

BACKGROUND NOTE: Each year WHO and UNICEF jointly review reports submitted by Member States regarding national immunization coverage, finalized survey reports as well as data from the published and grey literature. Based on these data, with due consideration to potential biases and the views of local experts, WHO and UNICEF attempt to distinguish between situations where the available empirical data accurately reflect immunization system performance and those where the data are likely to be compromised and present a misleading view of immunization coverage while jointly estimating the most likely coverage levels for each country.

WHO and UNICEF estimates are country-specific; that is to say, each country's data are reviewed individually, and data are not borrowed from other countries in the absence of data. Estimates are not based on ad hoc adjustments to reported data; in some instances empirical data are available from a single source, usually the nationally reported coverage data. In cases where no data are available for a given country/vaccine/year combination, data are considered from earlier and later years and interpolated to estimate coverage for the missing year(s). In cases where data sources are mixed and show large variation, an attempt is made to identify the most likely estimate with consideration of the possible biases in available data. For methods see:

*Burton et al. 2009. WHO and UNICEF estimates of national infant immunization coverage: methods and processes.

*Burton et al. 2012. A formal representation of the WHO and UNICEF estimates of national immunization coverage: a computational logic approach.

*Brown et al. 2013. An introduction to the grade of confidence used to characterize uncertainty around the WHO and UNICEF estimates of national immunization coverage.

DATA SOURCES.

ADMINISTRATIVE coverage: Reported by national authorities and based on aggregated administrative reports from health service providers on the number of vaccinations administered during a given period (numerator data) and reported target population data (denominator data). May be biased by inaccurate numerator and/or denominator data.

OFFICIAL coverage: Estimated coverage reported by national authorities that reflects their assessment of the most likely coverage based on any combination of administrative coverage, survey-based estimates or other data sources or adjustments. Approaches to determine OFFICIAL coverage may differ across countries.

SURVEY coverage: Based on estimated coverage from population-based household surveys among children aged 12-23 months or 24-35 months following a review of survey methods and results. Information is based on the combination of vaccination history from documented evidence or caregiver recall. Survey results are considered for the appropriate birth cohort based on the period of data collection.

ABBREVIATIONS

BCG: percentage of births who received one dose of Bacillus Calmette Guerin vaccine.

DTP1 / DTP3: percentage of surviving infants who received the 1st / 3rd dose, respectively, of diphtheria and tetanus toxoid with pertussis containing vaccine.

Pol3: percentage of surviving infants who received the 3rd dose of polio containing vaccine. May be either oral or inactivated polio vaccine.

IPV1: percentage of surviving infants who received at least one dose of inactivated polio vaccine. In countries utilizing an immunization schedule recommending either (i) a primary series of three doses of oral polio vaccine (OPV) plus at least one dose of IPV where OPV is included in routine

immunization and/or campaign or (ii) a sequential schedule of IPV followed by OPV, WHO and UNICEF estimates for IPV1 reflect coverage with at least one routine dose of IPV among infants <1 year of age among countries. For countries utilizing IPV containing vaccine use only, i.e., no recommended dose of OPV, the WHO and UNICEF estimate for IPV1 corresponds to coverage for the 1st dose of IPV.

Production of IPV coverage estimates, which begins in 2015, results in no change of the estimated coverage levels for the 3rd dose of polio (Pol3). For countries recommending routine immunization with a primary series of three doses of IPV alone, WHO and UNICEF estimated Pol3 coverage is equivalent to estimated coverage with three doses of IPV. For countries with a sequential schedule, estimated Pol3 coverage is based on that for the 3rd dose of polio vaccine regardless of vaccine type.

MCV1: percentage of surviving infants who received the 1st dose of measles containing vaccine. In countries where the national schedule recommends the 1st dose of MCV at 12 months or later based on the epidemiology of disease in the country, coverage estimates reflect the percentage of children who received the 1st dose of MCV as recommended.

MCV2: percentage of children who received the 2nd dose of measles containing vaccine according to the nationally recommended schedule.

RCV1: percentage of surviving infants who received the 1st dose of rubella containing vaccine. Coverage estimates are based on WHO and UNICEF estimates of coverage for the dose of measles containing vaccine that corresponds to the first measles-rubella combination vaccine. Nationally reported coverage of RCV is not taken into consideration nor are the data represented in the accompanying graph and data table.

HepBB: percentage of births which received a dose of hepatitis B vaccine within 24 hours of delivery. Estimates of hepatitis B birth dose coverage are produced only for countries with a universal birth dose policy. Estimates are not produced for countries that recommend a birth dose to infants born to HepB virus-infected mothers only or where there is insufficient information to determine whether vaccination is within 24 hours of birth.

HepB3: percentage of surviving infants who received the 3rd dose of hepatitis B containing vaccine following the birth dose.

Hib3: percentage of surviving infants who received the 3rd dose of Haemophilus influenzae type b containing vaccine.

RotaC: percentage of surviving infants who received the final recommended dose of rotavirus vaccine, which can be either the 2nd or the 3rd dose depending on the vaccine.

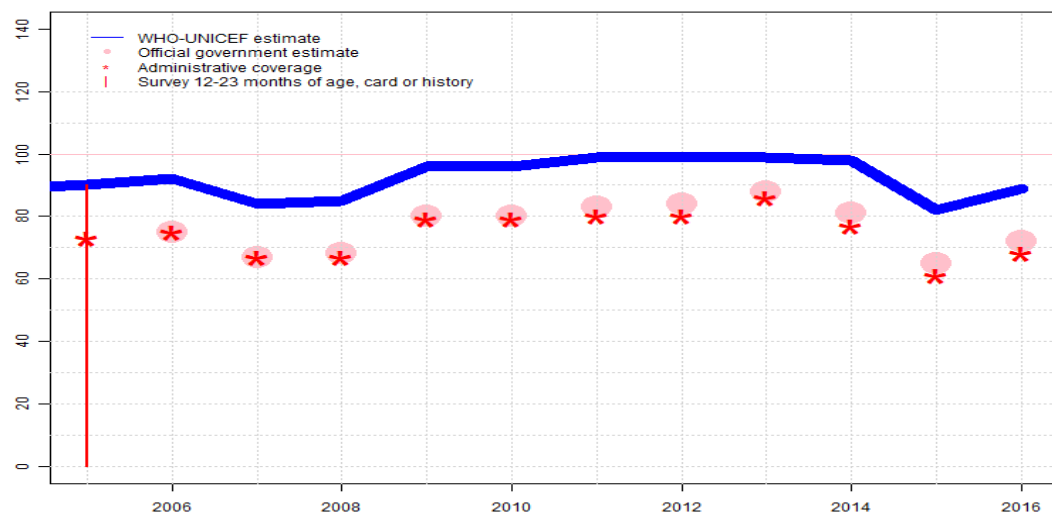
PcV3: percentage of surviving infants who received the 3rd dose of pneumococcal conjugate vaccine. In countries where the national schedule recommends two doses during infancy and a booster dose at 12 months or later based on the epidemiology of disease in the country, coverage estimates may reflect the percentage of surviving infants who received two doses of PcV prior to the 1st birthday.

YFV: percentage of surviving infants who received one dose of yellow fever vaccine in countries where YFV is part of the national immunization schedule for children or is recommended in at risk areas; coverage estimates are annualized for the entire cohort of surviving infants.

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Papua New Guinea - BCG

PNG - BCG



Description:

- 2016: Reported data calibrated to 2005 levels. Reported data reflects three quarters of expected district-level reports. WHO and UNICEF are aware of an on-going Demographic and Health Survey and await final results. Programme reports 3.5 months stock out at national level. Estimate challenged by: R-
- 2015: Reported data calibrated to 2005 levels. Programme reports a three month vaccine stock-out at national level. Estimate of 82 percent changed from previous revision value of 65 percent. Estimate challenged by: R-
- 2014: Reported data calibrated to 2005 levels. Target population increase of 13 percent compared to 2013. Programme reports two month stock-out at national level. Estimate of 98 percent changed from previous revision value of 81 percent. Estimate challenged by: R-
- 2013: Reported data calibrated to 2005 levels. Estimate of 99 percent changed from previous revision value of 88 percent. Estimate challenged by: D-R-
- 2012: Reported data calibrated to 2005 levels. Estimate of 99 percent changed from previous revision value of 84 percent. Estimate challenged by: D-R-
- 2011: Reported data calibrated to 2005 levels. Administrative coverage is adjusted for vaccinations provided in the private sector. Previous surveys have consistently indicated higher coverage than administrative coverage. Estimate of 99 percent changed from previous revision value of 83 percent. Estimate challenged by: D-R-
- 2010: Reported data calibrated to 2005 levels. Public - private sector discrepancy noted by WHO and UNICEF, however, adjustment inconsistently applied across antigens. Estimate of 96 percent changed from previous revision value of 79 percent. Estimate challenged by: D-R-
- 2009: Reported data calibrated to 2005 levels. . Public - private sector discrepancy noted by WHO and UNICEF, however, adjustment inconsistently applied across antigens. Estimate of 96 percent changed from previous revision value of 79 percent. Estimate challenged by: D-R-
- 2008: Reported data calibrated to 2005 levels. Estimate of 85 percent changed from previous revision value of 68 percent. Estimate challenged by: D-R-
- 2007: Reported data calibrated to 2005 levels. Estimate of 84 percent changed from previous revision value of 67 percent. Estimate challenged by: D-R-
- 2006: Reported data calibrated to 2005 levels. Estimate of 92 percent changed from previous revision value of 75 percent. Estimate challenged by: D-R-
- 2005: Survey evidence does not support reported data. Estimate based on survey results. Survey evidence of 90 percent based on 1 survey(s). Estimate of 90 percent changed from previous revision value of 73 percent. Estimate challenged by: D-R-

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Estimate	90	92	84	85	96	96	99	99	99	98	82	89
Estimate GoC	•	•	•	•	•	•	•	•	•	•	•	•
Official	NA	75	67	68	80	80	83	84	88	81	65	72
Administrative	73	75	67	67	79	79	80	80	86	77	61	68
Survey	90	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

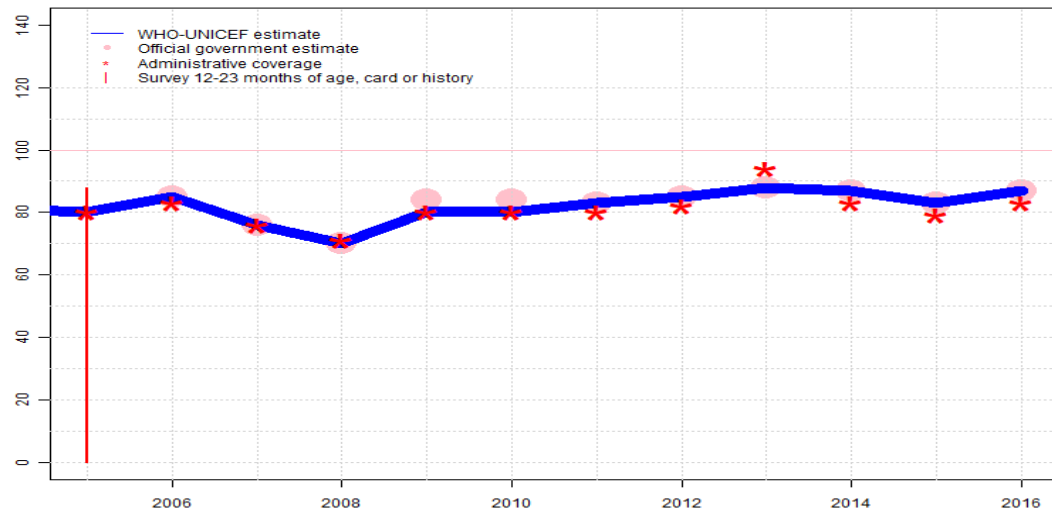
The WHO and UNICEF estimates of national immunization coverage (wuenic) are based on data and information that are of varying, and, in some instances, unknown quality. Beginning with the 2011 revision we describe the grade of confidence (GoC) we have in these estimates. As there is no underlying probability model upon which the estimates are based, we are unable to present classical measures of uncertainty, e.g., confidence intervals. Moreover, we have chosen not to make subjective estimates of plausibility/certainty ranges around the coverage. The GoC reflects the degree of empirical support upon which the estimates are based. It is not a judgment of the quality of data reported by national authorities.

- Estimate is supported by reported data [R+], coverage recalculated with an independent denominator from the World Population Prospects: 2015 revision from the UN Population Division (D+), and at least one supporting survey within 2 years [S+]. While well supported, the estimate still carries a risk of being wrong.
- Estimate is supported by at least one data source; [R+], [S+], or [D+]; and no data source, [R-], [D-], or [S-], challenges the estimate.
- There are no directly supporting data; or data from at least one source; [R-], [D-], [S-]; challenge the estimate.

In all cases these estimates should be used with caution and should be assessed in light of the objective for which they are being used.

Papua New Guinea - DTP1

PNG - DTP1



Description:

- 2016: Estimate based on coverage reported by national government. Reported data reflects three quarters of expected district-level reports. WHO and UNICEF are aware of an on-going Demographic and Health Survey and await final results. Estimate challenged by: D-
- 2015: Estimate based on coverage reported by national government. Estimate challenged by: D-
- 2014: Estimate based on coverage reported by national government. Target population increase of 13 percent compared to 2013. Estimate challenged by: D-
- 2013: Estimate based on coverage reported by national government. GoC=R+ D+
- 2012: Estimate based on coverage reported by national government. GoC=R+ D+
- 2011: Estimate based on coverage reported by national government. Administrative coverage is adjusted for vaccinations provided in the private sector. Previous surveys have consistently indicated higher coverage than administrative coverage. GoC=R+ D+
- 2010: Estimate based on reported administrative data. Public - private sector discrepancy noted by WHO and UNICEF, however, adjustment inconsistently applied across antigens. GoC=R+ D+
- 2009: Estimate based on reported administrative data. . Public - private sector discrepancy noted by WHO and UNICEF, however, adjustment inconsistently applied across antigens. GoC=R+ D+
- 2008: Estimate based on coverage reported by national government. Decline was the results of five months vaccine shortage. GoC=R+ D+
- 2007: Estimate based on coverage reported by national government. Estimate challenged by: S-
- 2006: Estimate based on coverage reported by national government. GoC=R+ S+ D+
- 2005: Estimate based on administrative data reported by national government supported by survey. Survey evidence of 88 percent based on 1 survey(s). GoC=R+ S+ D+

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Estimate	80	85	76	70	80	80	83	85	88	87	83	87
Estimate GoC	●●●	●●●	●	●●	●●	●●	●●	●●	●●	●	●	●
Official	NA	85	76	70	84	84	83	85	88	87	83	87
Administrative	80	83	76	71	80	80	80	82	94	83	79	83
Survey	88	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

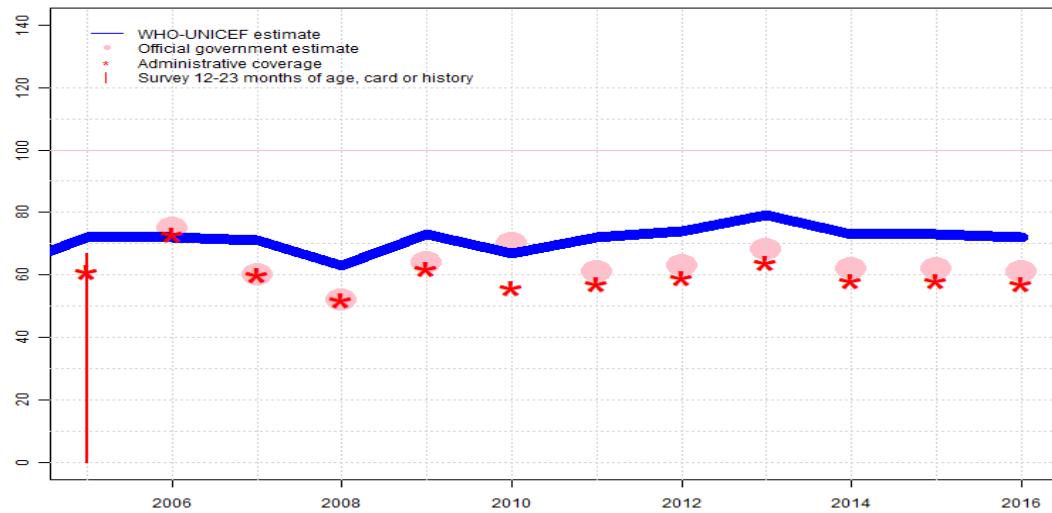
The WHO and UNICEF estimates of national immunization coverage (wuenic) are based on data and information that are of varying, and, in some instances, unknown quality. Beginning with the 2011 revision we describe the grade of confidence (GoC) we have in these estimates. As there is no underlying probability model upon which the estimates are based, we are unable to present classical measures of uncertainty, e.g., confidence intervals. Moreover, we have chosen not to make subjective estimates of plausibility/certainty ranges around the coverage. The GoC reflects the degree of empirical support upon which the estimates are based. It is not a judgment of the quality of data reported by national authorities.

- Estimate is supported by reported data [R+], coverage recalculated with an independent denominator from the World Population Prospects: 2015 revision from the UN Population Division (D+), and at least one supporting survey within 2 years [S+]. While well supported, the estimate still carries a risk of being wrong.
- Estimate is supported by at least one data source; [R+], [S+], or [D+]; and no data source, [R-], [D-], or [S-], challenges the estimate.
- There are no directly supporting data; or data from at least one source; [R-], [D-], [S-]; challenge the estimate.

In all cases these estimates should be used with caution and should be assessed in light of the objective for which they are being used.

Papua New Guinea - DTP3

PNG - DTP3



	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Estimate	72	72	71	63	73	67	72	74	79	73	73	72
Estimate GoC	•	•	•	•	•	•	•	•	•	•	•	•
Official	NA	75	60	52	64	70	61	63	68	62	62	61
Administrative	61	73	60	52	62	56	57	59	64	58	58	57
Survey	67	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

The WHO and UNICEF estimates of national immunization coverage (wuenic) are based on data and information that are of varying, and, in some instances, unknown quality. Beginning with the 2011 revision we describe the grade of confidence (GoC) we have in these estimates. As there is no underlying probability model upon which the estimates are based, we are unable to present classical measures of uncertainty, e.g., confidence intervals. Moreover, we have chosen not to make subjective estimates of plausibility/certainty ranges around the coverage. The GoC reflects the degree of empirical support upon which the estimates are based. It is not a judgment of the quality of data reported by national authorities.

- Estimate is supported by reported data [R+], coverage recalculated with an independent denominator from the World Population Prospects: 2015 revision from the UN Population Division (D+), and at least one supporting survey within 2 years [S+]. While well supported, the estimate still carries a risk of being wrong.
- Estimate is supported by at least one data source; [R+], [S+], or [D+]; and no data source, [R-], [D-], or [S-], challenges the estimate.
- There are no directly supporting data; or data from at least one source; [R-], [D-], [S-]; challenge the estimate.

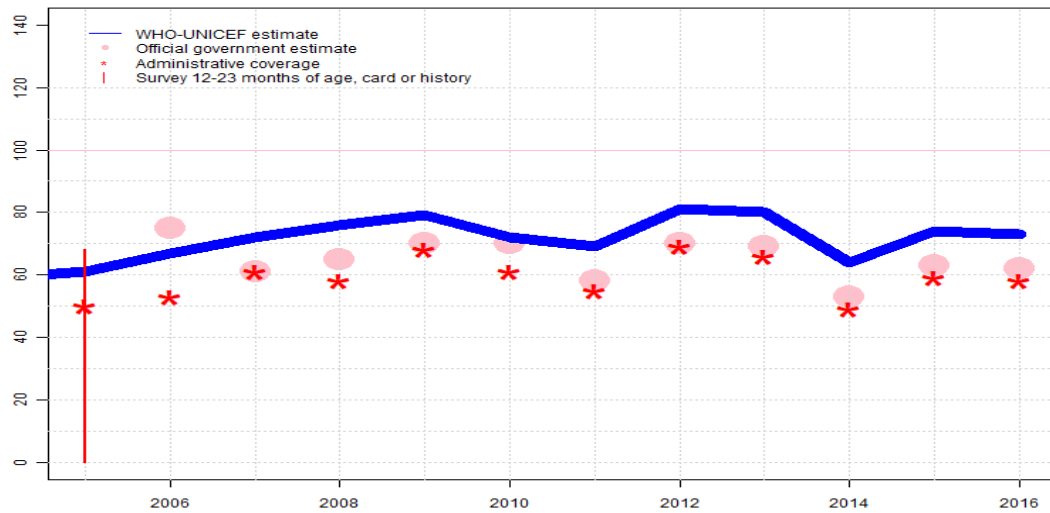
In all cases these estimates should be used with caution and should be assessed in light of the objective for which they are being used.

Description:

- 2016: Reported data calibrated to 2005 levels. Reported data reflects three quarters of expected district-level reports. WHO and UNICEF are aware of an on-going Demographic and Health Survey and await final results. Estimate challenged by: R-
- 2015: Reported data calibrated to 2005 levels. Estimate of 73 percent changed from previous revision value of 62 percent. Estimate challenged by: R-
- 2014: Reported data calibrated to 2005 levels. Target population increase of 13 percent compared to 2013. Estimate of 73 percent changed from previous revision value of 62 percent. Estimate challenged by: R-
- 2013: Reported data calibrated to 2005 levels. Estimate of 79 percent changed from previous revision value of 68 percent. Estimate challenged by: D-R-
- 2012: Reported data calibrated to 2005 levels. Estimate of 74 percent changed from previous revision value of 63 percent. Estimate challenged by: D-R-
- 2011: Reported data calibrated to 2005 levels. Administrative coverage is adjusted for vaccinations provided in the private sector. Previous surveys have consistently indicated higher coverage than administrative coverage. Estimate of 72 percent changed from previous revision value of 61 percent. Estimate challenged by: D-R-
- 2010: Reported data calibrated to 2005 levels. Public - private sector discrepancy noted by WHO and UNICEF, however, adjustment inconsistently applied across antigens. Estimate of 67 percent changed from previous revision value of 56 percent. Estimate challenged by: R-
- 2009: Reported data calibrated to 2005 levels. . Public - private sector discrepancy noted by WHO and UNICEF, however, adjustment inconsistently applied across antigens. Estimate of 73 percent changed from previous revision value of 62 percent. Estimate challenged by: R-
- 2008: Reported data calibrated to 2005 levels. Decline was the results of five months vaccine shortage. Estimate of 63 percent changed from previous revision value of 52 percent. Estimate challenged by: D-R-
- 2007: Reported data calibrated to 2005 levels. Estimate of 71 percent changed from previous revision value of 60 percent. Estimate challenged by: D-R-
- 2006: Reported data calibrated to 2005 levels. Reported data excluded due to an unexplained increase from 61 percent to 75 percent with decrease 60 percent. Estimate of 72 percent changed from previous revision value of 61 percent. Estimate challenged by: R-
- 2005: Survey evidence does not support reported data. Estimate based on survey results. Survey evidence of 72 percent based on 1 survey(s). Papua New guinea Demographic and Health Survey 2006 card or history results of 67 percent modified for recall bias to 72 percent based on 1st dose card or history coverage of 88 percent, 1st dose card only coverage of 66 percent and 3d dose card only coverage of 54 percent. Estimate of 72 percent changed from previous revision value of 61 percent. Estimate challenged by: D-R-

Papua New Guinea - Pol3

PNG - Pol3



	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Estimate	61	67	72	76	79	72	69	81	80	64	74	73
Estimate GoC	•	•	•	•	•	•	•	•	•	•	•	•
Official	NA	75	61	65	70	70	58	70	69	53	63	62
Administrative	50	53	61	58	68	61	55	69	66	49	59	58
Survey	68	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

The WHO and UNICEF estimates of national immunization coverage (wuenic) are based on data and information that are of varying, and, in some instances, unknown quality. Beginning with the 2011 revision we describe the grade of confidence (GoC) we have in these estimates. As there is no underlying probability model upon which the estimates are based, we are unable to present classical measures of uncertainty, e.g., confidence intervals. Moreover, we have chosen not to make subjective estimates of plausibility/certainty ranges around the coverage. The GoC reflects the degree of empirical support upon which the estimates are based. It is not a judgment of the quality of data reported by national authorities.

- Estimate is supported by reported data [R+], coverage recalculated with an independent denominator from the World Population Prospects: 2015 revision from the UN Population Division (D+), and at least one supporting survey within 2 years [S+]. While well supported, the estimate still carries a risk of being wrong.
- Estimate is supported by at least one data source; [R+], [S+], or [D+]; and no data source, [R-], [D-], or [S-], challenges the estimate.
- There are no directly supporting data; or data from at least one source; [R-], [D-], [S-]; challenge the estimate.

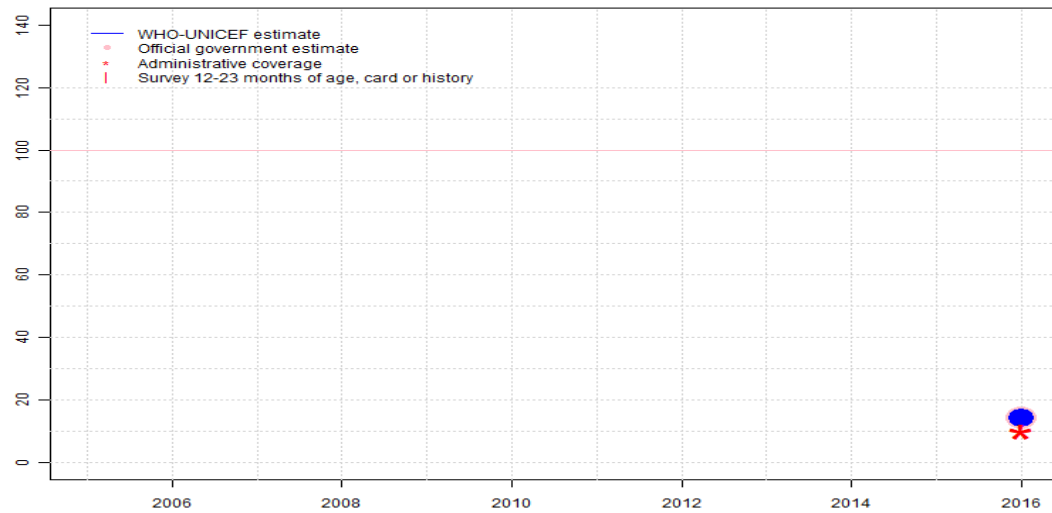
In all cases these estimates should be used with caution and should be assessed in light of the objective for which they are being used.

Description:

- 2016: Reported data calibrated to 2005 levels. Reported data reflects three quarters of expected district-level reports. WHO and UNICEF are aware of an on-going Demographic and Health Survey and await final results. Estimate challenged by: R-
- 2015: Reported data calibrated to 2005 levels. Estimate of 74 percent changed from previous revision value of 63 percent. Estimate challenged by: R-
- 2014: Reported data calibrated to 2005 levels. Target population increase of 13 percent compared to 2013. Programme reports two month stock-out at national level. Estimate of 64 percent changed from previous revision value of 53 percent. Estimate challenged by: R-
- 2013: Reported data calibrated to 2005 levels. Programme reports three months stockout at national level. Estimate of 80 percent changed from previous revision value of 69 percent. Estimate challenged by: D-R-
- 2012: Reported data calibrated to 2005 levels. Rise in coverage is attributable to recovery from vaccine shortage. Estimate of 81 percent changed from previous revision value of 70 percent. Estimate challenged by: R-
- 2011: Reported data calibrated to 2005 levels. Administrative coverage is adjusted for vaccinations provided in the private sector. Previous surveys have consistently indicated higher coverage than administrative coverage. Estimate of 69 percent changed from previous revision value of 58 percent. Estimate challenged by: D-R-
- 2010: Reported data calibrated to 2005 levels. Public - private sector discrepancy noted by WHO and UNICEF, however, adjustment inconsistently applied across antigens. Estimate of 72 percent changed from previous revision value of 61 percent. Estimate challenged by: R-
- 2009: Reported data calibrated to 2005 levels. Public - private sector discrepancy noted by WHO and UNICEF, however, adjustment inconsistently applied across antigens. Estimate of 79 percent changed from previous revision value of 68 percent. Estimate challenged by: R-
- 2008: Reported data calibrated to 2005 levels. Estimate of 76 percent changed from previous revision value of 65 percent. Estimate challenged by: D-R-
- 2007: Reported data calibrated to 2005 levels. Estimate of 72 percent changed from previous revision value of 61 percent. Estimate challenged by: D-R-
- 2006: Reported data calibrated to 2005 levels. Reported data excluded due to an unexplained increase from 50 percent to 75 percent with decrease 61 percent. Estimate of 67 percent changed from previous revision value of 56 percent. Estimate challenged by: D-R-
- 2005: Estimate of 61 percent assigned by working group. Estimate based on adjustment factor derived from the difference between estimated and reported DTP3 coverage. Papua New Guinea Demographic and Health Survey 2006 card or history results of 68 percent modified for recall bias to 74 percent based on 1st dose card only coverage of 87 percent, 1st dose card only coverage of 65 percent and 3d dose card only coverage of 55 percent. Estimate of 61 percent changed from previous revision value of 50 percent. Estimate challenged by: D-R-S-

Papua New Guinea - IPV1

PNG - IPV1



Description:

2016: Estimate based on coverage reported by national government. Reported data reflects three quarters of expected district-level reports. WHO and UNICEF are aware of an on-going Demographic and Health Survey and await final results. IPV introduced in 2015, reporting starts in 2016. Unclear whether doses given as part of an intensification of routine vaccination are included in the reported coverage. Programme reports two months stock out of IPV at national level. GoC=R+ D+

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Estimate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	14
Estimate GoC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	●●
Official	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	14
Administrative	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	10
Survey	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

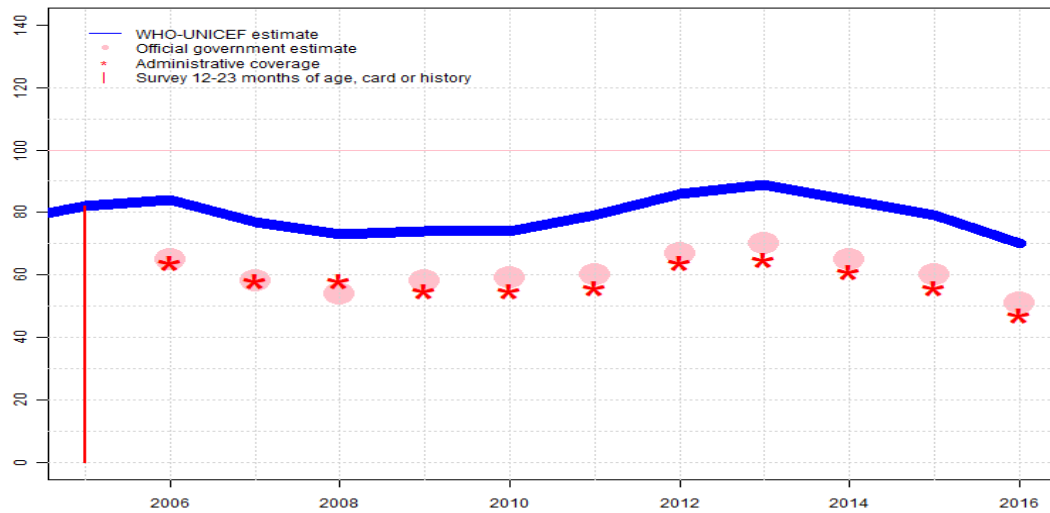
The WHO and UNICEF estimates of national immunization coverage (wuenic) are based on data and information that are of varying, and, in some instances, unknown quality. Beginning with the 2011 revision we describe the grade of confidence (GoC) we have in these estimates. As there is no underlying probability model upon which the estimates are based, we are unable to present classical measures of uncertainty, e.g., confidence intervals. Moreover, we have chosen not to make subjective estimates of plausibility/certainty ranges around the coverage. The GoC reflects the degree of empirical support upon which the estimates are based. It is not a judgment of the quality of data reported by national authorities.

- Estimate is supported by reported data [R+], coverage recalculated with an independent denominator from the World Population Prospects: 2015 revision from the UN Population Division (D+), and at least one supporting survey within 2 years [S+]. While well supported, the estimate still carries a risk of being wrong.
- Estimate is supported by at least one data source; [R+], [S+], or [D+]; and no data source, [R-], [D-], or [S-], challenges the estimate.
- There are no directly supporting data; or data from at least one source; [R-], [D-], [S-]; challenge the estimate.

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Papua New Guinea - MCV1

PNG - MCV1



Description:

- 2016: Reported data calibrated to 2005 levels. Reported data reflects three quarters of expected district-level reports. WHO and UNICEF are aware of an on-going Demographic and Health Survey and await final results. Estimate challenged by: D-R-
- 2015: Reported data calibrated to 2005 levels. Estimate of 79 percent changed from previous revision value of 60 percent. Estimate challenged by: D-R-
- 2014: Reported data calibrated to 2005 levels. Target population increase of 13 percent compared to 2013. Programme reports two month stock-out at national level. Estimate of 84 percent changed from previous revision value of 65 percent. Estimate challenged by: D-R-
- 2013: Reported data calibrated to 2005 levels. Estimate of 89 percent changed from previous revision value of 70 percent. Estimate challenged by: D-R-
- 2012: Reported data calibrated to 2005 levels. Estimate of 86 percent changed from previous revision value of 67 percent. Estimate challenged by: D-R-
- 2011: Reported data calibrated to 2005 levels. Administrative coverage is adjusted for vaccinations provided in the private sector. Previous surveys have consistently indicated higher coverage than administrative coverage. Estimate of 79 percent changed from previous revision value of 60 percent. Estimate challenged by: D-R-
- 2010: Reported data calibrated to 2005 levels. Public - private sector discrepancy noted by WHO and UNICEF, however, adjustment inconsistently applied across antigens. Estimate of 74 percent changed from previous revision value of 55 percent. Estimate challenged by: D-R-
- 2009: Reported data calibrated to 2005 levels. Public - private sector discrepancy noted by WHO and UNICEF, however, adjustment inconsistently applied across antigens. Estimate of 74 percent changed from previous revision value of 55 percent. Estimate challenged by: D-R-
- 2008: Reported data calibrated to 2005 levels. Estimate of 73 percent changed from previous revision value of 54 percent. Estimate challenged by: D-R-
- 2007: Reported data calibrated to 2005 levels. Estimate of 77 percent changed from previous revision value of 58 percent. Estimate challenged by: D-R-
- 2006: Reported data calibrated to 2005 levels. Estimate of 84 percent changed from previous revision value of 65 percent. Estimate challenged by: D-R-
- 2005: Survey evidence does not support reported data. Estimate based on survey results. Survey evidence of 82 percent based on 1 survey(s). Estimate of 82 percent changed from previous revision value of 63 percent. GoC=S+

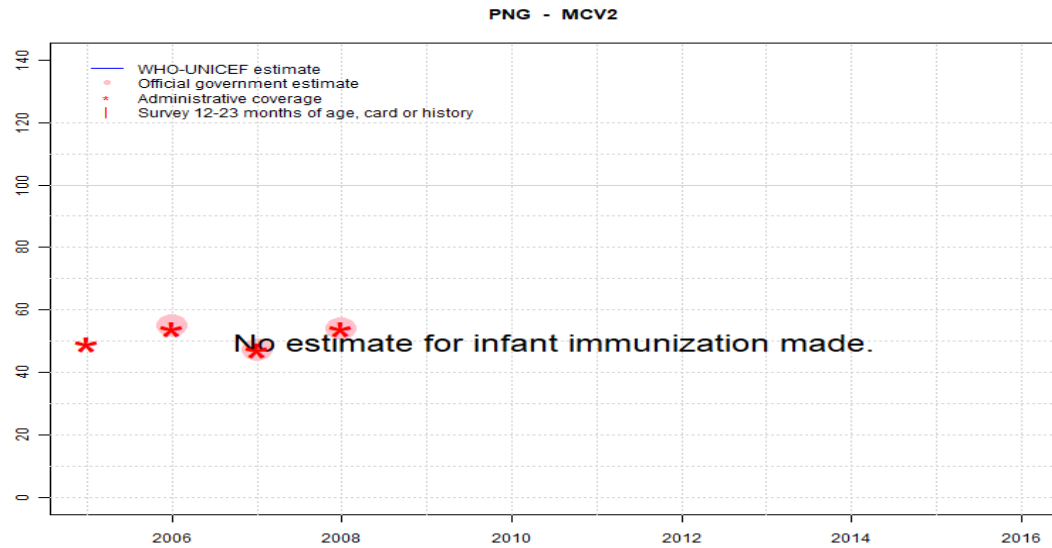
	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Estimate	82	84	77	73	74	74	79	86	89	84	79	70
Estimate GoC	••	•	•	•	•	•	•	•	•	•	•	•
Official	NA	65	58	54	58	59	60	67	70	65	60	51
Administrative	NA	64	58	58	55	55	56	64	65	61	56	47
Survey	82	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

The WHO and UNICEF estimates of national immunization coverage (wuenic) are based on data and information that are of varying, and, in some instances, unknown quality. Beginning with the 2011 revision we describe the grade of confidence (GoC) we have in these estimates. As there is no underlying probability model upon which the estimates are based, we are unable to present classical measures of uncertainty, e.g., confidence intervals. Moreover, we have chosen not to make subjective estimates of plausibility/certainty ranges around the coverage. The GoC reflects the degree of empirical support upon which the estimates are based. It is not a judgment of the quality of data reported by national authorities.

- Estimate is supported by reported data [R+], coverage recalculated with an independent denominator from the World Population Prospects: 2015 revision from the UN Population Division (D+), and at least one supporting survey within 2 years [S+]. While well supported, the estimate still carries a risk of being wrong.
- Estimate is supported by at least one data source; [R+], [S+], or [D+]; and no data source, [R-], [D-], or [S-], challenges the estimate.
- There are no directly supporting data; or data from at least one source; [R-], [D-], [S-]; challenge the estimate.

In all cases these estimates should be used with caution and should be assessed in light of the objective for which they are being used.

Papua New Guinea - MCV2



	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Estimate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Estimate GoC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Official	NA	55	47	54	NA	NA	NA	NA	NA	NA	NA	NA
Administrative	49	54	47	54	NA	NA	NA	NA	NA	NA	NA	NA
Survey	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

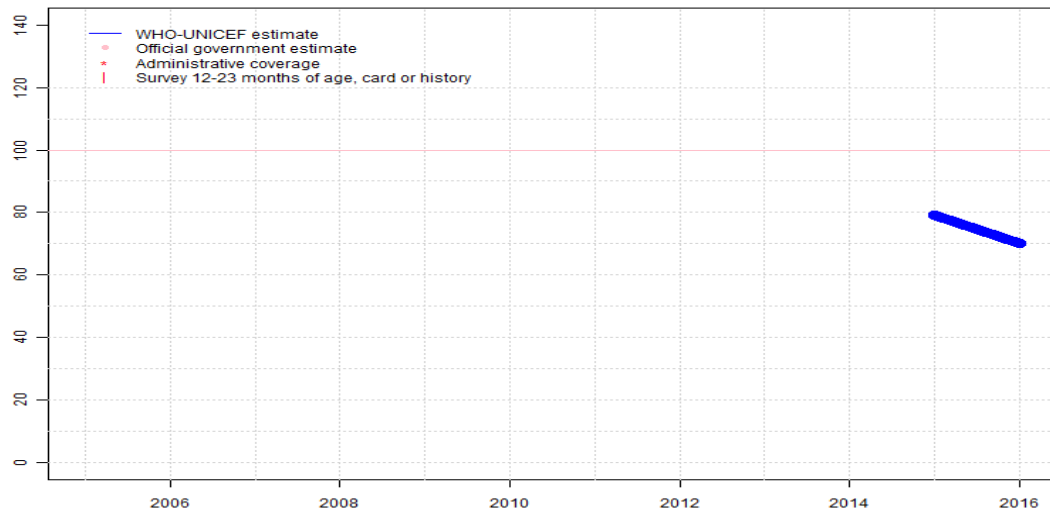
The WHO and UNICEF estimates of national immunization coverage (wuenic) are based on data and information that are of varying, and, in some instances, unknown quality. Beginning with the 2011 revision we describe the grade of confidence (GoC) we have in these estimates. As there is no underlying probability model upon which the estimates are based, we are unable to present classical measures of uncertainty, e.g., confidence intervals. Moreover, we have chosen not to make subjective estimates of plausibility/certainty ranges around the coverage. The GoC reflects the degree of empirical support upon which the estimates are based. It is not a judgment of the quality of data reported by national authorities.

- Estimate is supported by reported data [R+], coverage recalculated with an independent denominator from the World Population Prospects: 2015 revision from the UN Population Division (D+), and at least one supporting survey within 2 years [S+]. While well supported, the estimate still carries a risk of being wrong.
- Estimate is supported by at least one data source; [R+], [S+], or [D+]; and no data source, [R-], [D-], or [S-], challenges the estimate.
- There are no directly supporting data; or data from at least one source; [R-], [D-], [S-]; challenge the estimate.

In all cases these estimates should be used with caution and should be assessed in light of the objective for which they are being used.

Papua New Guinea - RCV1

PNG - RCV1



Description:

For this revision, coverage estimates for the first dose of rubella containing vaccine are based on WHO and UNICEF estimates of coverage of measles containing vaccine. Nationally reported coverage of rubella containing vaccine is not taken into consideration nor are they represented in the the accompanying graph and data table.

2016: Estimate based on estimated MCV1. Reported data reflects three quarters of expected district-level reports. WHO and UNICEF are aware of an on-going Demographic and Health Survey and await final results. Estimate challenged by: D-R-
 2015: Estimate based on estimated MCV1. Estimate challenged by: D-R-

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Estimate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	79	70
Estimate GoC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	●	●
Official	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
Survey	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

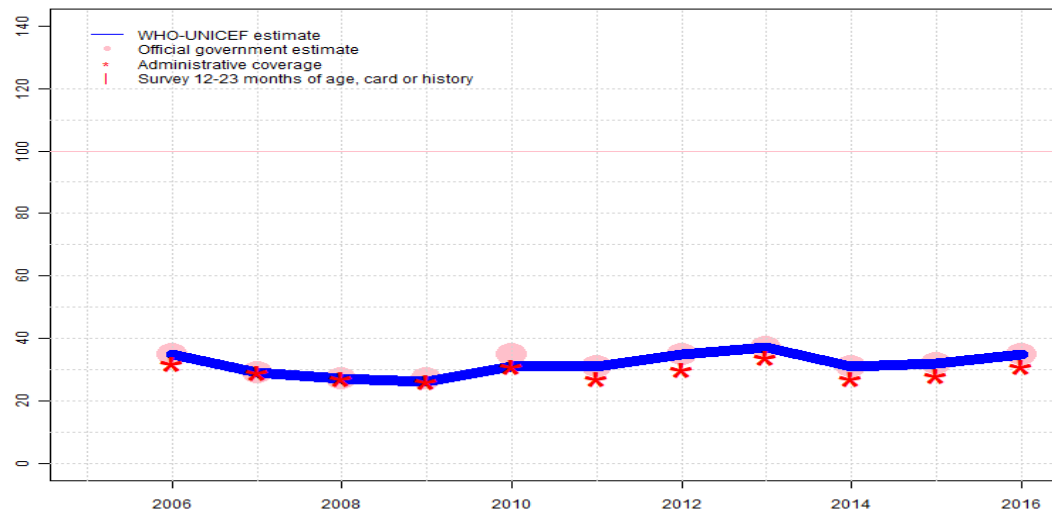
The WHO and UNICEF estimates of national immunization coverage (wuenic) are based on data and information that are of varying, and, in some instances, unknown quality. Beginning with the 2011 revision we describe the grade of confidence (GoC) we have in these estimates. As there is no underlying probability model upon which the estimates are based, we are unable to present classical measures of uncertainty, e.g., confidence intervals. Moreover, we have chosen not to make subjective estimates of plausibility/certainty ranges around the coverage. The GoC reflects the degree of empirical support upon which the estimates are based. It is not a judgment of the quality of data reported by national authorities.

- Estimate is supported by reported data [R+], coverage recalculated with an independent denominator from the World Population Prospects: 2015 revision from the UN Population Division (D+), and at least one supporting survey within 2 years [S+]. While well supported, the estimate still carries a risk of being wrong.
- Estimate is supported by at least one data source; [R+], [S+], or [D+]; and no data source, [R-], [D-], or [S-], challenges the estimate.
- There are no directly supporting data; or data from at least one source; [R-], [D-], [S-]; challenge the estimate.

In all cases these estimates should be used with caution and should be assessed in light of the objective for which they are being used.

Papua New Guinea - HepBB

PNG - HepBB



Description:

- 2016: Estimate based on coverage reported by national government. Reported data reflects three quarters of expected district-level reports. WHO and UNICEF are aware of an on-going Demographic and Health Survey and await final results. GoC=R+ D+
- 2015: Estimate based on coverage reported by national government. GoC=R+ D+
- 2014: Estimate based on coverage reported by national government. Target population increase of 13 percent compared to 2013. GoC=R+ D+
- 2013: Estimate based on coverage reported by national government. Programme reports two months stock out at national level. GoC=R+ D+
- 2012: Estimate based on coverage reported by national government. GoC=R+ D+
- 2011: Estimate based on coverage reported by national government. Administrative coverage is adjusted for vaccinations provided in the private sector. Previous surveys have consistently indicated higher coverage than administrative coverage. GoC=R+ D+
- 2010: Estimate based on reported administrative estimate. Public - private sector discrepancy noted by WHO and UNICEF, however, adjustment inconsistently applied across antigens. GoC=R+ D+
- 2009: Estimate based on reported administrative estimate. Public - private sector discrepancy noted by WHO and UNICEF, however, adjustment inconsistently applied across antigens. GoC=R+ D+
- 2008: Estimate based on coverage reported by national government. GoC=R+ D+
- 2007: Estimate based on coverage reported by national government. GoC=R+ D+
- 2006: Estimate based on coverage reported by national government. HepB birth dose estimates not available prior to 2006. GoC=R+ D+

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Estimate	NA	35	29	27	26	31	31	35	37	31	32	35
Estimate GoC	NA	••	••	••	••	••	••	••	••	••	••	••
Official	NA	35	29	27	27	35	31	35	37	31	32	35
Administrative	NA	32	29	27	26	31	27	30	34	27	28	31
Survey	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

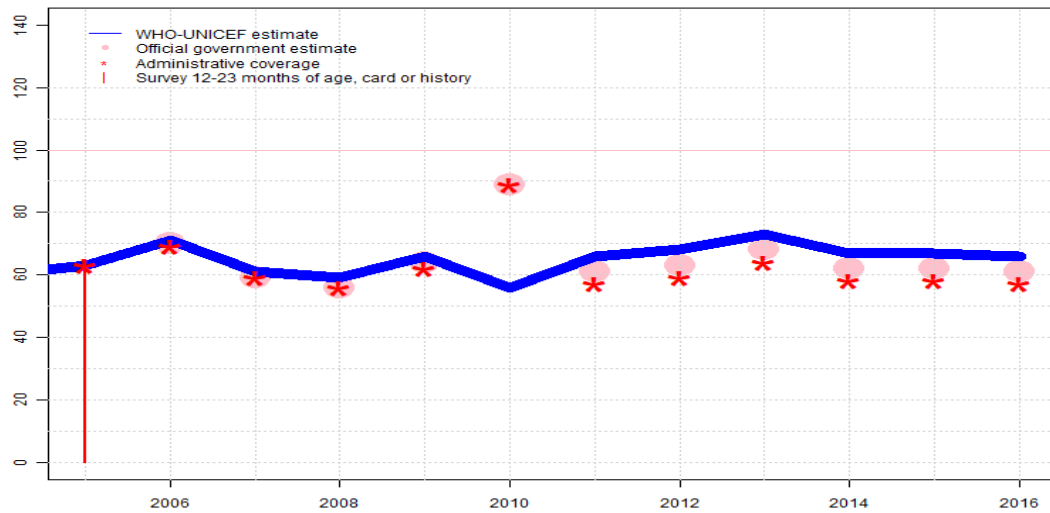
The WHO and UNICEF estimates of national immunization coverage (wuenic) are based on data and information that are of varying, and, in some instances, unknown quality. Beginning with the 2011 revision we describe the grade of confidence (GoC) we have in these estimates. As there is no underlying probability model upon which the estimates are based, we are unable to present classical measures of uncertainty, e.g., confidence intervals. Moreover, we have chosen not to make subjective estimates of plausibility/certainty ranges around the coverage. The GoC reflects the degree of empirical support upon which the estimates are based. It is not a judgment of the quality of data reported by national authorities.

- Estimate is supported by reported data [R+], coverage recalculated with an independent denominator from the World Population Prospects: 2015 revision from the UN Population Division (D+), and at least one supporting survey within 2 years [S+]. While well supported, the estimate still carries a risk of being wrong.
- Estimate is supported by at least one data source; [R+], [S+], or [D+]; and no data source, [R-], [D-], or [S-], challenges the estimate.
- There are no directly supporting data; or data from at least one source; [R-], [D-], [S-]; challenge the estimate.

In all cases these estimates should be used with caution and should be assessed in light of the objective for which they are being used.

Papua New Guinea - HepB3

PNG - HepB3



	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Estimate	63	71	61	59	66	56	66	68	73	67	67	66
Estimate GoC	●●●	●	●	●	●	●	●	●	●	●	●	●
Official	NA	70	59	56	64	89	61	63	68	62	62	61
Administrative	63	69	59	56	62	89	57	59	64	58	58	57
Survey	65	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

The WHO and UNICEF estimates of national immunization coverage (wuenic) are based on data and information that are of varying, and, in some instances, unknown quality. Beginning with the 2011 revision we describe the grade of confidence (GoC) we have in these estimates. As there is no underlying probability model upon which the estimates are based, we are unable to present classical measures of uncertainty, e.g., confidence intervals. Moreover, we have chosen not to make subjective estimates of plausibility/certainty ranges around the coverage. The GoC reflects the degree of empirical support upon which the estimates are based. It is not a judgment of the quality of data reported by national authorities.

- Estimate is supported by reported data [R+], coverage recalculated with an independent denominator from the World Population Prospects: 2015 revision from the UN Population Division (D+), and at least one supporting survey within 2 years [S+]. While well supported, the estimate still carries a risk of being wrong.
- Estimate is supported by at least one data source; [R+], [S+], or [D+]; and no data source, [R-], [D-], or [S-], challenges the estimate.
- There are no directly supporting data; or data from at least one source; [R-], [D-], [S-]; challenge the estimate.

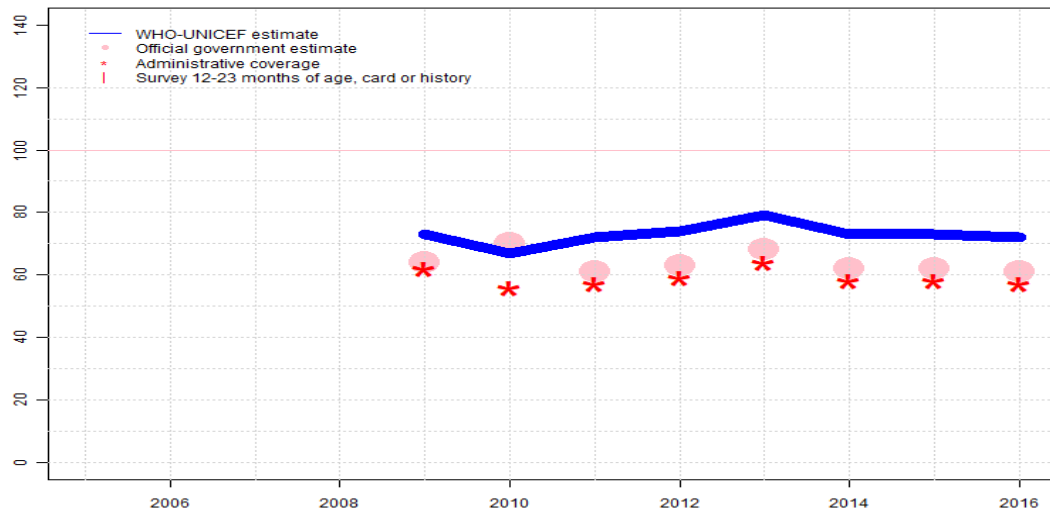
In all cases these estimates should be used with caution and should be assessed in light of the objective for which they are being used.

Description:

- 2016: Reported data calibrated to 2010 levels. Reported data reflects three quarters of expected district-level reports. WHO and UNICEF are aware of an on-going Demographic and Health Survey and await final results. Estimate challenged by: R-
- 2015: Reported data calibrated to 2010 levels. Estimate of 67 percent changed from previous revision value of 62 percent. Estimate challenged by: R-
- 2014: Reported data calibrated to 2010 levels. Target population increase of 13 percent compared to 2013. Estimate of 67 percent changed from previous revision value of 62 percent. Estimate challenged by: R-
- 2013: Reported data calibrated to 2010 levels. Estimate of 73 percent changed from previous revision value of 68 percent. Estimate challenged by: R-
- 2012: Reported data calibrated to 2010 levels. Estimate of 68 percent changed from previous revision value of 63 percent. Estimate challenged by: R-
- 2011: Reported data calibrated to 2010 levels. Administrative coverage is adjusted for vaccinations provided in the private sector. Previous surveys have consistently indicated higher coverage than administrative coverage. Estimate of 66 percent changed from previous revision value of 61 percent. Estimate challenged by: R-
- 2010: Estimate set to DTP3 level. Vaccine presentation as DTP-HepB-Hib Reported data excluded. .Reported data excluded due to an unexplained increase from 62 percent to 89 percent with decrease 61 percent. Public - private sector discrepancy noted by WHO and UNICEF, however, adjustment inconsistently applied across antigens. Estimate challenged by: D-R-
- 2009: Reported data calibrated to 2005 and 2010 levels. Public - private sector discrepancy noted by WHO and UNICEF, however, adjustment inconsistently applied across antigens. Estimate of 66 percent changed from previous revision value of 62 percent. Estimate challenged by: R-
- 2008: Reported data calibrated to 2005 and 2010 levels. Decline was the results of five months vaccine shortage. Estimate of 59 percent changed from previous revision value of 56 percent. Estimate challenged by: R-
- 2007: Reported data calibrated to 2005 and 2010 levels. Estimate of 61 percent changed from previous revision value of 59 percent. Estimate challenged by: R-
- 2006: Reported data calibrated to 2005 and 2010 levels. Estimate of 71 percent changed from previous revision value of 70 percent. Estimate challenged by: R-
- 2005: Estimate based on administrative data reported by national government supported by survey. Survey evidence of 70 percent based on 1 survey(s). Papua New guinea Demographic and Health Survey 2006 card or history results of 65 percent modified for recall bias to 70 percent based on 1st dose card or history coverage of 86 percent, 1st dose card only coverage of 65 percent and 3d dose card only coverage of 53 percent. GoC=R+ S+ D+

Papua New Guinea - Hib3

PNG - Hib3



	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Estimate	NA	NA	NA	NA	73	67	72	74	79	73	73	72
Estimate GoC	NA	NA	NA	NA	•	•	•	•	•	•	•	•
Official	NA	NA	NA	NA	64	70	61	63	68	62	62	61
Administrative	NA	NA	NA	NA	62	56	57	59	64	58	58	57
Survey	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

The WHO and UNICEF estimates of national immunization coverage (wuenic) are based on data and information that are of varying, and, in some instances, unknown quality. Beginning with the 2011 revision we describe the grade of confidence (GoC) we have in these estimates. As there is no underlying probability model upon which the estimates are based, we are unable to present classical measures of uncertainty, e.g., confidence intervals. Moreover, we have chosen not to make subjective estimates of plausibility/certainty ranges around the coverage. The GoC reflects the degree of empirical support upon which the estimates are based. It is not a judgment of the quality of data reported by national authorities.

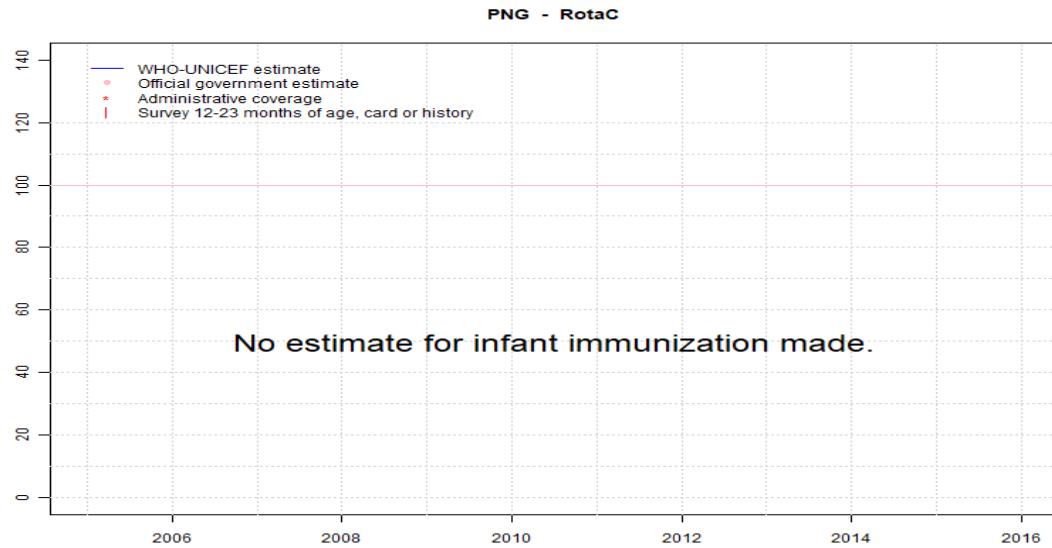
- Estimate is supported by reported data [R+], coverage recalculated with an independent denominator from the World Population Prospects: 2015 revision from the UN Population Division (D+), and at least one supporting survey within 2 years [S+]. While well supported, the estimate still carries a risk of being wrong.
- Estimate is supported by at least one data source; [R+], [S+], or [D+]; and no data source, [R-], [D-], or [S-], challenges the estimate.
- There are no directly supporting data; or data from at least one source; [R-], [D-], [S-]; challenge the estimate.

In all cases these estimates should be used with caution and should be assessed in light of the objective for which they are being used.

Description:

- 2016: Reported data calibrated to 2010 levels. Reported data reflects three quarters of expected district-level reports. WHO and UNICEF are aware of an on-going Demographic and Health Survey and await final results. Estimate challenged by: R-
- 2015: Reported data calibrated to 2010 levels. Estimate of 73 percent changed from previous revision value of 62 percent. Estimate challenged by: R-
- 2014: Reported data calibrated to 2010 levels. Target population increase of 13 percent compared to 2013. Estimate of 73 percent changed from previous revision value of 62 percent. Estimate challenged by: R-
- 2013: Reported data calibrated to 2010 levels. Estimate of 79 percent changed from previous revision value of 68 percent. Estimate challenged by: D-R-
- 2012: Reported data calibrated to 2010 levels. Estimate of 74 percent changed from previous revision value of 63 percent. Estimate challenged by: D-R-
- 2011: Reported data calibrated to 2010 levels. Administrative coverage is adjusted for vaccinations provided in the private sector. Previous surveys have consistently indicated higher coverage than administrative coverage. Estimate of 72 percent changed from previous revision value of 61 percent. Estimate challenged by: D-R-
- 2010: Estimate of 67 percent assigned by working group. Country switched to combination DTP-Hib-HepB in 2009. Vaccine presentation is DTP-HepB-Hib. Public - private sector discrepancy noted by WHO and UNICEF, however, adjustment inconsistently applied across antigens. Estimate of 67 percent changed from previous revision value of 56 percent. Estimate challenged by: R-
- 2009: Reported data calibrated to 2010 levels. Hib introduced in 2008. Reporting started in 2009. Public - private sector discrepancy noted by WHO and UNICEF, however, adjustment inconsistently applied across antigens. Estimate of 73 percent changed from previous revision value of 62 percent. Estimate challenged by: R-

Papua New Guinea - RotaC



	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Estimate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Estimate GoC	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
Administrative	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

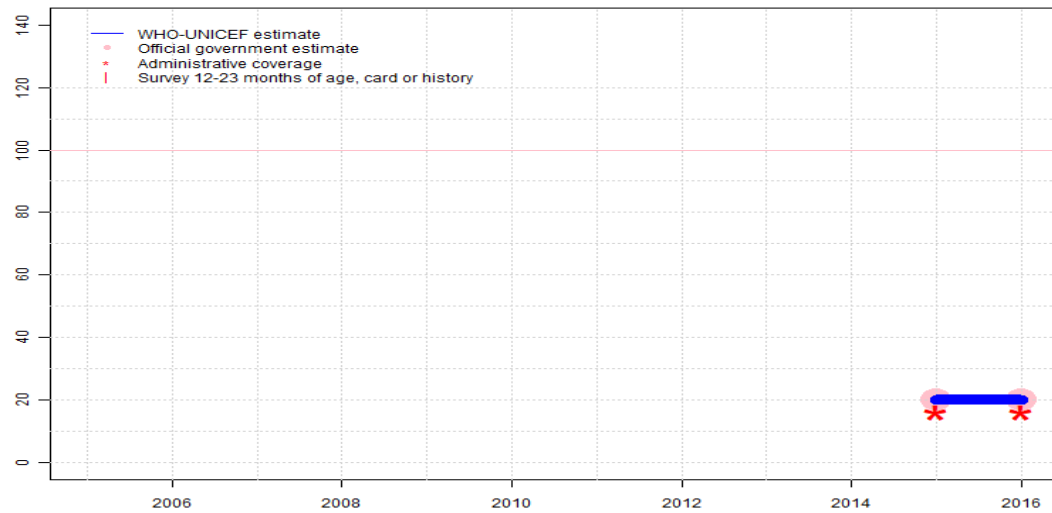
The WHO and UNICEF estimates of national immunization coverage (wuenic) are based on data and information that are of varying, and, in some instances, unknown quality. Beginning with the 2011 revision we describe the grade of confidence (GoC) we have in these estimates. As there is no underlying probability model upon which the estimates are based, we are unable to present classical measures of uncertainty, e.g., confidence intervals. Moreover, we have chosen not to make subjective estimates of plausibility/certainty ranges around the coverage. The GoC reflects the degree of empirical support upon which the estimates are based. It is not a judgment of the quality of data reported by national authorities.

- Estimate is supported by reported data [R+], coverage recalculated with an independent denominator from the World Population Prospects: 2015 revision from the UN Population Division (D+), and at least one supporting survey within 2 years [S+]. While well supported, the estimate still carries a risk of being wrong.
- Estimate is supported by at least one data source; [R+], [S+], or [D+]; and no data source, [R-], [D-], or [S-], challenges the estimate.
- There are no directly supporting data; or data from at least one source; [R-], [D-], [S-]; challenge the estimate.

In all cases these estimates should be used with caution and should be assessed in light of the objective for which they are being used.

Papua New Guinea - PcV3

PNG - PcV3



Description:

2016: Estimate based on coverage reported by national government. Reported data reflects three quarters of expected district-level reports. WHO and UNICEF are aware of an on-going Demographic and Health Survey and await final results. GoC=R+ D+

2015: Estimate based on coverage reported by national government. Pneumococcal conjugate vaccine introduced in 2013. Reporting began in 2015. GoC=R+ D+

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Estimate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	20	20
Estimate GoC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	●●	●●
Official	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	20	20
Administrative	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	16	16
Survey	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

The WHO and UNICEF estimates of national immunization coverage (wuenic) are based on data and information that are of varying, and, in some instances, unknown quality. Beginning with the 2011 revision we describe the grade of confidence (GoC) we have in these estimates. As there is no underlying probability model upon which the estimates are based, we are unable to present classical measures of uncertainty, e.g., confidence intervals. Moreover, we have chosen not to make subjective estimates of plausibility/certainty ranges around the coverage. The GoC reflects the degree of empirical support upon which the estimates are based. It is not a judgment of the quality of data reported by national authorities.

- Estimate is supported by reported data [R+], coverage recalculated with an independent denominator from the World Population Prospects: 2015 revision from the UN Population Division (D+), and at least one supporting survey within 2 years [S+]. While well supported, the estimate still carries a risk of being wrong.
- Estimate is supported by at least one data source; [R+], [S+], or [D+]; and no data source, [R-], [D-], or [S-], challenges the estimate.
- There are no directly supporting data; or data from at least one source; [R-], [D-], [S-]; challenge the estimate.

In all cases these estimates should be used with caution and should be assessed in light of the objective for which they are being used.

Papua New Guinea - survey details

2005 Papua New guinea Demographic and Health Survey 2006

Vaccine	Confirmation method	Coverage	Age cohort	Sample	Cards seen
BCG	Card	67	12-23 m	883	70
BCG	Card or History	90	12-23 m	1254	70
DTP1	Card	66	12-23 m	883	70
DTP1	Card or History	88	12-23 m	1254	70
DTP3	Card	54	12-23 m	883	70
DTP3	Card or History	67	12-23 m	1254	70
HepB1	Card	65	12-23 m	883	70
HepB1	Card or History	86	12-23 m	1254	70
HepB3	Card	53	12-23 m	883	70
HepB3	Card or History	65	12-23 m	1254	70
MCV1	Card	62	12-23 m	883	70
MCV1	Card or History	82	12-23 m	1254	70
Pol1	Card	65	12-23 m	883	70
Pol1	Card or History	87	12-23 m	1254	70
Pol3	Card	55	12-23 m	883	70
Pol3	Card or History	68	12-23 m	1254	70

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

Vaccine	Confirmation method	Coverage	Age cohort	Sample	Cards seen
BCG	Card	81	12-23 m	783	93
BCG	Card or History	90	12-23 m	783	93
BCG	History	9	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	Card	67	12-23 m	783	93
DTP3	Card or History	71	12-23 m	783	93
DTP3	History	4	12-23 m	783	93
HepB1	Card	82	12-23 m	774	93
HepB1	Card or History	88	12-23 m	774	93
HepB1	History	6	12-23 m	774	93
HepB3	Card	69	12-23 m	774	93
HepB3	Card or History	73	12-23 m	774	93
HepB3	History	4	12-23 m	774	93
MCV1	Card	72	12-23 m	776	93
MCV1	Card or History	78	12-23 m	776	93
MCV1	History	6	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	Card	64	12-23 m	776	93
Pol3	Card or History	69	12-23 m	776	93
Pol3	History	5	12-23 m	776	93

Further information and estimates for previous years are available at:

<http://www.data.unicef.org/child-health/immunization>

http://www.who.int/immunization/monitoring_surveillance/routine/coverage/en/index4.html