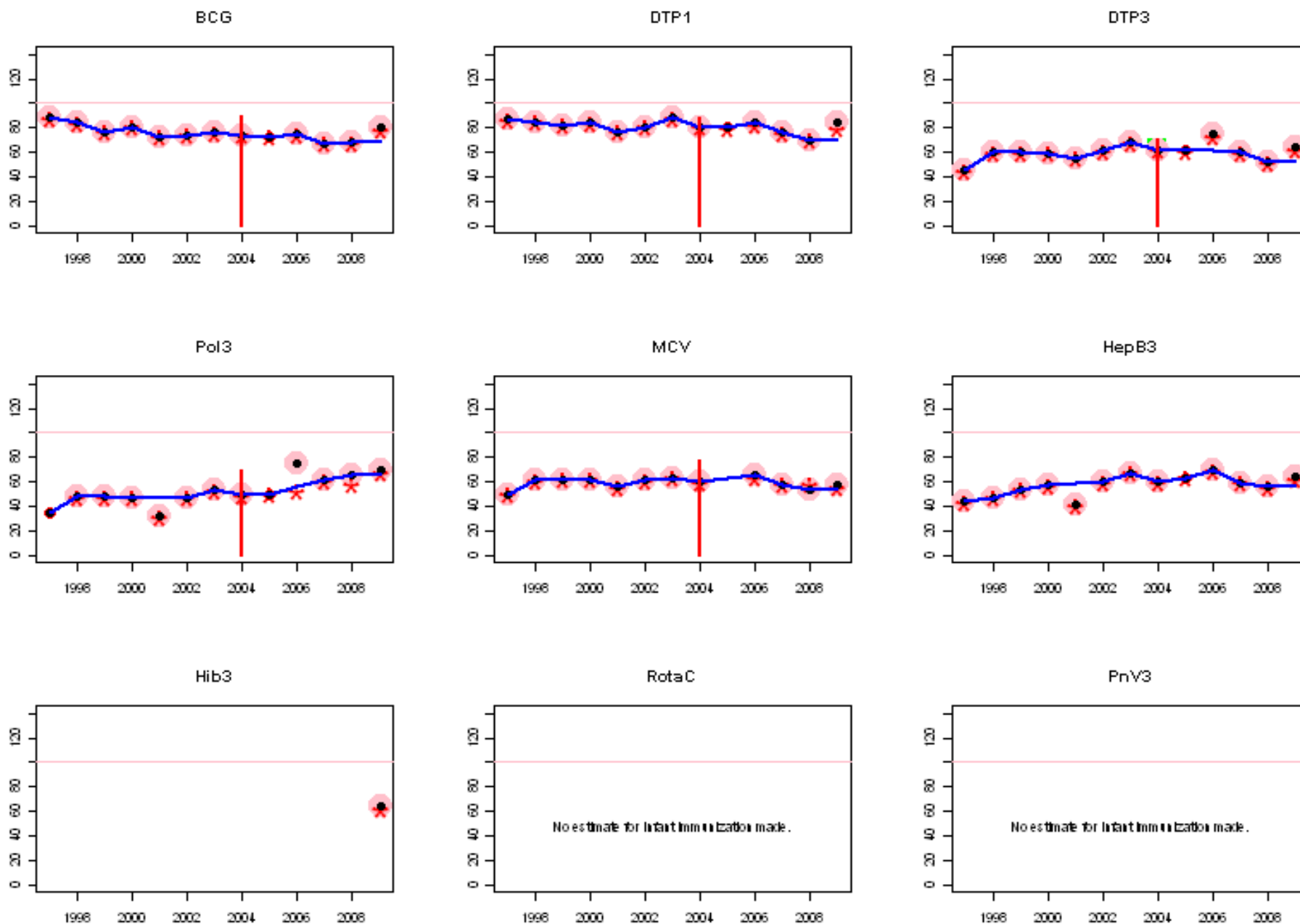
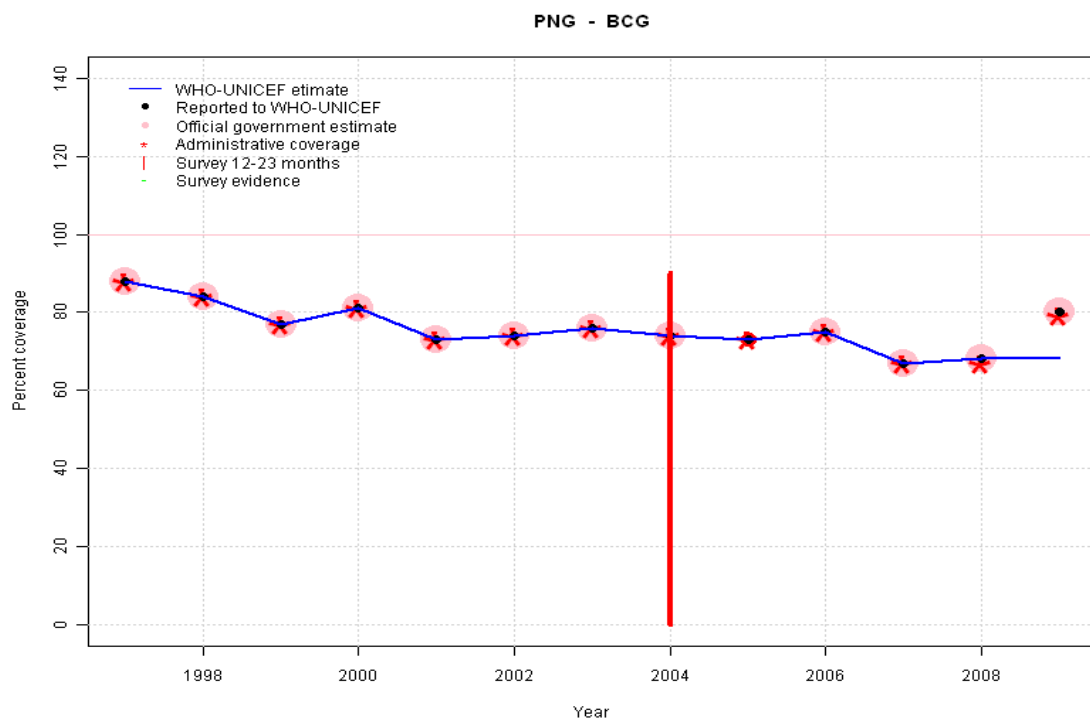


Papua New Guinea: WHO and UNICEF estimates of immunization coverage, 1997 - 2009



# Papua New Guinea - BCG



	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Estimate	88	84	77	81	73	74	76	74	73	75	67	68	68
Reported	88	84	77	81	73	74	76	74	73	75	67	68	80
Official	88	84	77	81	73	74	76	74	NA	75	67	68	80
Administrative	88	84	77	81	73	74	76	74	73	75	67	67	79
Survey	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

## Description:

1997: Legacy estimate.

1998: Estimate based on reported data.

1999: Estimate based on reported data.

2000: Estimate based on reported data.

2001: Estimate based on reported data.

2002: Estimate based on reported data.

2003: Estimate based on reported data.

2004: Estimate based on reported data. Survey results of 90 percent ignored by working group.

2005: Estimate based on reported data.

2006: Estimate based on reported data.

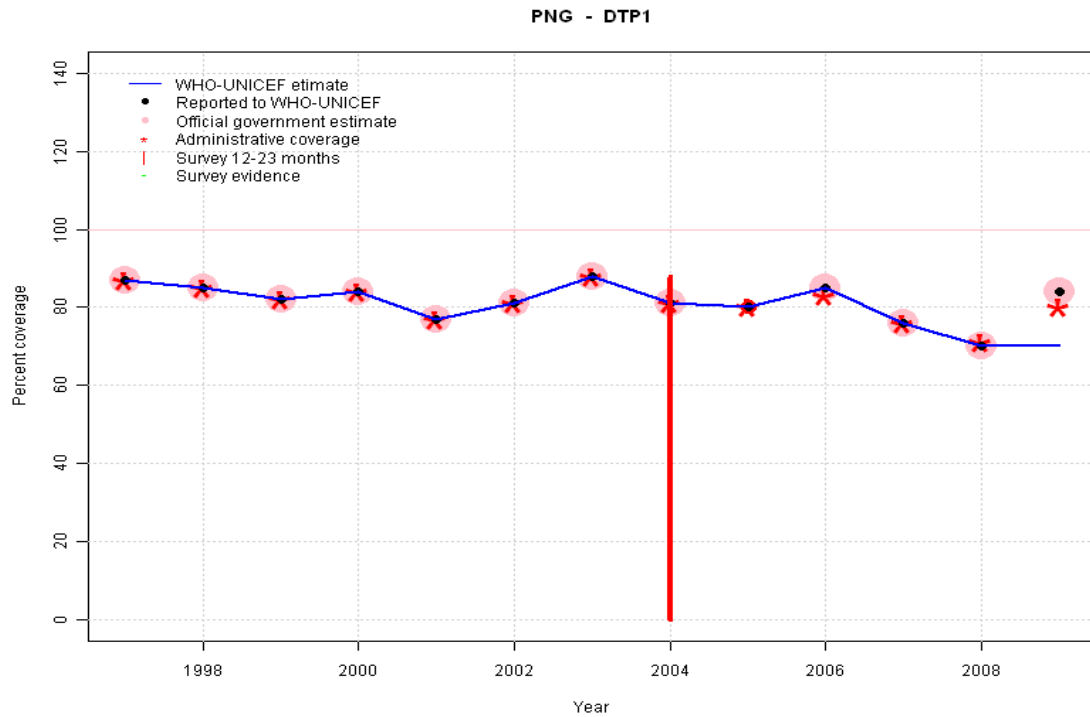
2007: Estimate based on reported data.

2008: Estimate based on reported data.

2009: Estimate based on trend in reported data. Missing or ignored reported value estimated by extrapolation from 2008 reported value of 68 percent. 2009 reported data (80 percent) inconsistent with data from other years. 2009 reported data (80 percent) ignored by working group. Nationally reported data is based on 66 percent completeness of reporting and immunizations provided by General Practitioners are not included. Increase in nationally reported coverage is the result of a 36 percent reduction in the size of the target population based on the reduction of infant mortality from 65 per 1000 live births to 57 per 1000 live births in 2006. A National Statistical Office population growth rate of 2.7 percent per year - rather than 3.2 percent, used previously - was used to estimate the number of births and surviving infants. In 2009, approximately 30 percent fewer children were vaccinated than in 2008.

# Papua New Guinea - DTP1

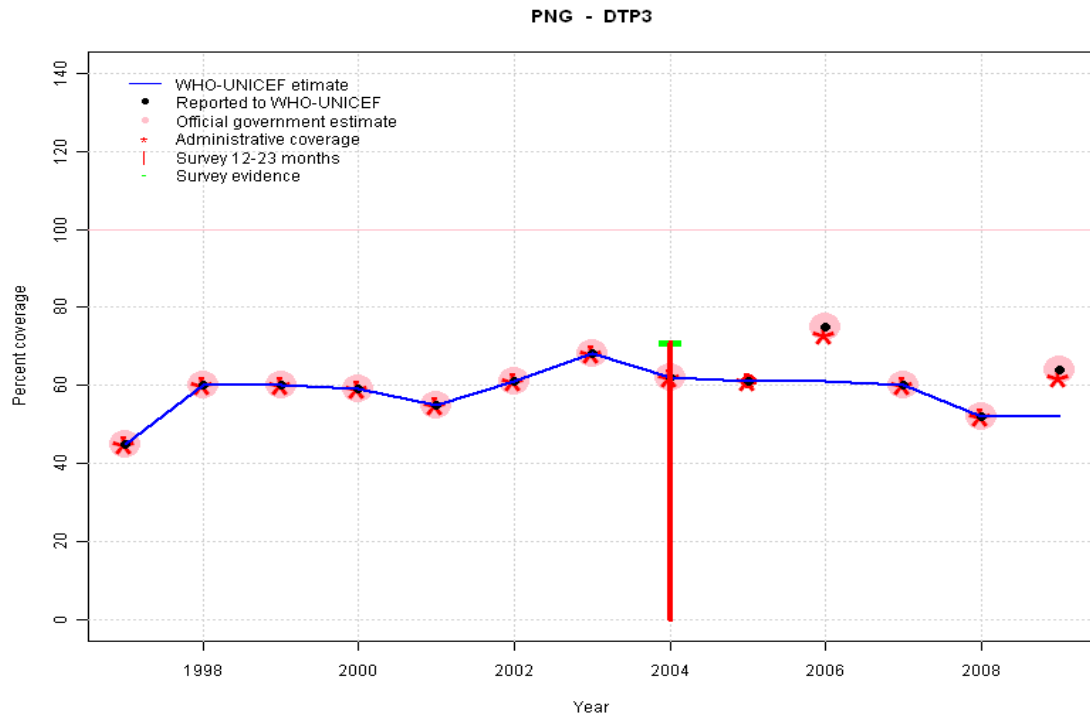
## Description:



	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Estimate	87	85	82	84	77	81	88	81	80	85	76	70	70
Reported	87	85	82	84	77	81	88	81	80	85	76	70	84
Official	87	85	82	84	77	81	88	81	NA	85	76	70	84
Administrative	87	85	82	84	77	81	88	81	80	83	76	71	80
Survey	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

- 1997: Legacy estimate.  
 1998: Estimate based on reported data.  
 1999: Estimate based on reported data.  
 2000: Estimate based on reported data.  
 2001: Estimate based on reported data.  
 2002: Estimate based on reported data.  
 2003: Estimate based on reported data.  
 2004: Estimate based on reported data. Survey results of 88 percent ignored by working group.  
 2005: Estimate based on reported data.  
 2006: Estimate based on reported data.  
 2007: Estimate based on reported data.  
 2008: Estimate based on reported data. Decline was the results of five months vaccine shortage.  
 2009: Estimate based on trend in reported data. Missing or ignored reported value estimated by extrapolation from 2008 reported value of 70 percent. 2009 reported data (84 percent) inconsistent with data from other years. 2009 reported data (84 percent) ignored by working group. Nationally reported data is based on 66 percent completeness of reporting and immunizations provided by General Practitioners are not included. Increase in nationally reported coverage is the result of a 36 percent reduction in the size of the target population based on the reduction of infant mortality from 65 per 1000 live births to 57 per 1000 live births in 2006. A National Statistical Office population growth rate of 2.7 percent per year - rather than 3.2 percent, used previously - was used to estimate the number of births and surviving infants. In 2009, approximately 30 percent fewer children were vaccinated than in 2008.

# Papua New Guinea - DTP3



	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Estimate	45	60	60	59	55	61	68	62	61	61	60	52	52
Reported	45	60	60	59	55	61	68	62	61	75	60	52	64
Official	45	60	60	59	55	61	68	62	NA	75	60	52	64
Administrative	45	60	60	59	55	61	68	62	61	73	60	52	62
Survey	NA	NA	NA	NA	NA	NA	NA	71	NA	NA	NA	NA	NA

## Description:

1997: Legacy estimate.

1998: Estimate based on reported data.

1999: Estimate based on reported data.

2000: Estimate based on reported data.

2001: Estimate based on reported data.

2002: Estimate based on reported data.

2003: Estimate based on reported data.

2004: Estimate based on reported data (62 percent) confirmed by survey (71 percent).

2005: Estimate based on reported data.

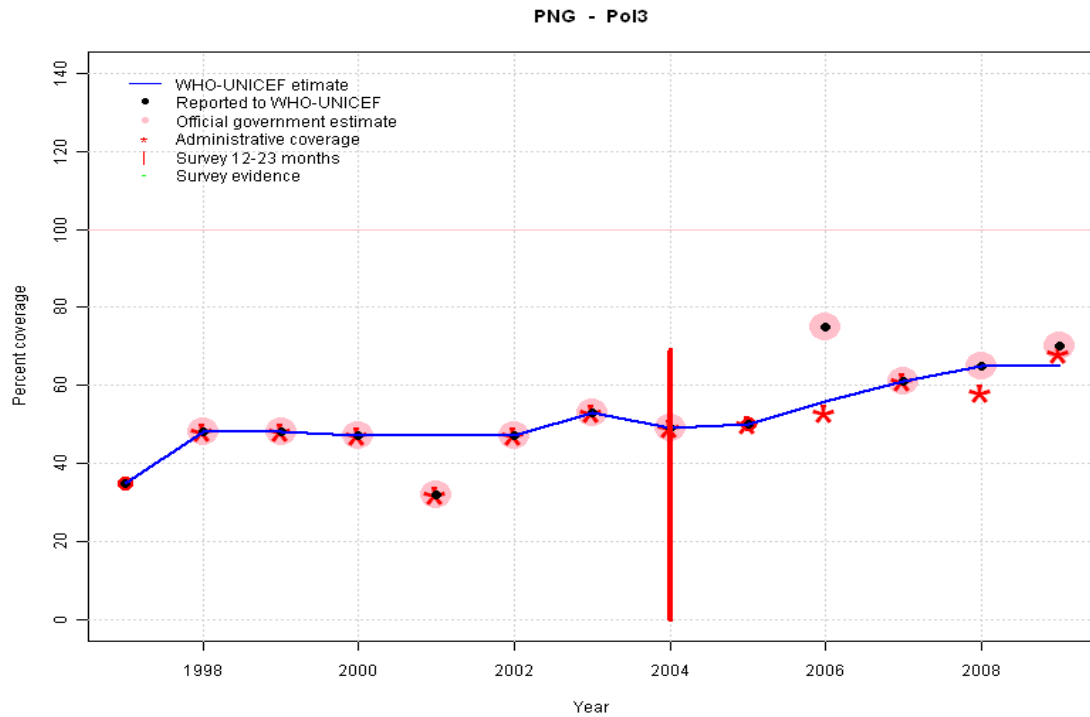
2006: Estimate based on trend in reported data. Missing or ignored reported value estimated by interpolation between reported values of 61 percent in 2005 and 60 percent in 2007. 2006 reported data (75 percent) inconsistent with data from other years.

2007: Estimate based on reported data.

2008: Estimate based on reported data. Decline was the results of five months vaccine shortage.

2009: Estimate based on trend in reported data. Missing or ignored reported value estimated by extrapolation from 2008 reported value of 52 percent. 2009 reported data (64 percent) inconsistent with data from other years. 2009 reported data (64 percent) ignored by working group. Nationally reported data is based on 66 percent completeness of reporting and immunizations provided by General Practitioners are not included. Increase in nationally reported coverage is the result of a 36 percent reduction in the size of the target population based on the reduction of infant mortality from 65 per 1000 live births to 57 per 1000 live births in 2006. A National Statistical Office population growth rate of 2.7 percent per year - rather than 3.2 percent, used previously - was used to estimate the number of births and surviving infants. In 2009, approximately 30 percent fewer children were vaccinated than in 2008.

# Papua New Guinea - Pol3



	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Estimate	35	48	48	47	47	47	53	49	50	56	61	65	65
Reported	35	48	48	47	32	47	53	49	50	75	61	65	70
Official	NA	48	48	47	32	47	53	49	NA	75	61	65	70
Administrative	NA	48	48	47	32	47	53	49	50	53	61	58	68
Survey	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

## Description:

1997: Legacy estimate.

1998: Estimate based on reported data.

1999: Estimate based on reported data.

2000: Estimate based on reported data.

2001: Estimate based on trend in reported data. Missing or ignored reported value estimated by interpolation between reported values of 47 percent in 2000 and 47 percent in 2002. 2001 reported data (32 percent) inconsistent with data from other years.

2002: Estimate based on reported data.

2003: Estimate based on reported data.

2004: Estimate based on reported data. Survey results of 69 percent ignored by working group.

2005: Estimate based on reported data.

2006: Estimate based on trend in reported data. Missing or ignored reported value estimated by interpolation between reported values of 50 percent in 2005 and 61 percent in 2007. 2006 reported data (75 percent) inconsistent with data from other years.

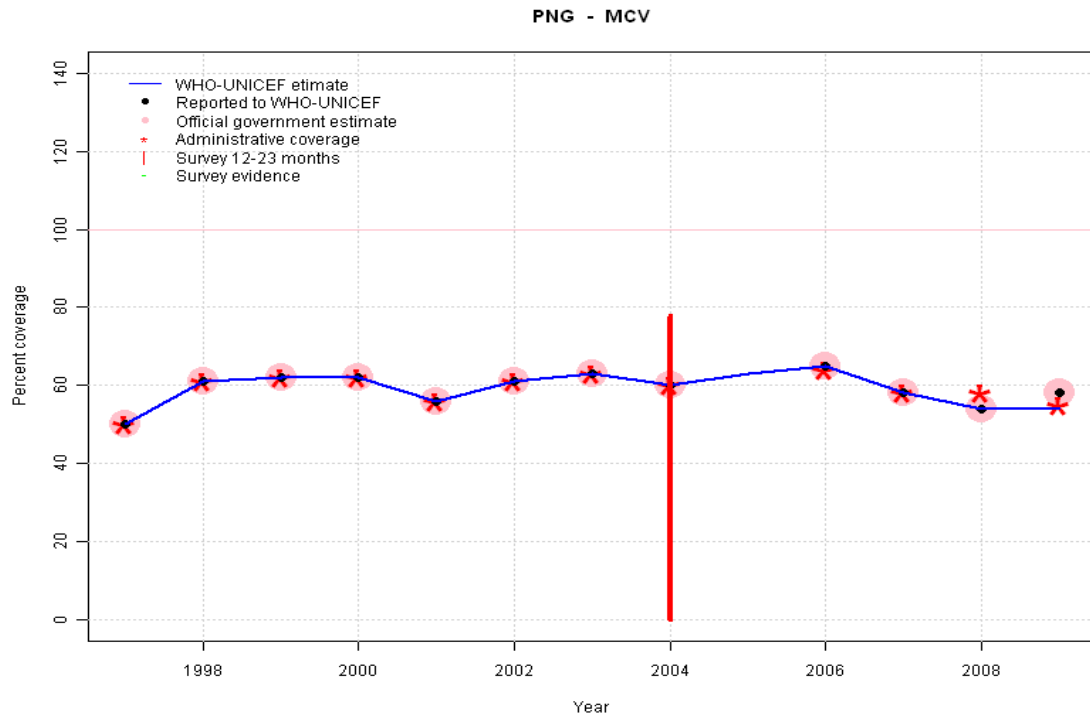
2007: Estimate based on reported data.

2008: Estimate based on reported data.

2009: Estimate based on trend in reported data. Missing or ignored reported value estimated by extrapolation from 2008 reported value of 65 percent. 2009 reported data (70 percent) ignored by working group. Nationally reported data is based on 66 percent completeness of reporting and immunizations provided by General Practitioners are not included. Increase in nationally reported coverage is the result of a 36 percent reduction in the size of the target population based on the reduction of infant mortality from 65 per 1000 live births to 57 per 1000 live births in 2006. A National Statistical Office population growth rate of 2.7 percent per year - rather than 3.2 percent, used previously - was used to estimate the number of births and surviving infants. In 2009, approximately 30 percent fewer children were vaccinated than in 2008.

# Papua New Guinea - MCV

## Description:



	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Estimate	50	61	62	62	56	61	63	60	63	65	58	54	54
Reported	50	61	62	62	56	61	63	60	NA	65	58	54	58
Official	50	61	62	62	56	61	63	60	NA	65	58	54	58
Administrative	50	61	62	62	56	61	63	60	NA	64	58	58	55
Survey	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

1997: Legacy estimate.

1998: Estimate based on reported data.

1999: Estimate based on reported data.

2000: Estimate based on reported data.

2001: Estimate based on reported data.

2002: Estimate based on reported data.

2003: Estimate based on reported data.

2004: Estimate based on reported data. Survey results of 78 percent ignored by working group.

2005: Estimate based on trend in reported data. Missing or ignored reported value estimated by interpolation between reported values of 60 percent in 2004 and 65 percent in 2006.

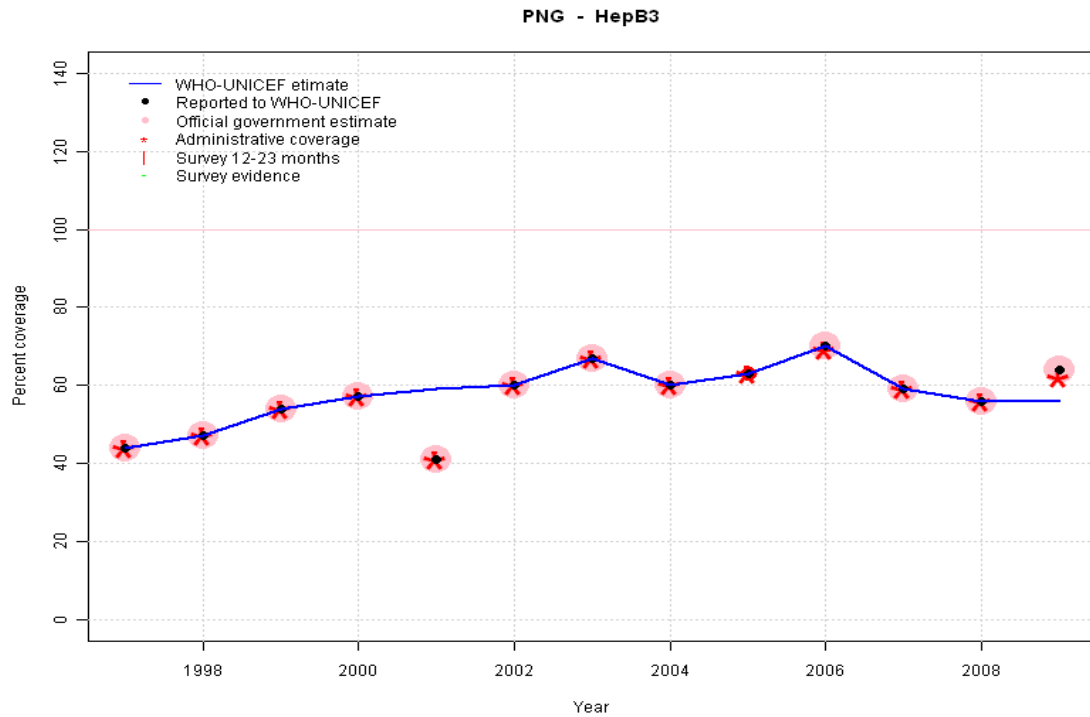
2006: Estimate based on reported data.

2007: Estimate based on reported data.

2008: Estimate based on reported data.

2009: Estimate based on trend in reported data. Missing or ignored reported value estimated by extrapolation from 2008 reported value of 54 percent. 2009 reported data (58 percent) ignored by working group. Nationally reported data is based on 66 percent completeness of reporting and immunizations provided by General Practitioners are not included. Increase in nationally reported coverage is the result of a 36 percent reduction in the size of the target population based on the reduction of infant mortality from 65 per 1000 live births to 57 per 1000 live births in 2006. A National Statistical Office population growth rate of 2.7 percent per year - rather than 3.2 percent, used previously - was used to estimate the number of births and surviving infants. In 2009, approximately 30 percent fewer children were vaccinated than in 2008.

# Papua New Guinea - HepB3



	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Estimate	44	47	54	57	59	60	67	60	63	70	59	56	56
Reported	44	47	54	57	41	60	67	60	63	70	59	56	64
Official	44	47	54	57	41	60	67	60	NA	70	59	56	64
Administrative	44	47	54	57	41	60	67	60	63	69	59	56	62
Survey	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

## Description:

1997: Legacy estimate.

1998: Estimate based on reported data.

1999: Estimate based on reported data.

2000: Estimate based on reported data.

2001: Estimate based on trend in reported data. Missing or ignored reported value estimated by interpolation between reported values of 57 percent in 2000 and 60 percent in 2002. 2001 reported data (41 percent) inconsistent with data from other years.

2002: Estimate based on reported data.

2003: Estimate based on reported data.

2004: Estimate based on reported data.

2005: Estimate based on reported data.

2006: Estimate based on reported data.

2007: Estimate based on reported data.

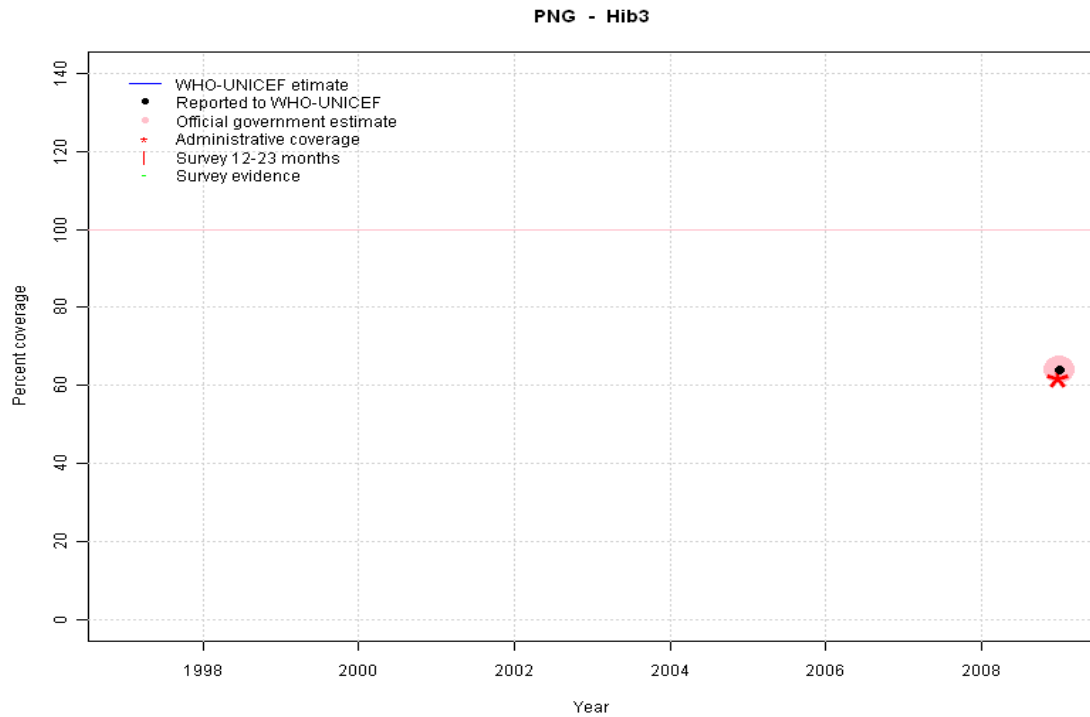
2008: Estimate based on reported data. Decline was the results of five months vaccine shortage.

2009: Estimate based on trend in reported data. Missing or ignored reported value estimated by extrapolation from 2008 reported value of 56 percent. 2009 reported data (64 percent) ignored by working group. Nationally reported data is based on 66 percent completeness of reporting and immunizations provided by General Practitioners are not included. Increase in nationally reported coverage is the result of a 36 percent reduction in the size of the target population based on the reduction of infant mortality from 65 per 1000 live births to 57 per 1000 live births in 2006. A National Statistical Office population growth rate of 2.7 percent per year - rather than 3.2 percent, used previously - was used to estimate the number of births and surviving infants. In 2009, approximately 30 percent fewer children were vaccinated than in 2008.

# Papua New Guinea - Hib3

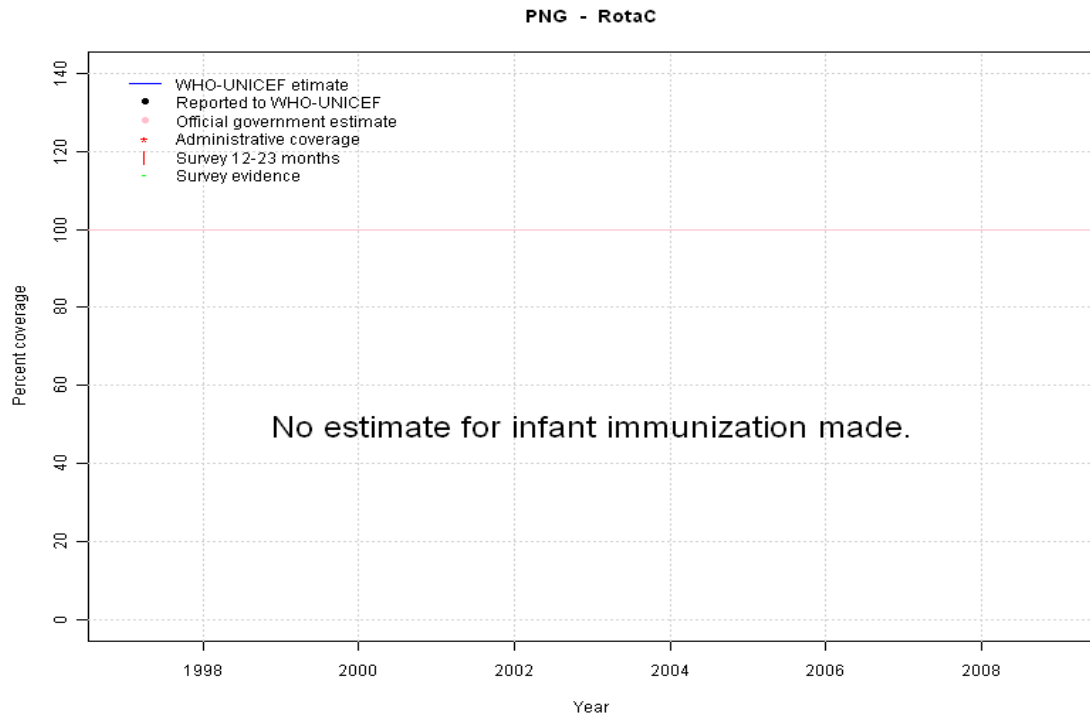
## Description:

2009: Estimate assigned by working group. Hib introduced in 2008. Reporting started in 2009. Estimate set to 2008 DTP3 level. 2009 reported data (64 percent) ignored by working group. Nationally reported data is based on 66 percent completeness of reporting and immunizations provided by General Practitioners are not included. Increase in nationally reported coverage is the result of a 36 percent reduction in the size of the target population based on the reduction of infant mortality from 65 per 1000 live births to 57 per 1000 live births in 2006. A National Statistical Office population growth rate of 2.7 percent per year - rather than 3.2 percent, used previously - was used to estimate the number of births and surviving infants. In 2009, approximately 30 percent fewer children were vaccinated than in 2008.



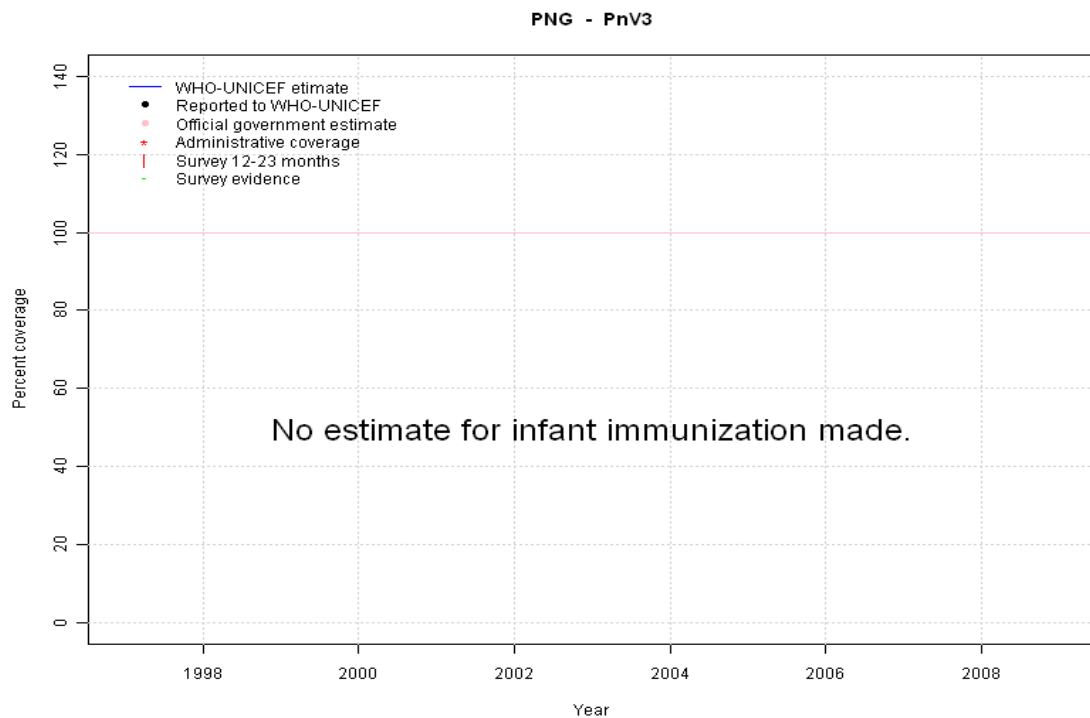
	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Estimate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	52
Reported	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	64
Official	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	64
Administrative	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	62
Survey	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

# Papua New Guinea - RotaC



	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Estimate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Reported	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Official	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Administrative	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Survey	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

# Papua New Guinea - PnV3



	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Estimate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Reported	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Official	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Administrative	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Survey	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

# Papua New Guinea - survey details

2004 National Immunization Coverage Survey 2005-2006, Papua  
New Guinea

Vaccine	Confirmation method	Coverage	Age cohort	Sample	Cards seen
BCG	Card or History	90	12-23 m	783	93
BCG	History	9	12-23 m	783	93
BCG	Card	81	12-23 m	783	93
DTP1	Card	82	12-23 m	776	93
DTP1	Card or History	88	12-23 m	776	93
DTP1	History	6	12-23 m	776	93
DTP3	History	4	12-23 m	783	93

DTP3	Card	67	12-23 m	783	93
DTP3	Card or History	71	12-23 m	783	93
MCV	Card or History	78	12-23 m	776	93
MCV	History	6	12-23 m	776	93
MCV	Card	72	12-23 m	776	93
Pol1	Card	79	12-23 m	774	93
Pol1	Card or History	85	12-23 m	774	93
Pol1	History	5	12-23 m	774	93
Pol3	History	5	12-23 m	776	93
Pol3	Card	64	12-23 m	776	93
Pol3	Card or History	69	12-23 m	776	93

Further information and estimates for 1980-1996 are available at:

[http://www.childinfo.org/immunization\\_countryreports.html](http://www.childinfo.org/immunization_countryreports.html)

[http://www.who.int/immunization\\_monitoring/routine/immunization\\_coverage/en/index4.html](http://www.who.int/immunization_monitoring/routine/immunization_coverage/en/index4.html)

## Papua New Guinea

### 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.

Year	PAB coverage estimate (%)
1997	68
1998	31
1999	30
2000	24
2001	45
2002	47
2003	46
2004	49
2005	53
2006	57
2007	60
2008	61
2009	61

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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.