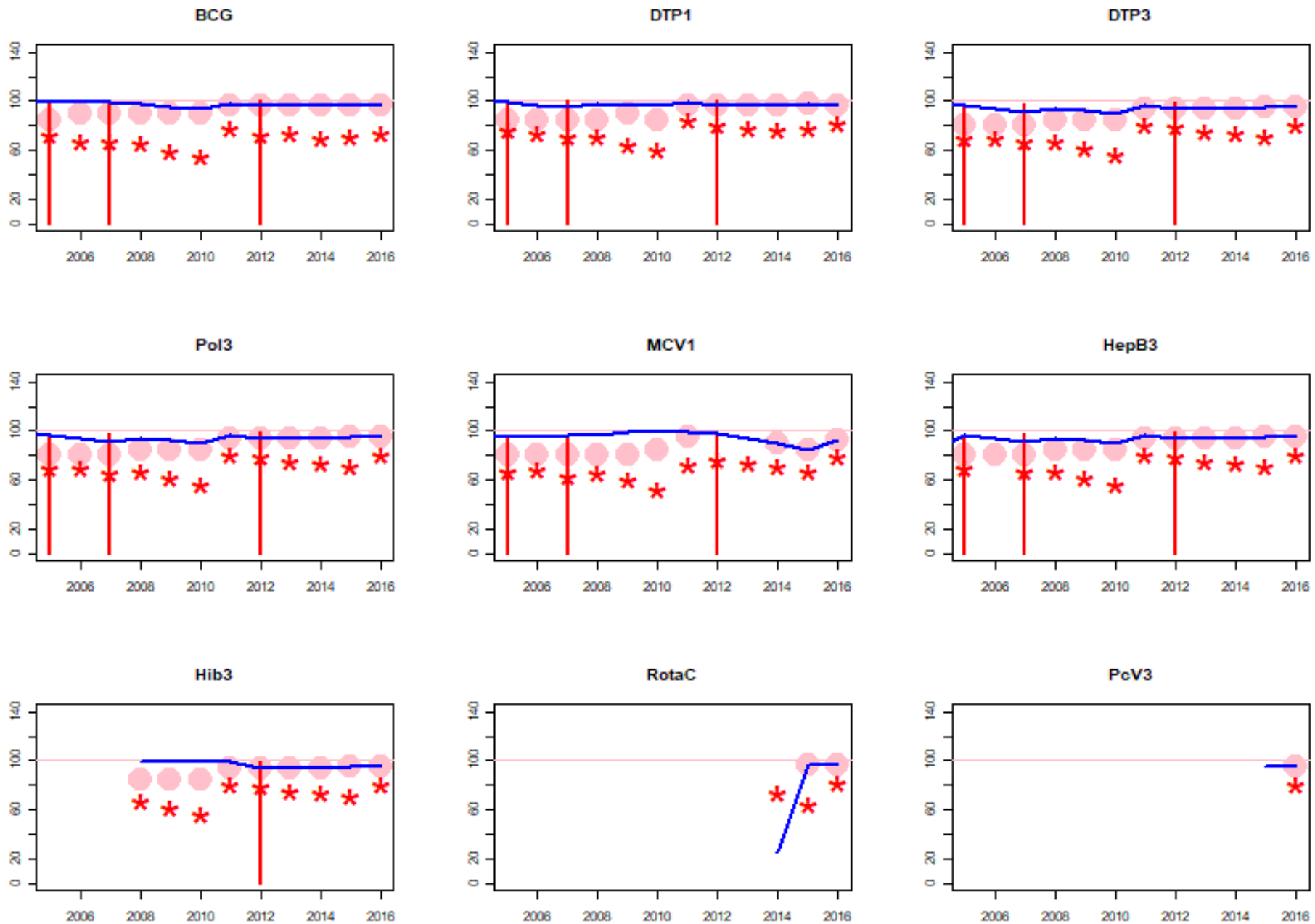


Eritrea: WHO and UNICEF estimates of immunization coverage: 2016 revision



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.

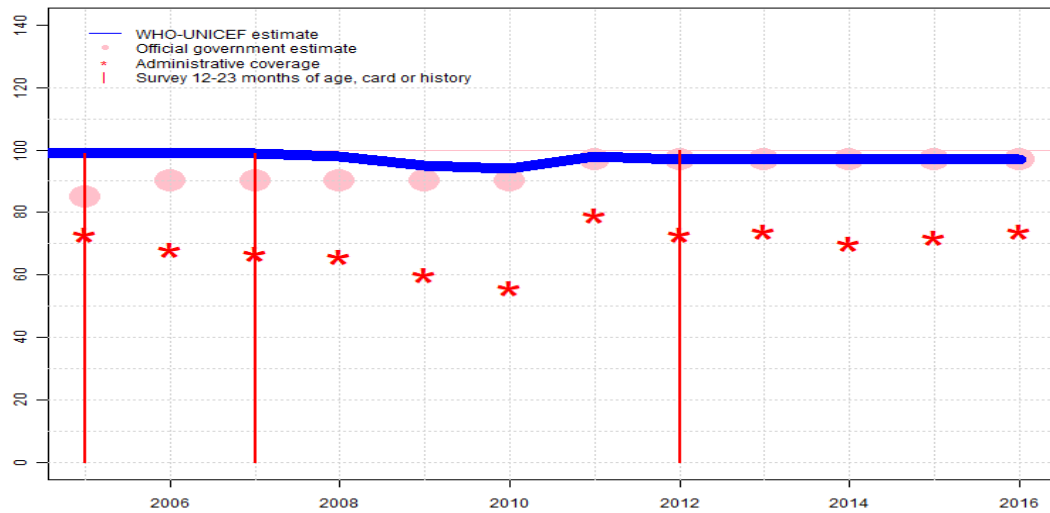
PcV3: percentage of surviving infants who received the 3rd dose of pneumococcal conjugate vaccine. In countries where the national schedule recommends two doses during infancy and a booster dose at 12 months or later based on the epidemiology of disease in the country, coverage estimates may reflect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

ERI - BCG



Description:

2016: Estimate based on coverage reported by national government. Since 2013 the official coverage estimates are based on EPI coverage survey conducted in 2013. WHO and UNICEF recommend continued assessment and improvement in routine monitoring system. WHO and UNICEF are aware of EPI coverage survey conducted in 2017 and awaiting for the final survey 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. Estimate challenged by: D-

2013: Estimate based on coverage reported by national government. Estimate challenged by: D-

2012: Estimate based on coverage reported by national government supported by survey. Survey evidence of 100 percent based on 1 survey(s). Estimate challenged by: D-

2011: Reported data calibrated to 2007 and 2012 levels. Estimate challenged by: D-R-

2010: Reported data calibrated to 2007 and 2012 levels. Estimate challenged by: D-R-

2009: Reported data calibrated to 2007 and 2012 levels. Estimate challenged by: D-R-

2008: Reported data calibrated to 2007 and 2012 levels. Estimate challenged by: D-R-

2007: Estimate of 99 percent assigned by working group. Estimate based on survey result which does not support reported level of coverage for other antigens. Estimate challenged by: D-R-

2006: Reported data calibrated to 2005 and 2007 levels. Estimate challenged by: D-R-

2005: Survey evidence does not support reported data. Estimate based on survey results. Survey evidence of 99 percent based on 1 survey(s). Estimate challenged by: D-R-

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Estimate	99	99	99	98	95	94	98	97	97	97	97	97
Estimate GoC	●	●	●	●	●	●	●	●	●	●	●	●
Official	85	90	90	90	90	90	97	97	97	97	97	97
Administrative	73	68	67	66	60	56	79	73	74	70	72	74
Survey	99	NA	99	NA	NA	NA	NA	100	NA	NA	NA	NA

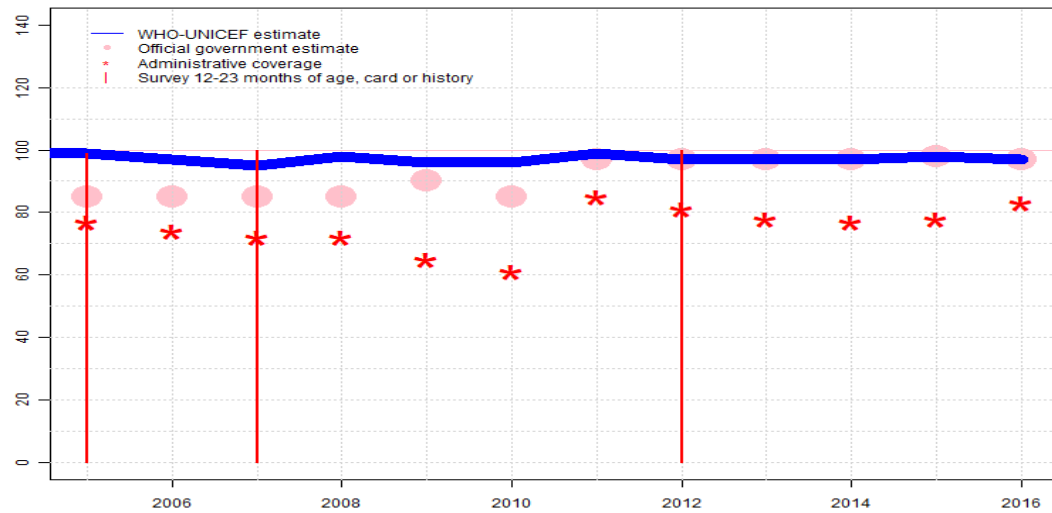
The WHO and UNICEF estimates of national immunization coverage (wuenic) are based on data and information that are of varying, and, in some instances, unknown quality. Beginning with the 2011 revision we describe the grade of confidence (GoC) we have in these estimates. As there is no underlying probability 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.

Eritrea - DTP1

ERI - DTP1



Description:

- 2016: Estimate based on coverage reported by national government. Since 2013 the official coverage estimates are based on EPI coverage survey conducted in 2013. WHO and UNICEF recommend continued assessment and improvement in routine monitoring system. WHO and UNICEF are aware of EPI coverage survey conducted in 2017 and awaiting for the final survey 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. Estimate challenged by: D-
- 2013: Estimate based on coverage reported by national government. Estimate challenged by: D-
- 2012: Estimate based on coverage reported by national government supported by survey. Survey evidence of 100 percent based on 1 survey(s). Estimate challenged by: D-
- 2011: Reported data calibrated to 2005 and 2012 levels. Estimate challenged by: D-R-
- 2010: DTP1 coverage estimated based on DTP3 coverage of 90. Estimate challenged by: D-R-
- 2009: Reported data calibrated to 2005 and 2012 levels. Estimate challenged by: D-R-
- 2008: DTP1 coverage estimated based on DTP3 coverage of 94. Estimate challenged by: D-R-
- 2007: Reported data calibrated to 2005 and 2012 levels. Estimate challenged by: D-R-
- 2006: Reported data calibrated to 2005 and 2012 levels. Estimate challenged by: D-R-
- 2005: Survey evidence does not support reported data. Estimate based on survey results. Survey evidence of 99 percent based on 1 survey(s). Estimate challenged by: D-R-

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Estimate	99	97	95	98	96	96	99	97	97	97	98	97
Estimate GoC	●	●	●	●	●	●	●	●	●	●	●	●
Official	85	85	85	85	90	85	97	97	97	97	98	97
Administrative	77	74	72	72	65	61	85	81	78	77	78	83
Survey	99	NA	100	NA	NA	NA	NA	100	NA	NA	NA	NA

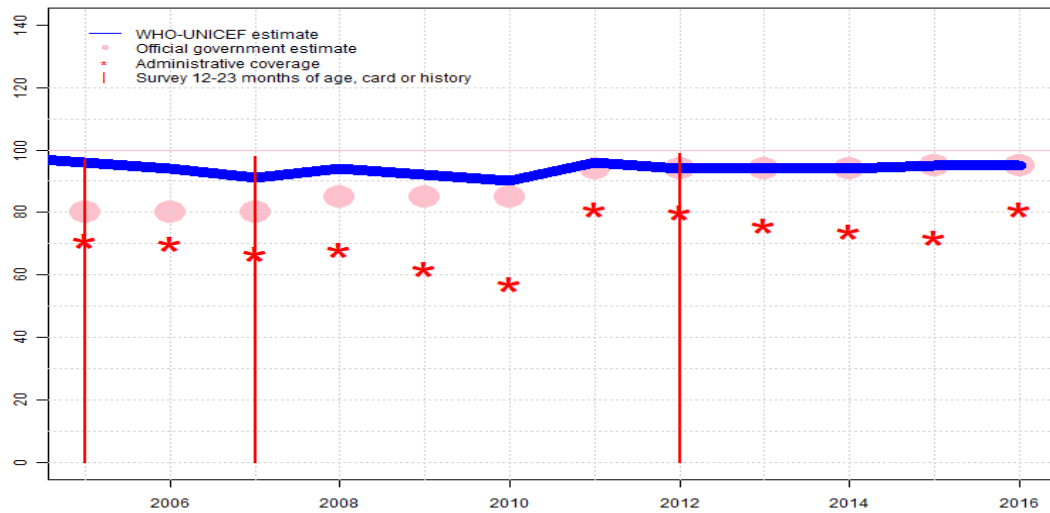
The WHO and UNICEF estimates of national immunization coverage (wuenic) are based on data and information that are of varying, and, in some instances, unknown quality. Beginning with the 2011 revision we describe the grade of confidence (GoC) we have in these estimates. As there is no underlying probability 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.

Eritrea - DTP3

ERI - DTP3



	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Estimate	96	94	91	94	92	90	96	94	94	94	95	95
Estimate GoC	●	●	●	●	●	●	●	●	●	●	●	●
Official	80	80	80	85	85	85	94	94	94	94	95	95
Administrative	71	70	67	68	62	57	81	80	76	74	72	81
Survey	97	NA	98	NA	NA	NA	NA	99	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.

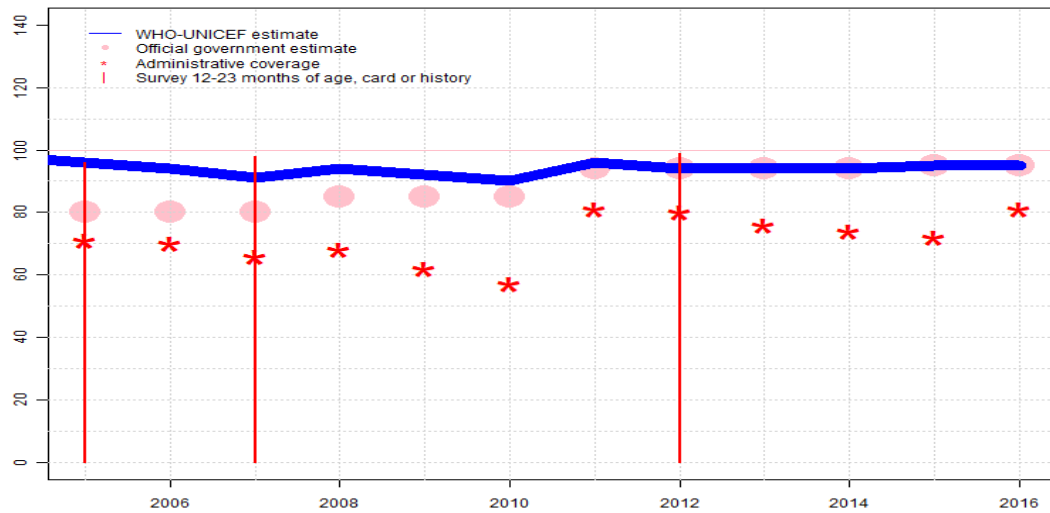
In all cases these estimates should be used with caution and should be assessed in light of the objective for which they are being used.

Description:

- 2016: Estimate based on coverage reported by national government. Since 2013 the official coverage estimates are based on EPI coverage survey conducted in 2013. WHO and UNICEF recommend continued assessment and improvement in routine monitoring system. WHO and UNICEF are aware of EPI coverage survey conducted in 2017 and awaiting for the final survey 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. Estimate challenged by: D-
- 2013: Estimate based on coverage reported by national government. Estimate challenged by: D-
- 2012: Estimate based on coverage reported by national government supported by survey. Survey evidence of 99 percent based on 1 survey(s). Estimate challenged by: D-
- 2011: Reported data calibrated to 2005 and 2012 levels. Estimate challenged by: D-R-
- 2010: Reported data calibrated to 2005 and 2012 levels. Estimate challenged by: D-R-
- 2009: Reported data calibrated to 2005 and 2012 levels. Estimate challenged by: D-R-
- 2008: Reported data calibrated to 2005 and 2012 levels. Estimate challenged by: D-R-
- 2007: Reported data calibrated to 2005 and 2012 levels. Estimate challenged by: D-R-
- 2006: Reported data calibrated to 2005 and 2012 levels. Estimate challenged by: D-R-
- 2005: Survey evidence does not support reported data. Estimate based on survey results. Survey evidence of 96 percent based on 1 survey(s). Eritrea Routine Immunization Coverage Survey 2006 card or history results of 97 percent modified for recall bias to 96 percent based on 1st dose card or history coverage of 99 percent, 1st dose card only coverage of 88 percent and 3d dose card only coverage of 85 percent. Estimate challenged by: D-R-

Eritrea - Pol3

ERI - Pol3



Description:

- 2016: Estimate based on coverage reported by national government. Since 2013 the official coverage estimates are based on EPI coverage survey conducted in 2013. WHO and UNICEF recommend continued assessment and improvement in routine monitoring system. WHO and UNICEF are aware of EPI coverage survey conducted in 2017 and awaiting for the final survey 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. Estimate challenged by: D-
- 2013: Estimate based on coverage reported by national government. Estimate challenged by: D-
- 2012: Estimate based on coverage reported by national government supported by survey. Survey evidence of 99 percent based on 1 survey(s). Estimate challenged by: D-
- 2011: Reported data calibrated to 2005 and 2012 levels. Estimate challenged by: D-R-
- 2010: Reported data calibrated to 2005 and 2012 levels. Estimate challenged by: D-R-
- 2009: Reported data calibrated to 2005 and 2012 levels. Estimate challenged by: D-R-
- 2008: Reported data calibrated to 2005 and 2012 levels. Estimate challenged by: D-R-
- 2007: Reported data calibrated to 2005 and 2012 levels. Estimate challenged by: D-R-
- 2006: Reported data calibrated to 2005 and 2012 levels. Estimate challenged by: D-R-
- 2005: Survey evidence does not support reported data. Estimate based on survey results. Survey evidence of 96 percent based on 1 survey(s). Estimate challenged by: D-R-

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Estimate	96	94	91	94	92	90	96	94	94	94	95	95
Estimate GoC	•	•	•	•	•	•	•	•	•	•	•	•
Official	80	80	80	85	85	85	94	94	94	94	95	95
Administrative	71	70	66	68	62	57	81	80	76	74	72	81
Survey	96	NA	98	NA	NA	NA	NA	99	NA	NA	NA	NA

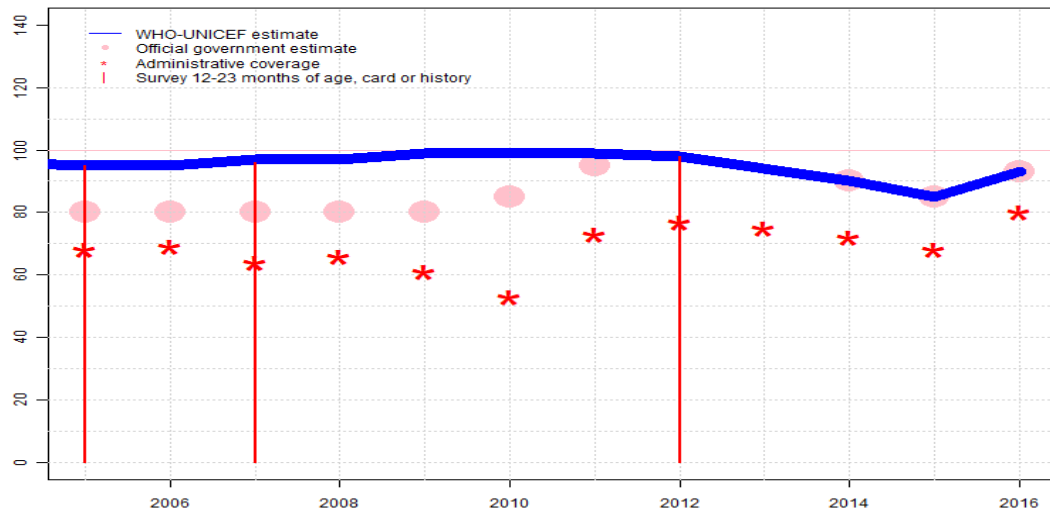
The WHO and UNICEF estimates of national immunization coverage (wuenic) are based on data and information that are of varying, and, in some instances, unknown quality. Beginning with the 2011 revision we describe the grade of confidence (GoC) we have in these estimates. As there is no underlying probability 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.

Eritrea - MCV1

ERI - MCV1



Description:

- 2016: Estimate based on coverage reported by national government. Since 2013 the official coverage estimates are based on EPI coverage survey conducted in 2013. WHO and UNICEF recommend continued assessment and improvement in routine monitoring system. WHO and UNICEF are aware of EPI coverage survey conducted in 2017 and awaiting for the final survey results. Estimate challenged by: D-
- 2015: Estimate based on coverage reported by national government. Estimate challenged by: D-
- 2014: Vaccine to vaccine consistency. Estimate challenged by: D-
- 2013: Reported data calibrated to 2012 and 2014 levels. Reported data excluded. . Estimate challenged by: D-R-
- 2012: Survey evidence does not support reported data. Estimate based on survey results. Survey evidence of 98 percent based on 1 survey(s). Estimate challenged by: D-R-
- 2011: Reported data calibrated to 2005 and 2012 levels. Estimate challenged by: D-R-S-
- 2010: Reported data calibrated to 2005 and 2012 levels. Estimate challenged by: D-R-
- 2009: Reported data calibrated to 2005 and 2012 levels. Estimate challenged by: D-R-
- 2008: Reported data calibrated to 2005 and 2012 levels. Estimate challenged by: D-R-
- 2007: Reported data calibrated to 2005 and 2012 levels. Estimate challenged by: D-R-
- 2006: Reported data calibrated to 2005 and 2012 levels. Estimate challenged by: D-R-
- 2005: Survey evidence does not support reported data. Estimate based on survey results. Survey evidence of 95 percent based on 1 survey(s). Estimate challenged by: D-R-

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Estimate	95	95	97	97	99	99	99	98	94	90	85	93
Estimate GoC	•	•	•	•	•	•	•	•	•	•	•	•
Official	80	80	80	80	80	85	95	NA	NA	90	85	93
Administrative	68	69	64	66	61	53	73	77	75	72	68	80
Survey	95	NA	96	NA	NA	NA	NA	98	NA	NA	NA	NA

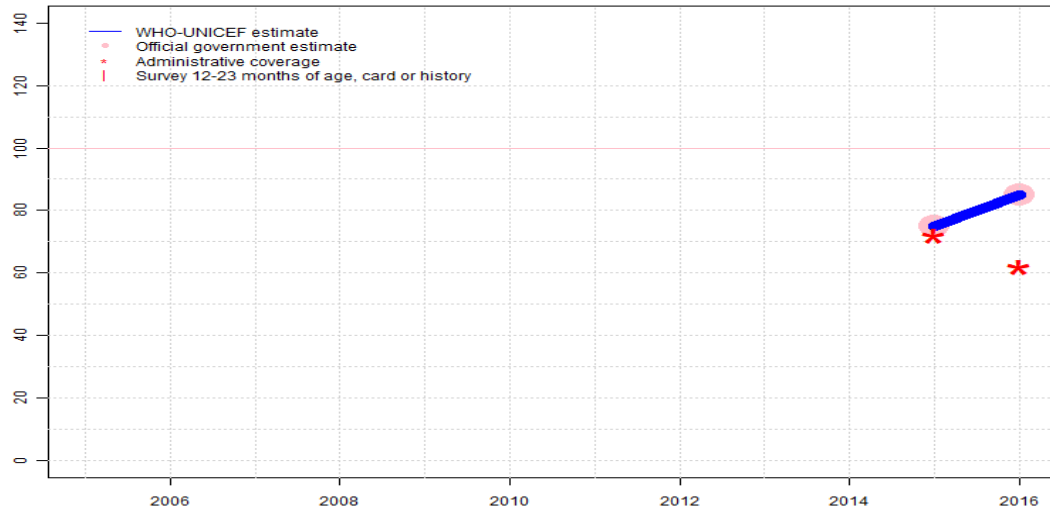
The WHO and UNICEF estimates of national immunization coverage (wuenic) are based on data and information that are of varying, and, in some instances, unknown quality. Beginning with the 2011 revision we describe the grade of confidence (GoC) we have in these estimates. As there is no underlying probability 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.

Eritrea - MCV2

ERI - MCV2



Description:

Coverage estimates for the second dose of measles containing vaccine are for children by the nationally recommended age.

2016: Estimate based on coverage reported by national government. Since 2013 the official coverage estimates are based on EPI coverage survey conducted in 2013. WHO and UNICEF recommend continued assessment and improvement in routine monitoring system. WHO and UNICEF are aware of EPI coverage survey conducted in 2017 and awaiting for the final survey results. Estimate challenged by: D-

2015: Estimate based on coverage reported by national government. GoC=Assigned by working group. Second dose of MCV introduced in July 2012. Reporting began in 2015.

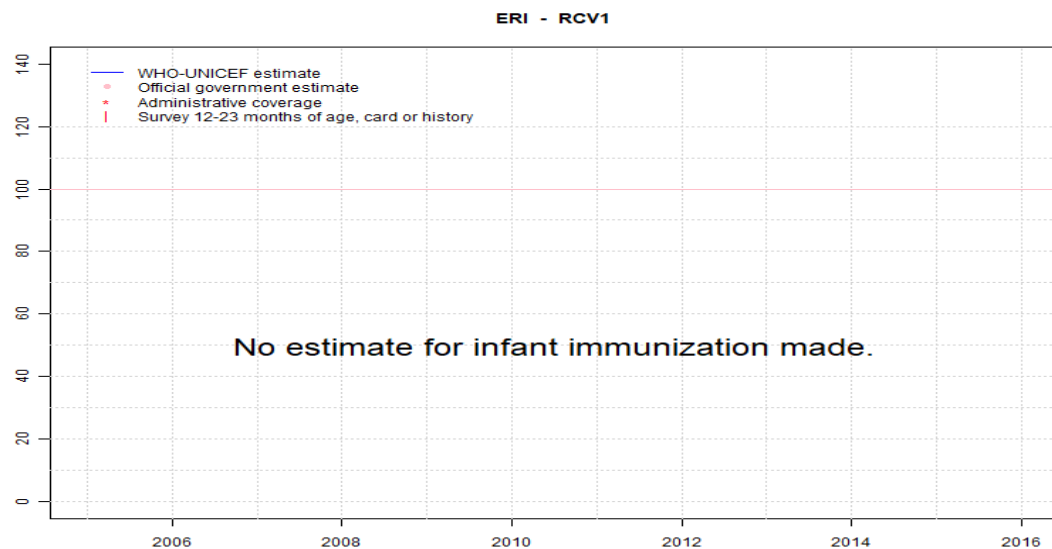
	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Estimate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	75	85
Estimate GoC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	●	●
Official	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	75	85
Administrative	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	72	62
Survey	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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.

Eritrea - RCV1



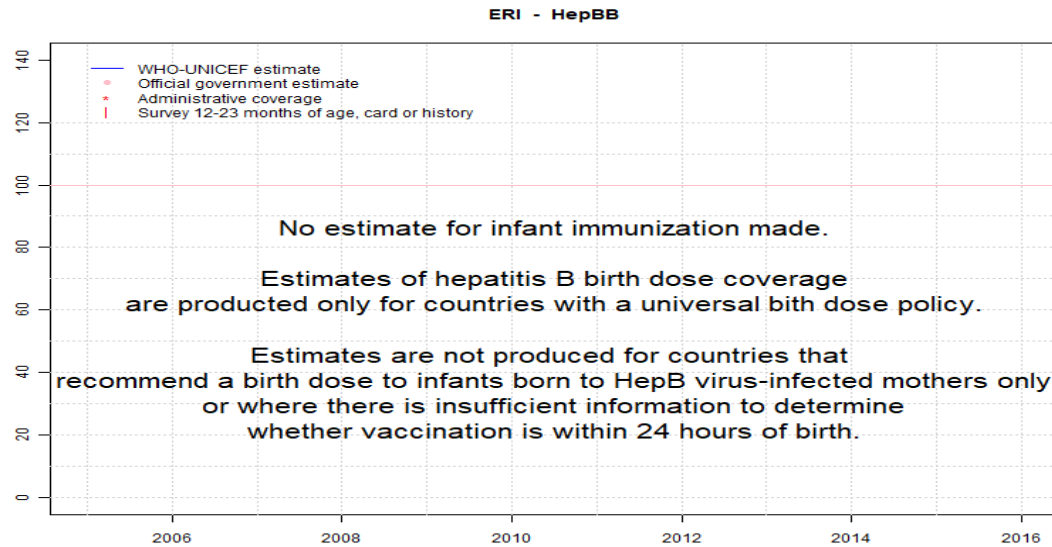
	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Estimate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Estimate GoC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Official	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Administrative	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Survey	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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.

Eritrea - HepBB



	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

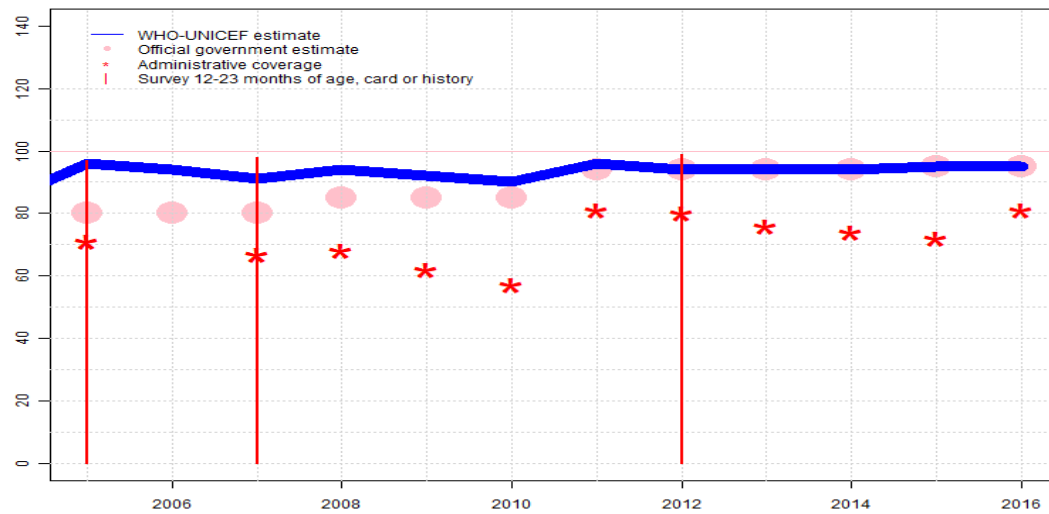
The WHO and UNICEF estimates of national immunization coverage (wuenic) are based on data and information that are of varying, and, in some instances, unknown quality. Beginning with the 2011 revision we describe the grade of confidence (GoC) we have in these estimates. As there is no underlying probability 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.

Eritrea - HepB3

ERI - HepB3



Description:

- 2016: Estimate based on coverage reported by national government. Since 2013 the official coverage estimates are based on EPI coverage survey conducted in 2013. WHO and UNICEF recommend continued assessment and improvement in routine monitoring system. WHO and UNICEF are aware of EPI coverage survey conducted in 2017 and awaiting for the final survey 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. Estimate challenged by: D-
- 2013: Estimate based on coverage reported by national government. Estimate challenged by: D-
- 2012: Estimate based on coverage reported by national government supported by survey. Survey evidence of 99 percent based on 1 survey(s). Estimate challenged by: D-
- 2011: Reported data calibrated to 2005 and 2012 levels. Estimate challenged by: D-R-
- 2010: Reported data calibrated to 2005 and 2012 levels. Estimate challenged by: D-R-
- 2009: Reported data calibrated to 2005 and 2012 levels. Estimate challenged by: D-R-
- 2008: Reported data calibrated to 2005 and 2012 levels. Estimate challenged by: D-R-
- 2007: Reported data calibrated to 2005 and 2012 levels. Estimate challenged by: D-R-
- 2006: Reported data calibrated to 2005 and 2012 levels. Estimate challenged by: D-R-
- 2005: Survey evidence does not support reported data. Estimate based on survey results. Survey evidence of 96 percent based on 1 survey(s). Eritrea Routine Immunization Coverage Survey 2006 card or history results of 97 percent modified for recall bias to 96 percent based on 1st dose card or history coverage of 99 percent, 1st dose card only coverage of 88 percent and 3d dose card only coverage of 85 percent. Estimate challenged by: D-R-

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Estimate	96	94	91	94	92	90	96	94	94	94	95	95
Estimate GoC	•	•	•	•	•	•	•	•	•	•	•	•
Official	80	80	80	85	85	85	94	94	94	94	95	95
Administrative	71	NA	67	68	62	57	81	80	76	74	72	81
Survey	97	NA	98	NA	NA	NA	NA	99	NA	NA	NA	NA

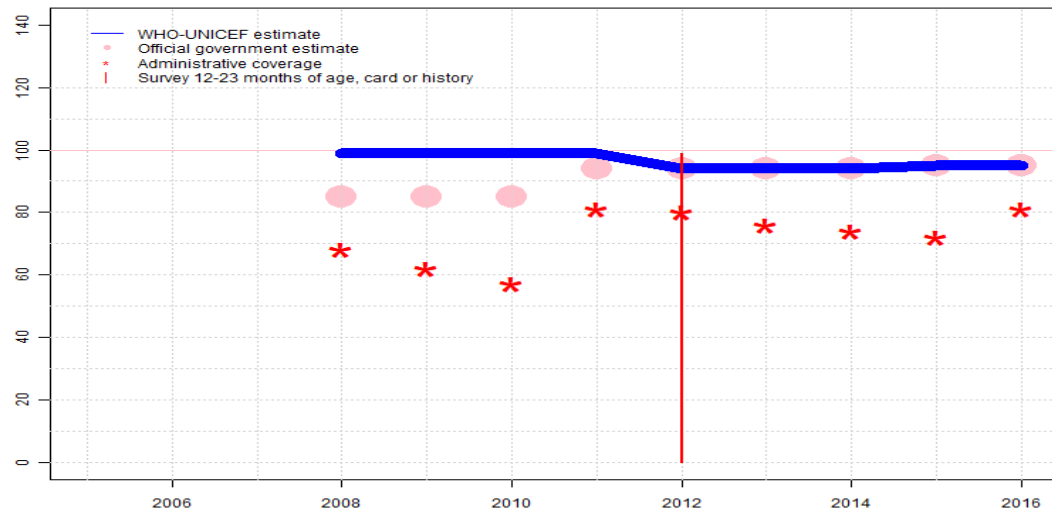
The WHO and UNICEF estimates of national immunization coverage (wuenic) are based on data and information that are of varying, and, in some instances, unknown quality. Beginning with the 2011 revision we describe the grade of confidence (GoC) we have in these estimates. As there is no underlying probability 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.

Eritrea - Hib3

ERI - Hib3



Description:

- 2016: Estimate based on coverage reported by national government. Since 2013 the official coverage estimates are based on EPI coverage survey conducted in 2013. WHO and UNICEF recommend continued assessment and improvement in routine monitoring system. WHO and UNICEF are aware of EPI coverage survey conducted in 2017 and awaiting for the final survey 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. Estimate challenged by: D-
- 2013: Estimate based on coverage reported by national government. Estimate challenged by: D-
- 2012: Estimate based on coverage reported by national government supported by survey. Survey evidence of 99 percent based on 1 survey(s). Estimate challenged by: D-
- 2011: Estimate follows DTP3 coverage. Estimate challenged by: D-R-
- 2010: Estimate follows DTP3 coverage. Estimate challenged by: D-R-
- 2009: Estimate follows DTP3 coverage. Estimate challenged by: D-R-
- 2008: Estimate follows DTP3 coverage. Hib vaccine introduced in 2008. Vaccine presentation is DTP-HepB-Hib. Estimate challenged by: D-R-

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Estimate	NA	NA	NA	99	99	99	99	94	94	94	95	95
Estimate GoC	NA	NA	NA	•	•	•	•	•	•	•	•	•
Official	NA	NA	NA	85	85	85	94	94	94	94	95	95
Administrative	NA	NA	NA	68	62	57	81	80	76	74	72	81
Survey	NA	NA	NA	NA	NA	NA	NA	99	NA	NA	NA	NA

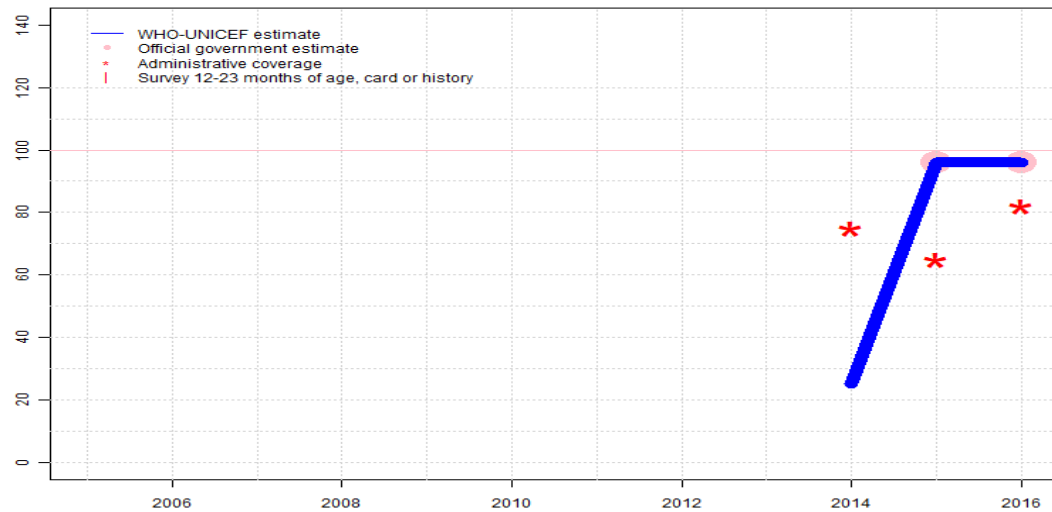
The WHO and UNICEF estimates of national immunization coverage (wuenic) are based on data and information that are of varying, and, in some instances, unknown quality. Beginning with the 2011 revision we describe the grade of confidence (GoC) we have in these estimates. As there is no underlying probability 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.

Eritrea - RotaC

ERI - RotaC



Description:

2016: Estimate based on coverage reported by national government. Since 2013 the official coverage estimates are based on EPI coverage survey conducted in 2013. WHO and UNICEF recommend continued assessment and improvement in routine monitoring system. WHO and UNICEF are aware of EPI coverage survey conducted in 2017 and awaiting for the final survey results. Estimate challenged by: D-

2015: Estimate based on coverage reported by national government. Programme reports one month national level stock-out. Estimate challenged by: D-

2014: Rotavirus vaccine introduced during July 2014. National programme achieved 75 percent coverage in one-third of the national target population. WHO and UNICEF estimate reflects annualized coverage in the national target population. Estimate challenged by: R-

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Estimate	NA	NA	NA	NA	NA	NA	NA	NA	NA	25	96	96
Estimate GoC	NA	NA	NA	NA	NA	NA	NA	NA	NA	•	•	•
Official	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	96	96
Administrative	NA	NA	NA	NA	NA	NA	NA	NA	NA	75	65	82
Survey	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

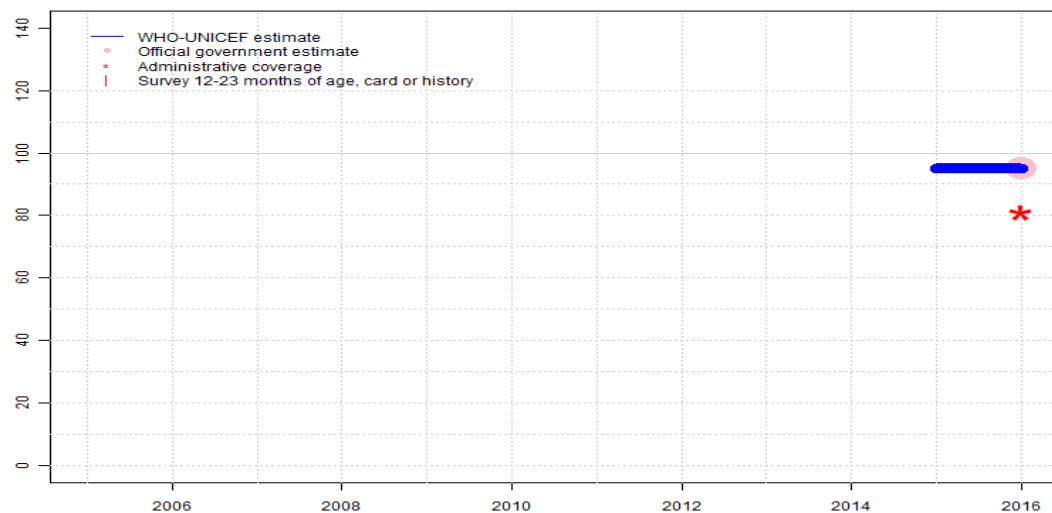
The WHO and UNICEF estimates of national immunization coverage (wuenic) are based on data and information that are of varying, and, in some instances, unknown quality. Beginning with the 2011 revision we describe the grade of confidence (GoC) we have in these estimates. As there is no underlying probability 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.

Eritrea - PcV3

ERI - PcV3



Description:

2016: Estimate based on coverage reported by national government. Since 2013 the official coverage estimates are based on EPI coverage survey conducted in 2013. WHO and UNICEF recommend continued assessment and improvement in routine monitoring system. WHO and UNICEF are aware of EPI coverage survey conducted in 2017 and awaiting for the final survey results. Estimate challenged by: D-

2015: Estimate based on extrapolation from data reported by national government. GoC=No accepted empirical data

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Estimate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	95	95
Estimate GoC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	●	●
Official	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	95
Administrative	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	81
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.

Eritrea - survey details

2012 2013 National EPI Coverage Survey

Vaccine	Confirmation method	Coverage	Age cohort	Sample	Cards seen
BCG	Card	94	12-23 m	-	94
BCG	Card or History	100	12-23 m	1762	94
DTP1	Card	94	12-23 m	-	94
DTP1	Card or History	100	12-23 m	1762	94
DTP3	Card	93	12-23 m	-	94
DTP3	Card or History	99	12-23 m	1762	94
HepB1	Card	94	12-23 m	-	94
HepB1	Card or History	100	12-23 m	1762	94
HepB3	Card	93	12-23 m	-	94
HepB3	Card or History	99	12-23 m	1762	94
Hib1	Card	94	12-23 m	-	94
Hib1	Card or History	100	12-23 m	1762	94
Hib3	Card	93	12-23 m	-	94
Hib3	Card or History	99	12-23 m	1762	94
MCV1	Card	91	12-23 m	-	94
MCV1	Card or History	98	12-23 m	1762	94
Pol1	Card	94	12-23 m	-	94
Pol1	Card or History	100	12-23 m	1762	94
Pol3	Card	93	12-23 m	-	94
Pol3	Card or History	99	12-23 m	1762	94

2007 Eritrea EPI Coverage Survey 2009

Vaccine	Confirmation method	Coverage	Age cohort	Sample	Cards seen
BCG	Card	84	23-34 m	1775	86
BCG	Card or History	99	23-34 m	1775	86
DTP1	Card	85	23-34 m	1775	86
DTP1	Card or History	100	23-34 m	1775	86
DTP3	Card	83	23-34 m	1775	86
DTP3	Card or History	98	23-34 m	1775	86
HepB1	Card	85	23-34 m	1775	86
HepB1	Card or History	100	23-34 m	1775	86
HepB3	Card	83	23-34 m	1775	86
HepB3	Card or History	98	23-34 m	1775	86
MCV1	Card	75	23-34 m	1775	86

MCV1	Card or History	96	23-34 m	1775	86
Pol1	Card	84	23-34 m	1775	86
Pol1	Card or History	99	23-34 m	1775	86
Pol3	Card	83	23-34 m	1775	86
Pol3	Card or History	98	23-34 m	1775	86

2005 Eritrea Routine Immunization Coverage Survey 2006

Vaccine	Confirmation method	Coverage	Age cohort	Sample	Cards seen
BCG	Card	87	12-23 m	630	88
BCG	Card or History	99	12-23 m	630	88
DTP1	Card	88	12-23 m	630	88
DTP1	Card or History	99	12-23 m	630	88
DTP3	Card	85	12-23 m	630	88
DTP3	Card or History	97	12-23 m	630	88
HepB1	Card	88	12-23 m	630	88
HepB1	Card or History	99	12-23 m	630	88
HepB3	Card	85	12-23 m	630	88
HepB3	Card or History	97	12-23 m	630	88
MCV1	Card	82	12-23 m	630	88
MCV1	Card or History	95	12-23 m	630	88
Pol1	Card	88	12-23 m	630	88
Pol1	Card or History	99	12-23 m	630	88
Pol3	Card	85	12-23 m	630	88
Pol3	Card or History	96	12-23 m	630	88

2001 Eritrea Demographic and Health Survey 2002

Vaccine	Confirmation method	Coverage	Age cohort	Sample	Cards seen
BCG	C or H <12 months	89	12-23 m	959	77
BCG	Card	76	12-23 m	959	77
BCG	Card or History	91	12-23 m	959	77
BCG	History	15	12-23 m	959	77
DTP1	C or H <12 months	88	12-23 m	959	77
DTP1	Card	76	12-23 m	959	77
DTP1	Card or History	91	12-23 m	959	77
DTP1	History	14	12-23 m	959	77

Eritrea - survey details

DTP3	C or H <12 months	79	12-23 m	959	77
DTP3	Card	72	12-23 m	959	77
DTP3	Card or History	83	12-23 m	959	77
DTP3	History	11	12-23 m	959	77
MCV1	C or H <12 months	76	12-23 m	959	77
MCV1	Card	71	12-23 m	959	77
MCV1	Card or History	84	12-23 m	959	77
MCV1	History	13	12-23 m	959	77
Pol1	C or H <12 months	91	12-23 m	959	77
Pol1	Card	76	12-23 m	959	77
Pol1	Card or History	94	12-23 m	959	77
Pol1	History	18	12-23 m	959	77
Pol3	C or H <12 months	79	12-23 m	959	77
Pol3	Card	72	12-23 m	959	77

Pol3	Card or History	83	12-23 m	959	77
Pol3	History	11	12-23 m	959	77

1999 Eritrea EPI Coverage Survey Report 2000

Vaccine	Confirmation method	Coverage	Age cohort	Sample	Cards seen
BCG	Card or History	98	12-23 m	647	92
DTP1	Card or History	97	12-23 m	647	92
DTP3	Card or History	93	12-23 m	647	92
MCV1	Card or History	88	12-23 m	647	92
Pol1	Card or History	97	12-23 m	647	92
Pol3	Card or History	93	12-23 m	647	92

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