage levels are based on reported data, supported by survey results. A dramatic drop in 1994 to 32% can be attributed to the conflict in the country. The estimate for 1996 is calibrated to 5% points lower to reflect drop-out levels found in pre-1990 official reports and surveys.

### 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	15	15	15				
1982	20						
1983	25		25				
1984	41					56	
1985	56	56	56				
1986	86	80	86				
1987	86	78	86				
1988	78	78	78				
1989	93	68	83				
1990	83	58	83				
1991	90	89				91	91
1992	86	85	85				
1993	83	83					
1994	23		23				
1995	84	90					
1996	89	98	98				80
1997	73	77	77				82
1998	85					85	80
1999	85	85	85	85	47	89	87
2000	90	90	92	90	63		
2001	76	76	84	76	76		
2002	85	85	85	85	85		87
2003	96	96	96	96	96		
2004	89	89	89	89	89	84	84
2005	95	95	95	95	95		
2006	99	100	100	100	100	97	
2007	98	98	98	98	98	86	
2008	97	97	97	97	97		

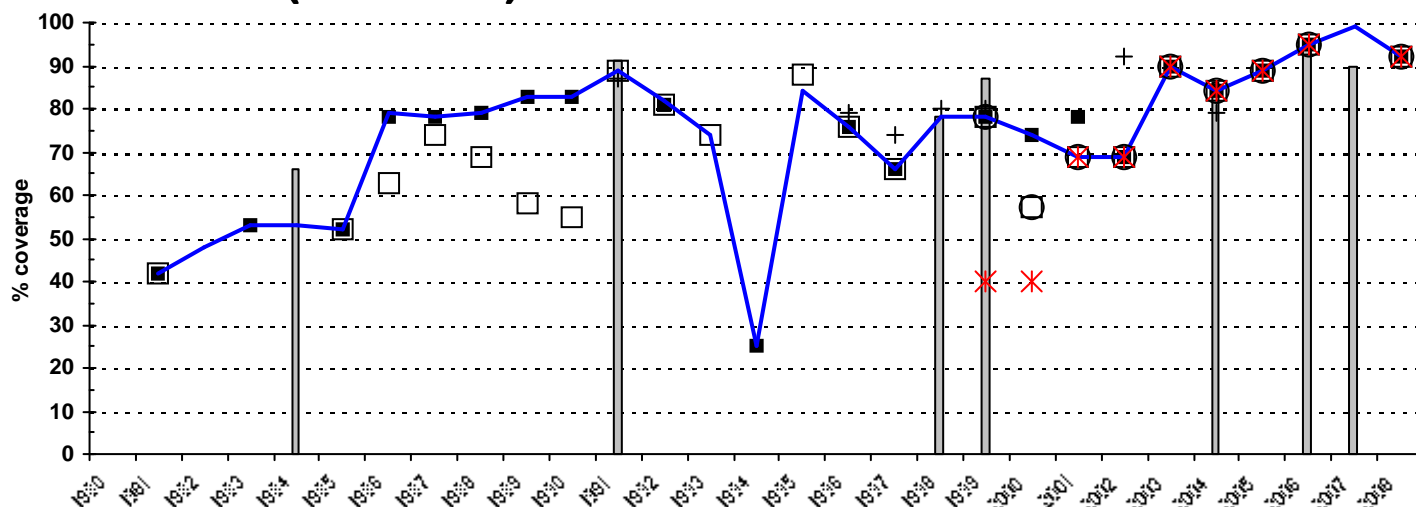
\*Prior to 1998 national reports to WHO/UNICEF did not specify whether information was derived from administrative records, surveys or other sources.

\*\*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.

# Rwanda

## MCV (1980-2008)



### Description of trend

Estimated immunization coverage levels are based on reported data, supported by survey results. A dramatic drop in 1994 to 32% can be attributed to the conflict in the country.

### 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	42	42	42				
1982	48						
1983	53		53				
1984	53					66	
1985	52	52	52				
1986	63	63	78				
1987	74	74	78				
1988	69	69	79				
1989	58	58	83				
1990	55	55	83				
1991	89	89				91	87
1992	81	81	81				
1993	74	74					
1994	25		25				
1995	84	88					
1996	76	76	76				79
1997	66	66	66				74
1998	78					78	80
1999	78	78	78	78	40	87	80
2000	74	57	74	57	40		
2001	69	69	78	69	69		
2002	69	69	69	69	69		92
2003	90	90	90	90	90		
2004	84	84	84	84	84	86	79
2005	89	89	89	89	89		
2006	95	95	95	95	95	96	
2007	99	101	101	101	101	90	
2008	92	92	92	92	92		

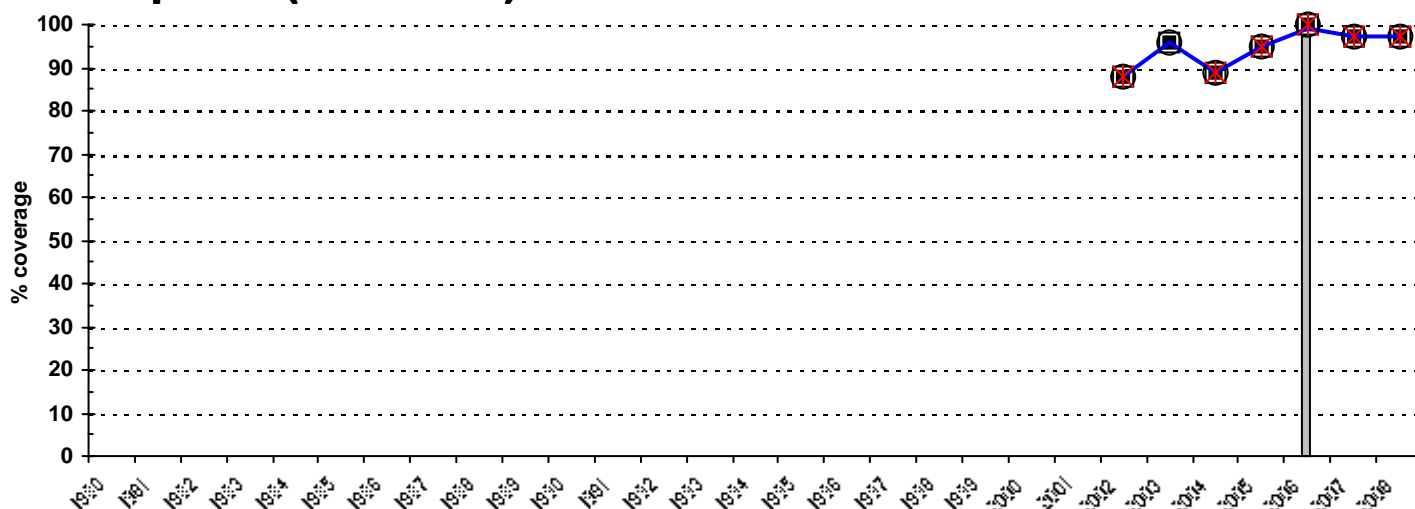
\*Prior to 1998 national reports to WHO/UNICEF did not specify whether information was derived from administrative records, surveys or other sources.

\*\*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.

# Rwanda

## HepB3 (1980-2008)



### Description of trend

Pentavalent, DTP, HepB, Hib vaccine introduced in 2002. Estimated immunization coverage levels are based on reported data supported by 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	88	88	88	88	88		
2003	96	96	96	96	96		
2004	89	89	89	89	89		
2005	95	95	95	95	95		
2006	99	100	100	100	100	97	
2007	97	97	97	97	97		
2008	97	97	97	97	97		

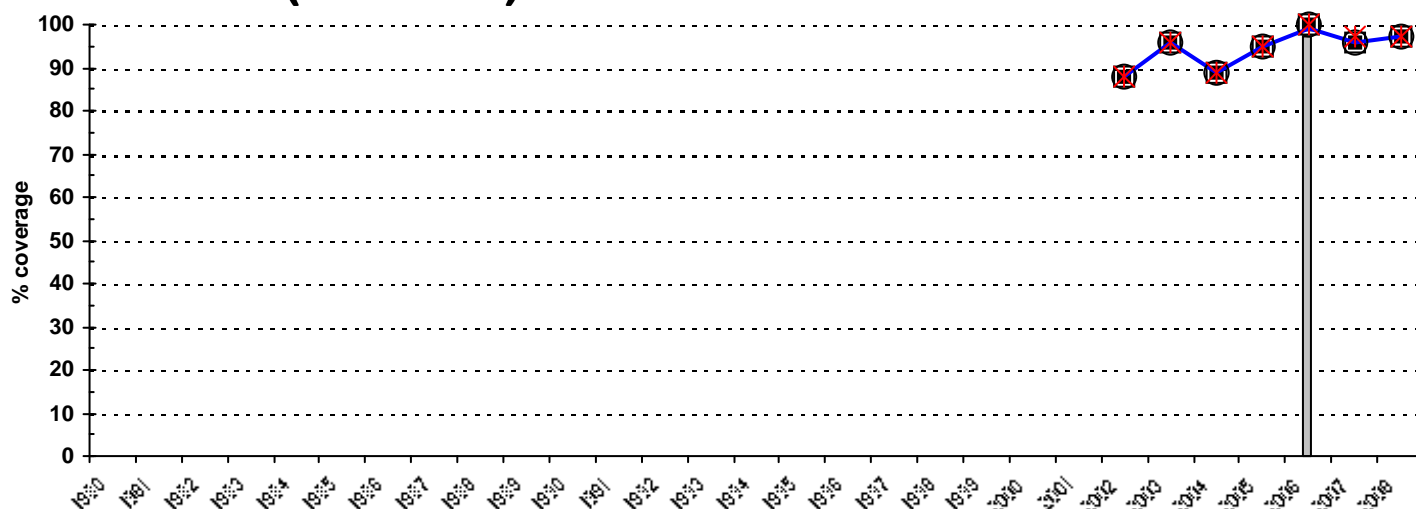
\*Prior to 1998 national reports to WHO/UNICEF did not specify whether information was derived from administrative records, surveys or other sources.

\*\*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.

# Rwanda

## Hib3 (1980-2008)



### Description of trend

Pentavalent, DTP, HepB, Hib vaccine introduced in 2002. Estimated immunization coverage levels are based on reported data supported by 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	88	88	88	88	88		
2003	96	96	96	96	96		
2004	89	89	89	89	89		
2005	95	95	95	95	95		
2006	99	100	100	100	100	97	
2007	96	96	96	96	97		
2008	97	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.

# Rwanda

## Details Survey Data

### Year Source

Antigen	Confirmation method	% coverage	Compliance with schedule	Age group	Sample size	% cards seen	Survey year	Comments
<b>2007 Enquête nationale de couverture vaccinale à Rwanda, 2007</b>								
PAB	n.a.			CBAW	1050	45	2007	
<b>2007 Rwanda Interim Demographic and Health Survey 2007-08, Preliminary Report</b>								
BCG	Card or History	95.5		12-23 m	1226	67	2007/08	
DTP1	Card or History	94.8		12-23 m	1226	67	2007/08	
DTP3	Card or History	89.8		12-23 m	1226	67	2007/08	
Pol3	Card or History	85.5		12-23 m	1226	67	2007/08	
MCV	Card or History	90.4		12-23 m	1226	67	2007/08	
<b>2006 Enquête nationale de couverture vaccinale à Rwanda, 2007</b>								
BCG	Card or History	97.8	Crude	12-23 m	1049	81.6	2007	
DTP1	Card or History	98.7	Crude	12-23 m	1049	81.6	2007	
DTP3	Card or History	97	Crude	12-23 m	1049	81.6	2007	
Pol3	Card or History	97.2	Crude	12-23 m	1049	81.6	2007	
MCV	Card or History	95.7	Crude	12-23 m	1049	81.6	2007	
HepB	Card or History	97	Crude	12-23 m	1049	81.6	2007	
Hib3	Card or History	97	Crude	12-23 m	1049	81.6	2007	
<b>2004 Rwanda Demographic and Health Survey 2005</b>								
BCG	Card or History	96.5		12-23 m	1626	75.9	2005	
BCG	C or H <12 month	96.4		12-23 m	1626	75.9	2005	
DTP1	Card or History	96.8		12-23 m	1626	75.9	2005	
DTP1	C or H <12 month	96.5		12-23 m	1626	75.9	2005	
DTP3	Card or History	87		12-23 m	1626	75.9	2005	
DTP3	C or H <12 month	86.4		12-23 m	1626	75.9	2005	
Pol3	Card or History	84.3		12-23 m	1626	75.9	2005	
Pol3	C or H <12 month	83.7		12-23 m	1626	75.9	2005	
MCV	Card or History	85.6		12-23 m	1626	75.9	2005	
MCV	C or H <12 month	79.4		12-23 m	1626	75.9	2005	
<b>2002 Rwanda, Evaluation de la campagne contre la rougeole et la vaccination de routine, 2003 - documentation not available</b>								
BCG	C or H <12 month	99		12-23 m		79	2003	
DTP1	C or H <12 month	97		12-23 m		79	2003	
DTP3	C or H <12 month	92		12-23 m		79	2003	
Pol3	C or H <12 month	87		12-23 m		79	2003	
MCV	C or H <12 month	92		12-23 m		79	2003	
<b>1999 Enquête à Indicateurs Multiples (MICS2), Rapport préliminaire, 2001</b>								
BCG	Card or History	91.6		12-23 m	596	61.3	2000	not clear if 12-23 m or < 12 m
DTP1	Card or History	91		12-23 m	596	61.3	2000	not clear if 12-23 m or < 12 m
DTP3	Card or History	81		12-23 m	596	61.3	2000	not clear if 12-23 m or < 12 m
Pol3	Card or History	89.3		12-23 m	596	61.3	2000	not clear if 12-23 m or < 12 m
MCV	Card or History	82.9		12-23 m	596	61.3	2000	not clear if 12-23 m or < 12 m
<b>1999 Enquête Démographique et de Santé Rwanda 2000 (EDSR-II), 2001</b>								
BCG	History	31.4		12-23 m	1330	66.3	2000	
BCG	Card or History	97		12-23 m	1330	66.3	2000	

# Rwanda

## Details Survey Data

### Year Source

Antigen	Confirmation method	% coverage	Compliance with schedule	Age group	Sample size	% cards seen	Survey year	Comments
BCG	Card	65.6		12-23 m	1330	66.3	2000	
BCG	C or H <12 month	96.5		12-23 m	1330	66.3	2000	
DTP1	History	30		12-23 m	1330	66.3	2000	
DTP1	Card or History	95.5		12-23 m	1330	66.3	2000	
DTP1	Card	65.5		12-23 m	1330	66.3	2000	
DTP1	C or H <12 month	94.9		12-23 m	1330	66.3	2000	
DTP3	History	22.9		12-23 m	1330	66.3	2000	
DTP3	Card or History	86		12-23 m	1330	66.3	2000	
DTP3	Card	63.2		12-23 m	1330	66.3	2000	
DTP3	C or H <12 month	84.9		12-23 m	1330	66.3	2000	
Pol3	History	23.7		12-23 m	1330	66.3	2000	
Pol3	Card or History	87.6		12-23 m	1330	66.3	2000	
Pol3	Card	63.8		12-23 m	1330	66.3	2000	
Pol3	C or H <12 month	86.8		12-23 m	1330	66.3	2000	
MCV	History	27.8		12-23 m	1330	66.3	2000	
MCV	Card or History	86.9		12-23 m	1330	66.3	2000	
MCV	Card	59.1		12-23 m	1330	66.3	2000	
MCV	C or H <12 month	79.9		12-23 m	1330	66.3	2000	

### 1998 *Enquête Démographique et de Santé Rwanda 2000 (EDSR-II), 2001*

BCG	C or H <12 month	93.8		24-35 m	1232	53.9	2000	
DTP1	C or H <12 month	90.9		24-35 m	1232	53.9	2000	
DTP3	C or H <12 month	78.6		24-35 m	1232	53.9	2000	
Pol3	C or H <12 month	79.7		24-35 m	1232	53.9	2000	
MCV	C or H <12 month	80.5		24-35 m	1232	53.9	2000	

### 1998 *Rapport d'Evaluation de la Couverture Vaccinale au Niveau des Onze Regions Sanitaires, Mai-Juni 1999*

BCG	Card or History	94	Crude	12-23 m			1999	
DTP1	Card or History	93	Crude	12-23 m			1999	
DTP3	Card or History	85	Crude	12-23 m			1999	
Pol3	Card or History	85	Crude	12-23 m			1999	
MCV	Card or History	78	Crude	12-23 m			1999	

### 1997 *Enquête Démographique et de Santé Rwanda 2000 (EDSR-II), 2001*

BCG	C or H <12 month	95.7		36-47 m	1297	41.7	2000	
DTP1	C or H <12 month	91.9		36-47 m	1297	41.7	2000	
DTP3	C or H <12 month	79.5		36-47 m	1297	41.7	2000	
Pol3	C or H <12 month	81.7		36-47 m	1297	41.7	2000	
MCV	C or H <12 month	73.6		36-47 m	1297	41.7	2000	

### 1996 *Enquête Démographique et de Santé Rwanda 2000 (EDSR-II), 2001*

BCG	C or H <12 month	95.8		48-59 m	1443	39.7	2000	
DTP1	C or H <12 month	92.2		48-59 m	1443	39.7	2000	
DTP3	C or H <12 month	80.4		48-59 m	1443	39.7	2000	
Pol3	C or H <12 month	79.6		48-59 m	1443	39.7	2000	
MCV	C or H <12 month	79.3		48-59 m	1443	39.7	2000	

### 1991 *Enquête Démographique et de Santé Rwanda 1992, 1994*

BCG	Card or History	96.9		12-23 m	1010	87.8	1992	
BCG	C or H <12 month	96.5		12-23 m	1010	87.8	1992	
BCG	C or H <12 month	97.2		24-35 m	1013	80.9	1992	
BCG	C or H <12 month	97.1		36-47 m	978	76.3	1992	

# Rwanda

## Details Survey Data

### Year Source

Antigen	Confirmation method	% coverage	Compliance with schedule	Age group	Sample size	% cards seen	Survey year	Comments
BCG	C or H <12 month	95		48-59 m	981	67.4	1992	
DTP1	Card or History	96.3		12-23 m	1010	87.8	1992	
DTP1	C or H <12 month	95.9		12-23 m	1010	87.8	1992	
DTP1	C or H <12 month	96.5		24-35 m	1013	80.9	1992	
DTP1	C or H <12 month	96.5		36-47 m	978	76.3	1992	
DTP1	C or H <12 month	94.1		48-59 m	981	67.4	1992	
DTP3	Card or History	91.2		12-23 m	1010	87.8	1992	
DTP3	C or H <12 month	90.6		12-23 m	1010	87.8	1992	
DTP3	C or H <12 month	91.1		24-35 m	1013	80.9	1992	
DTP3	C or H <12 month	89.5		36-47 m	978	76.3	1992	
DTP3	C or H <12 month	85.1		48-59 m	981	67.4	1992	
Pol3	Card or History	91.2		12-23 m	1010	87.8	1992	
Pol3	C or H <12 month	90.6		12-23 m	1010	87.8	1992	
Pol3	C or H <12 month	91.2		24-35 m	1013	80.9	1992	
Pol3	C or H <12 month	89.5		36-47 m	978	76.3	1992	
Pol3	C or H <12 month	85.3		48-59 m	981	67.4	1992	
MCV	Card or History	90.6		12-23 m	1010	87.8	1992	
MCV	C or H <12 month	86.9		12-23 m	1010	87.8	1992	
MCV	C or H <12 month	85.2		24-35 m	1013	80.9	1992	
MCV	C or H <12 month	82.6		36-47 m	978	76.3	1992	
MCV	C or H <12 month	80.3		48-59 m	981	67.4	1992	

### 1984 EPI Cluster Survey

BCG	Card or History	84.6		12-23 m	2120	86.2	1985	Confirmation method also includes Scar
DTP1	Card or History	81		12-23 m	2120	86.2	1985	
DTP3	Card or History	61.8		12-23 m	2120	86.2	1985	
Pol3	Card or History	56.4		12-23 m	2120	86.2	1985	
MCV	Card or History	65.7		12-23 m	2120	86.2	1985	

## Rwanda

### 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.

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<sup>1</sup> 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.

## Rwanda

<b>Year</b>	<b>PAB coverage estimate (%)</b>
1980	
1981	5
1982	10
1983	16
1984	22
1985	28
1986	35
1987	47
1988	55
1989	60
1990	85
1991	86
1992	88
1993	69
1994	80
1995	89
1996	74
1997	79
1998	84
1999	89
2000	81
2001	71
2002	79
2003	77
2004	77
2005	79
2006	82
2007	82
2008	85