

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.

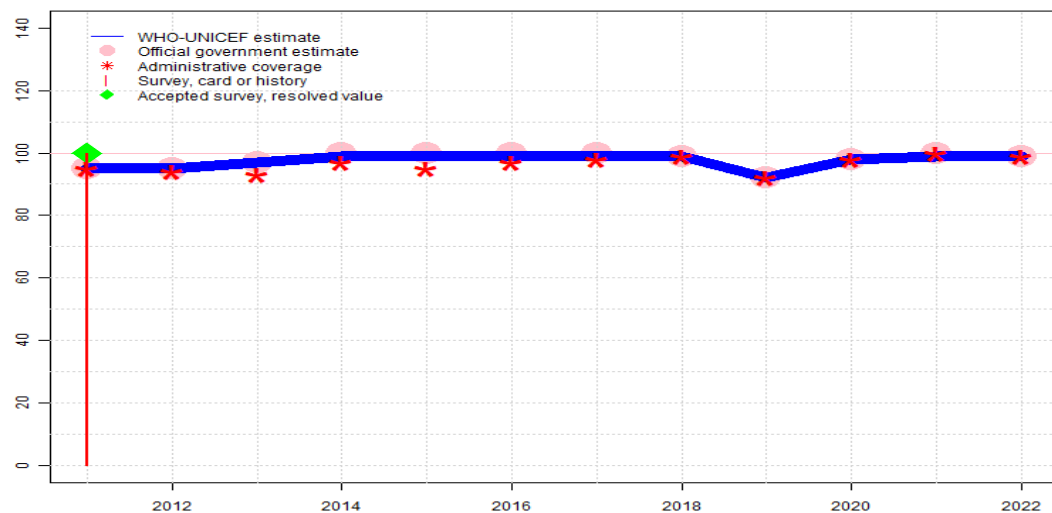
PcV3: percentage of surviving infants who received the 3rd dose of pneumococcal conjugate vaccine. In countries where the national schedule recommends two doses during infancy and a booster dose at 12 months or later based on the epidemiology of disease in the country, coverage estimates may reflect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

BTN - BCG



Description:

- 2022: Estimate informed by reported data. No nationally representative household survey within the last 5 years. WHO and UNICEF recommend a high-quality survey as well as a data review to confirm reported levels of coverage. GoC=R+ D+
- 2021: Estimate informed by reported data. Fluctuations in target population of surviving infants with unexplained decline between 2020 and 2021. Estimate challenged by: D-
- 2020: Estimate informed by reported data. Estimate challenged by: D-
- 2019: Estimate informed by reported data. Estimate challenged by: D-
- 2018: Estimate informed by reported data. Fluctuations in target population of surviving infants with unexplained decline between 2017 and 2018. Estimate challenged by: D-
- 2017: Estimate informed by reported data. GoC=R+ D+
- 2016: Estimate informed by reported data. Reported official coverage is based on National Health Survey, 2012. GoC=R+ D+
- 2015: Estimate informed by reported data. Reported official coverage is based on National Health Survey, 2012. GoC=R+ D+
- 2014: Estimate informed by reported data. Programme reports that official government estimate is based in part on the 2012 National Health Survey. GoC=R+ D+
- 2013: Estimate informed by reported data. GoC=R+ S+ D+
- 2012: Estimate informed by reported data. GoC=R+ S+ D+
- 2011: Estimate informed by reported data supported by survey. Survey evidence of 100 percent based on 1 survey(s). GoC=R+ S+ D+

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Estimate	95	95	97	99	99	99	99	99	92	98	99	99
Estimate GoC	●●●	●●●	●●●	●●	●●	●●	●●	●	●	●	●	●●
Official	95	95	97	100	100	100	100	99	92	98	100	99
Administrative	95	94	93	97	95	97	98	99	92	98	100	99
Survey	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

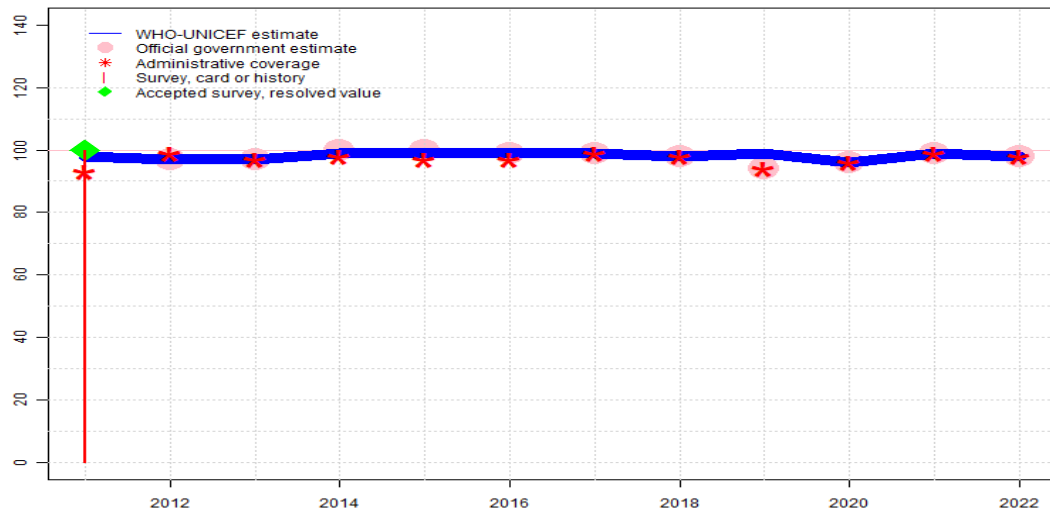
The WHO and UNICEF estimates of national immunization coverage (wuenic) are based on data and information that are of varying, and, in some instances, unknown quality. Beginning with the 2011 revision we describe the grade of confidence (GoC) we have in these estimates. As there is no underlying probability 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: 2022 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.

Bhutan - DTP1

BTN - DTP1



Description:

- 2022: Estimate informed by reported data. No nationally representative household survey within the last 5 years. WHO and UNICEF recommend a high-quality survey as well as a data review to confirm reported levels of coverage. GoC=R+ D+
- 2021: Estimate informed by reported data. Fluctuations in target population of surviving infants with unexplained decline between 2020 and 2021. Estimate challenged by: D-
- 2020: Estimate informed by reported data. Estimate challenged by: D-
- 2019: DTP1 coverage estimated based on DTP3 coverage of 97. Estimate challenged by: D-R-
- 2018: Estimate informed by reported data. Fluctuations in target population of surviving infants with unexplained decline between 2017 and 2018. Estimate challenged by: D-
- 2017: Estimate informed by reported data. GoC=R+ D+
- 2016: Estimate informed by reported data. Reported official coverage is based on National Health Survey, 2012. GoC=R+ D+
- 2015: Estimate informed by reported data. Reported official coverage is based on National Health Survey, 2012. GoC=R+ D+
- 2014: Estimate informed by reported data. Programme reports that official government estimate is based in part on the 2012 National Health Survey. GoC=R+ D+
- 2013: Estimate informed by reported data. GoC=R+ S+ D+
- 2012: Estimate informed by reported data. GoC=R+ S+ D+
- 2011: DTP1 coverage estimated based on DTP3 coverage of 95. DTP-HepB-Hib combination vaccine re-introduced in July 2011. Estimate challenged by: R-

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Estimate	98	97	97	99	99	99	99	98	99	96	99	98
Estimate GoC	•	•••	•••	••	••	••	••	•	•	•	•	••
Official	NA	97	97	100	100	99	99	98	94	96	99	98
Administrative	93	99	97	98	97	97	99	98	94	96	99	98
Survey	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

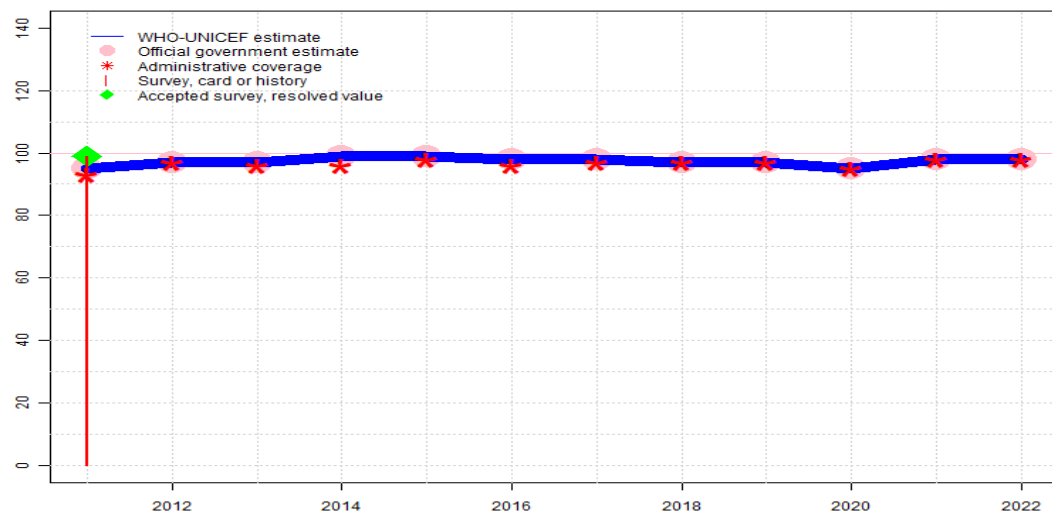
The WHO and UNICEF estimates of national immunization coverage (wuenic) are based on data and information that are of varying, and, in some instances, unknown quality. Beginning with the 2011 revision we describe the grade of confidence (GoC) we have in these estimates. As there is no underlying probability 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: 2022 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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Bhutan - DTP3

BTN - DTP3



Description:

- 2022: Estimate informed by reported data. No nationally representative household survey within the last 5 years. WHO and UNICEF recommend a high-quality survey as well as a data review to confirm reported levels of coverage. GoC=R+ D+
- 2021: Estimate informed by reported data. Fluctuations in target population of surviving infants with unexplained decline between 2020 and 2021. Estimate challenged by: D-
- 2020: Estimate informed by reported data. GoC=R+ D+
- 2019: Estimate informed by reported data. Estimate challenged by: D-
- 2018: Estimate informed by reported data. Fluctuations in target population of surviving infants with unexplained decline between 2017 and 2018. Estimate challenged by: D-
- 2017: Estimate informed by reported data. GoC=R+ D+
- 2016: Estimate informed by reported data. Reported official coverage is based on National Health Survey, 2012. GoC=R+ D+
- 2015: Estimate informed by reported data. Reported official coverage is based on National Health Survey, 2012. GoC=R+ D+
- 2014: Estimate informed by reported data. Programme reports that official government estimate is based in part on the 2012 National Health Survey. GoC=R+ D+
- 2013: Estimate informed by reported data. GoC=R+ S+ D+
- 2012: Estimate informed by reported data. GoC=R+ S+ D+
- 2011: Estimate informed by reported data supported by survey. Survey evidence of 99 percent based on 1 survey(s). DTP-HepB-Hib combination vaccine re-introduced in July 2011. GoC=R+ S+ D+

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Estimate	95	97	97	99	99	98	98	97	97	95	98	98
Estimate GoC	●●●	●●●	●●●	●●	●●	●●	●●	●	●	●●	●	●●
Official	95	97	97	99	99	98	98	97	97	95	98	98
Administrative	93	97	96	96	98	96	97	97	97	95	98	98
Survey	99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

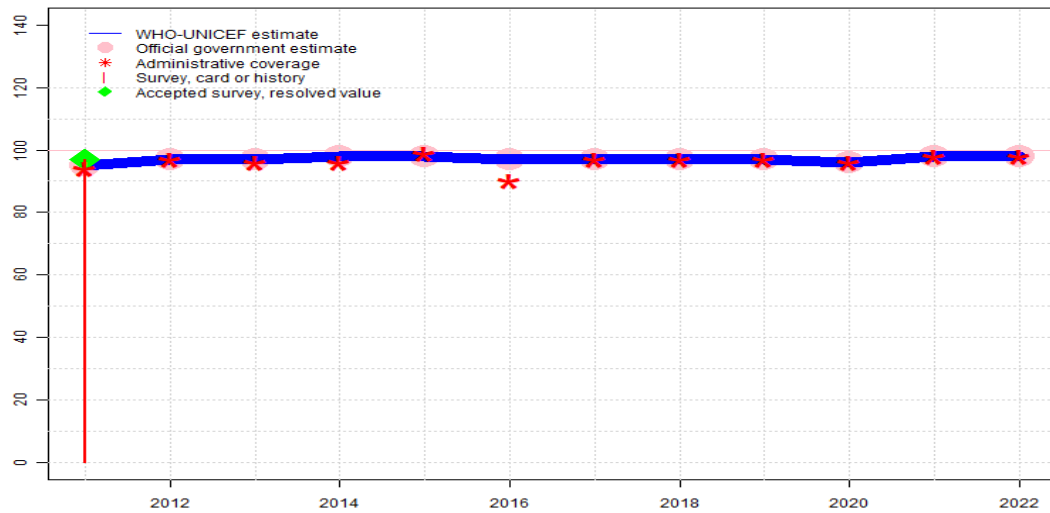
The WHO and UNICEF estimates of national immunization coverage (wuenic) are based on data and information that are of varying, and, in some instances, unknown quality. Beginning with the 2011 revision we describe the grade of confidence (GoC) we have in these estimates. As there is no underlying probability 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: 2022 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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Bhutan - Pol3

BTN - Pol3



	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Estimate	95	97	97	98	98	97	97	97	97	96	98	98
Estimate GoC	●●●	●●●	●●●	●●	●●	●●	●●	●	●	●	●	●●
Official	95	97	97	98	98	97	97	97	97	96	98	98
Administrative	94	97	96	96	99	90	97	97	97	96	98	98
Survey	97	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: 2022 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.

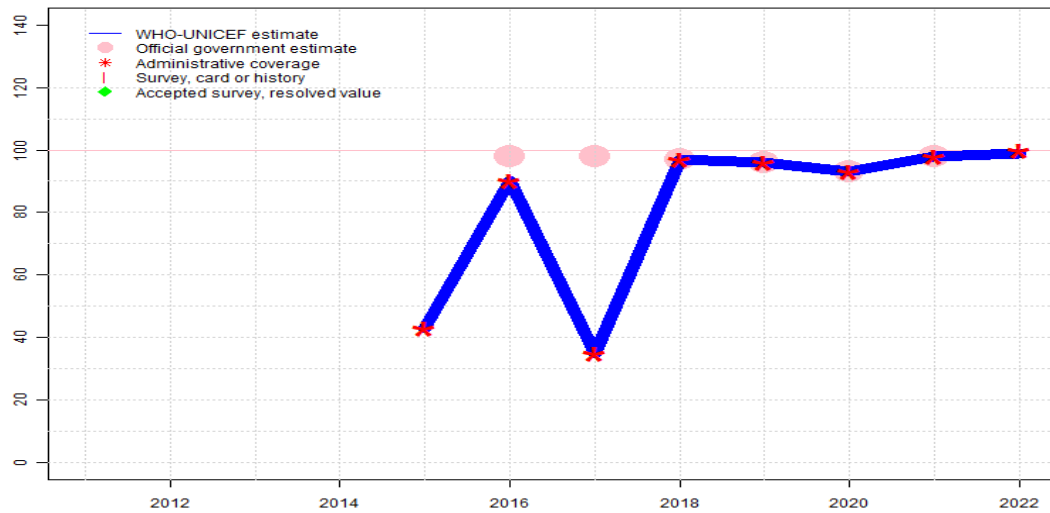
In all cases these estimates should be used with caution and should be assessed in light of the objective for which they are being used.

Description:

- 2022: Estimate informed by reported data. No nationally representative household survey within the last 5 years. WHO and UNICEF recommend a high-quality survey as well as a data review to confirm reported levels of coverage. GoC=R+ D+
- 2021: Estimate informed by reported data. Fluctuations in target population of surviving infants with unexplained decline between 2020 and 2021. Estimate challenged by: D-
- 2020: Estimate informed by reported data. Estimate challenged by: D-
- 2019: Estimate informed by reported data. Estimate challenged by: D-
- 2018: Estimate informed by reported data. Fluctuations in target population of surviving infants with unexplained decline between 2017 and 2018. Estimate challenged by: D-
- 2017: Estimate informed by reported data. GoC=R+ D+
- 2016: Estimate informed by reported data. Reported official coverage is based on National Health Survey, 2012. GoC=R+ D+
- 2015: Estimate informed by reported data. Reported official coverage is based on National Health Survey, 2012. GoC=R+ D+
- 2014: Estimate informed by reported data. Programme reports that official government estimate is based in part on the 2012 National Health Survey. GoC=R+ D+
- 2013: Estimate informed by reported data. GoC=R+ S+ D+
- 2012: Estimate informed by reported data. GoC=R+ S+ D+
- 2011: Estimate informed by reported data supported by survey. Survey evidence of 97 percent based on 1 survey(s). GoC=R+ S+ D+

Bhutan - IPV1

BTN - IPV1



Description:

Estimates for a dose of inactivated polio vaccine (IPV) begin in 2015 following the Global Polio Eradication Initiative's Polio Eradication and Endgame Strategic Plan: 2013-2018 which recommended at least one full dose or two fractional doses of IPV into routine immunization schedules as a strategy to mitigate the potential consequences should any re-emergence of type 2 poliovirus occur following the planned withdrawal of Sabin type 2 strains from oral polio vaccine (OPV).

2022: Estimate informed by reported administrative data. No nationally representative household survey within the last 5 years. WHO and UNICEF recommend a high-quality survey as well as a data review to confirm reported levels of coverage. GoC=R+ D+

2021: Estimate informed by reported data. Fluctuations in target population of surviving infants with unexplained decline between 2020 and 2021. Estimate challenged by: D-

2020: Estimate informed by reported data. GoC=R+ D+

2019: Estimate informed by reported data. Estimate challenged by: D-

2018: Estimate informed by reported data. Fluctuations in target population of surviving infants with unexplained decline between 2017 and 2018. Programme appears to have recovered from vaccine stockout in prior year. Estimate challenged by: D-

2017: Estimate informed by reported administrative data. Programme reports 12 month vaccine stockout at national level. Official estimates based on 2012 survey results but survey results do not include IPV. GoC=R+ D+

2016: Estimate informed by reported administrative data. Reported official coverage is based on National Health Survey, 2012. Estimate based on reported data following introduction. Programme reports vaccine stockout of 5 months at national level. Survey results from 2012 do not include IPV. GoC=R+ D+

2015: Estimate informed by reported administrative data. Reported official coverage is based on National Health Survey, 2012. Inactivated polio vaccine introduced in July 2015. GoC=R+ D+

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Estimate	NA	NA	NA	NA	43	90	35	97	96	93	98	99
Estimate GoC	NA	NA	NA	NA	••	••	••	•	•	••	•	••
Official	NA	NA	NA	NA	NA	98	98	97	96	93	98	NA
Administrative	NA	NA	NA	NA	43	90	35	97	96	93	98	100
Survey	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

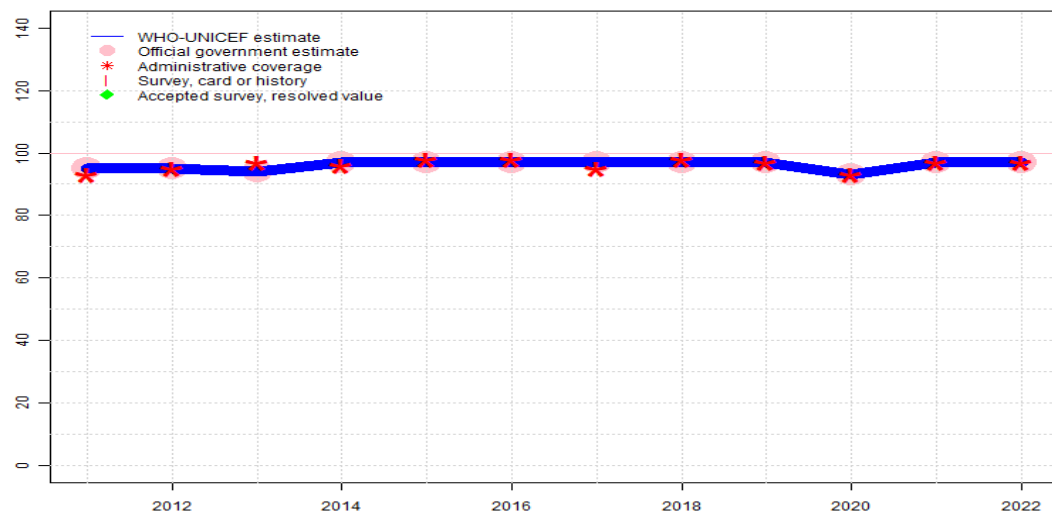
The WHO and UNICEF estimates of national immunization coverage (wuenic) are based on data and information that are of varying, and, in some instances, unknown quality. Beginning with the 2011 revision we describe the grade of confidence (GoC) we have in these estimates. As there is no underlying probability 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: 2022 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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Bhutan - MCV1

BTN - MCV1



Description:

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- 2021: Estimate informed by reported data. Fluctuations in target population of surviving infants with unexplained decline between 2020 and 2021. Estimate challenged by: D-
- 2020: Estimate informed by reported data. GoC=R+ D+
- 2019: Estimate informed by reported data. Estimate challenged by: D-
- 2018: Estimate informed by reported data. Fluctuations in target population of surviving infants with unexplained decline between 2017 and 2018. Estimate challenged by: D-
- 2017: Estimate informed by reported data. GoC=R+ D+
- 2016: Estimate informed by reported data. Reported official coverage is based on National Health Survey, 2012. GoC=R+ D+
- 2015: Estimate informed by reported data. Reported official coverage is based on National Health Survey, 2012. GoC=R+ D+
- 2014: Estimate informed by reported data. Programme reports that official government estimate is based in part on the 2012 National Health Survey. GoC=R+ D+
- 2013: Estimate informed by reported data. GoC=R+ D+
- 2012: Estimate informed by reported data. GoC=R+ D+
- 2011: Estimate informed by reported data. GoC=R+ D+

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Estimate	95	95	94	97	97	97	97	97	97	93	97	97
Estimate GoC	●●	●●	●●	●●	●●	●●	●●	●	●	●●	●	●●
Official	95	95	94	97	97	97	97	97	97	93	97	97
Administrative	93	95	97	96	98	98	95	98	97	93	97	97
Survey	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

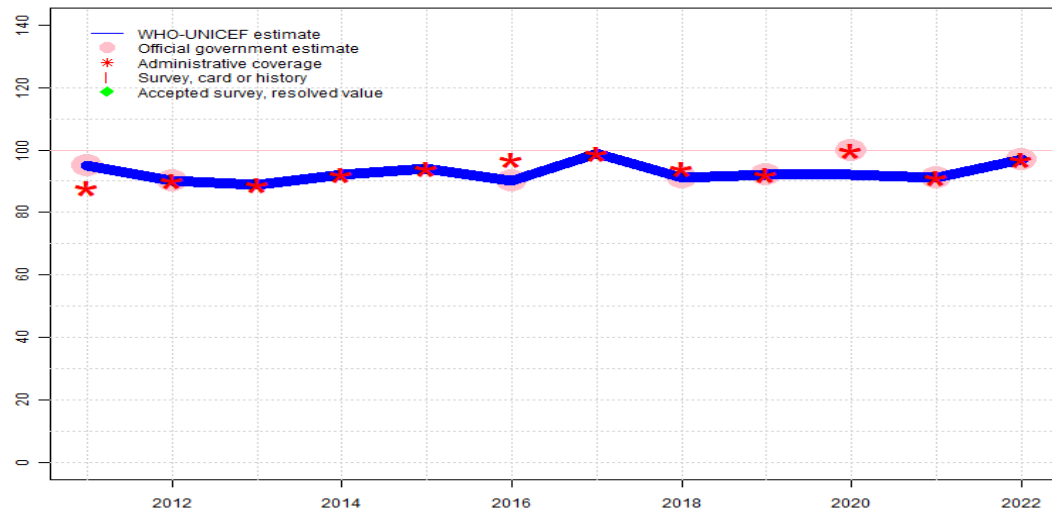
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- Estimate is supported by reported data [R+], coverage recalculated with an independent denominator from the World Population Prospects: 2022 revision from the UN Population Division (D+), and at least one supporting survey within 2 years [S+]. While 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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Bhutan - MCV2

BTN - MCV2



Description:

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

- 2022: Estimate informed by reported data. No nationally representative household survey within the last 5 years. WHO and UNICEF recommend a high-quality survey as well as a data review to confirm reported levels of coverage. GoC=R+ D+
- 2021: Estimate informed by reported data. Fluctuations in target population of surviving infants with unexplained decline between 2020 and 2021. Estimate challenged by: D-
- 2020: Decline in reported denominator compared to previous years may explain the observed increase in reported coverage. Estimate challenged by: D-R-
- 2019: Estimate informed by reported data. Estimate challenged by: D-
- 2018: Estimate informed by reported data. Fluctuations in target population of surviving infants with unexplained decline between 2017 and 2018. Estimate challenged by: D-
- 2017: Estimate informed by reported administrative data. GoC=R+ D+
- 2016: Estimate informed by reported data. Reported official coverage is based on National Health Survey, 2012. Estimate challenged by: D-
- 2015: Estimate informed by reported administrative data. Reported official coverage is based on National Health Survey, 2012. GoC=R+ D+
- 2014: Estimate informed by reported administrative data. Programme reports that official government estimate is based in part on the 2012 National Health Survey. GoC=R+ D+
- 2013: Estimate informed by reported administrative data. GoC=R+ D+
- 2012: Estimate informed by reported data. GoC=R+ D+
- 2011: Estimate informed by reported data. GoC=R+ D+

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Estimate	95	90	89	92	94	90	99	91	92	100	91	97
Estimate GoC	●●	●●	●●	●●	●●	●	●●	●	●	●	●	●●
Official	95	90	NA	NA	NA	90	NA	91	92	100	91	97
Administrative	88	90	89	92	94	97	99	94	92	100	91	97
Survey	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

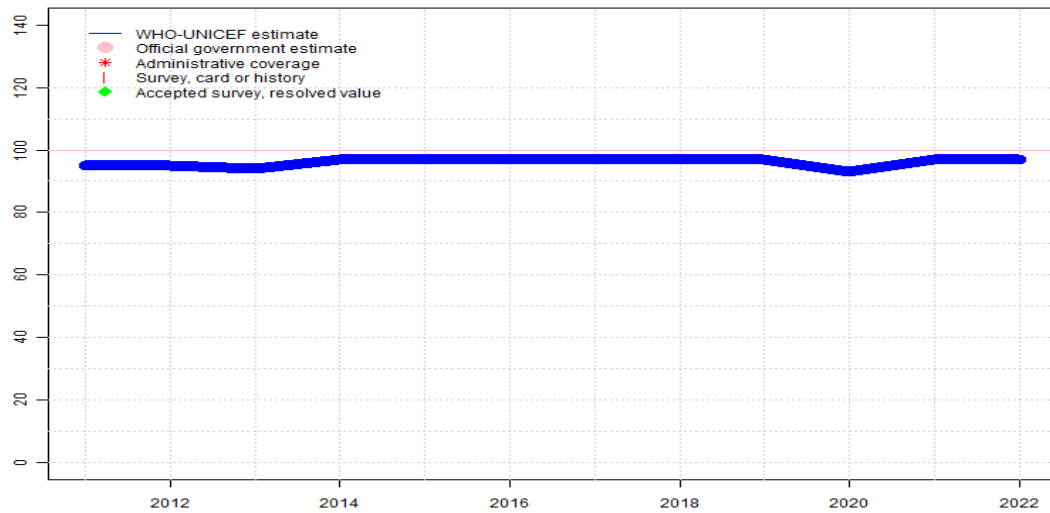
The WHO and UNICEF estimates of national immunization coverage (wuenic) are based on data and information that are of varying, and, in some instances, unknown quality. Beginning with the 2011 revision we describe the grade of confidence (GoC) we have in these estimates. As there is no underlying probability 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: 2022 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.

Bhutan - RCV1

BTN - 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.

- 2022: Estimate based on estimated MCV1. No nationally representative household survey within the last 5 years. WHO and UNICEF recommend a high-quality survey as well as a data review to confirm reported levels of coverage. GoC=R+ D+
- 2021: Estimate based on estimated MCV1. Fluctuations in target population of surviving infants with unexplained decline between 2020 and 2021. Estimate challenged by: D-
- 2020: Estimate based on estimated MCV1. GoC=R+ D+
- 2019: Estimate based on estimated MCV1. Estimate challenged by: D-
- 2018: Estimate based on estimated MCV1. Fluctuations in target population of surviving infants with unexplained decline between 2017 and 2018. Estimate challenged by: D-
- 2017: Estimate based on estimated MCV1. GoC=R+ D+
- 2016: Estimate based on estimated MCV1. Reported official coverage is based on National Health Survey, 2012. GoC=R+ D+
- 2015: Estimate based on estimated MCV1. Reported official coverage is based on National Health Survey, 2012. GoC=R+ D+
- 2014: Estimate based on estimated MCV1. Programme reports that official government estimate is based in part on the 2012 National Health Survey. GoC=R+ D+
- 2013: Estimate based on estimated MCV1. GoC=R+ D+
- 2012: Estimate based on estimated MCV1. GoC=R+ D+
- 2011: Estimate based on estimated MCV1. GoC=R+ D+

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Estimate	95	95	94	97	97	97	97	97	97	93	97	97
Estimate GoC	••	••	••	••	••	••	••	•	•	••	•	••
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

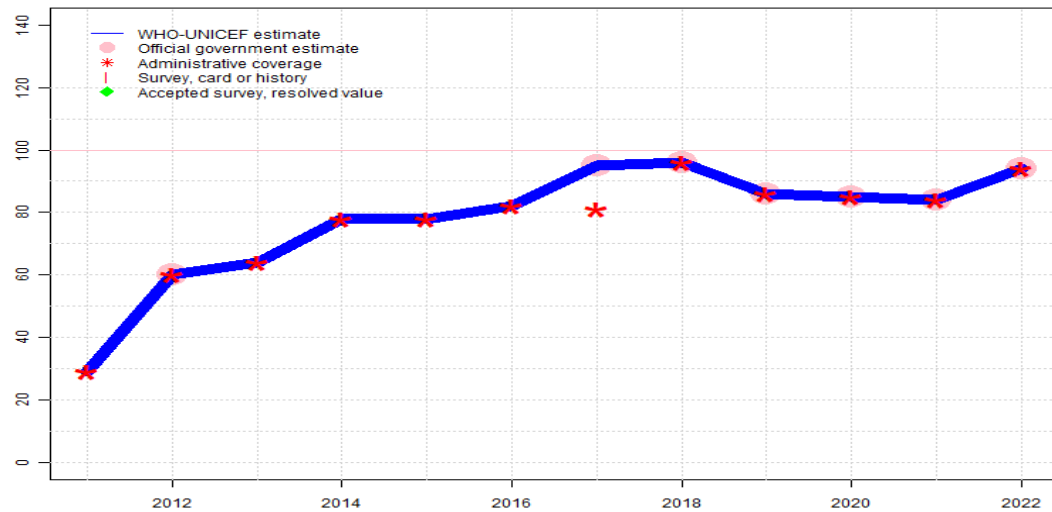
The WHO and UNICEF estimates of national immunization coverage (wuenic) are based on data and information that are of varying, and, in some instances, unknown quality. Beginning with the 2011 revision we describe the grade of confidence (GoC) we have in these estimates. As there is no underlying probability 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: 2022 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.

Bhutan - HepBB

BTN - HepBB



Description:

- 2022: Estimate informed by reported data. No nationally representative household survey within the last 5 years. WHO and UNICEF recommend a high-quality survey as well as a data review to confirm reported levels of coverage. GoC=R+ D+
- 2021: Estimate informed by reported data. Fluctuations in target population of surviving infants with unexplained decline between 2020 and 2021. Estimate challenged by: D-
- 2020: Estimate informed by reported data. Estimate challenged by: D-
- 2019: Estimate informed by reported data. Estimate challenged by: D-
- 2018: Estimate informed by reported data. Fluctuations in target population of surviving infants with unexplained decline between 2017 and 2018. GoC=R+ D+
- 2017: Estimate informed by reported data. Estimate challenged by: D-
- 2016: Estimate informed by reported administrative data. Reported official coverage is based on National Health Survey, 2012. GoC=R+ D+
- 2015: Estimate informed by reported administrative data. Reported official coverage is based on National Health Survey, 2012. GoC=R+ D+
- 2014: Estimate informed by reported administrative data. Programme reports that official government estimate is based in part on the 2012 National Health Survey. Estimate is based on reported data consistent with other vaccines. GoC=R+ D+
- 2013: Estimate informed by reported administrative data. GoC=R+ D+
- 2012: Estimate informed by reported data. GoC=R+ D+
- 2011: Estimate informed by reported administrative data. GoC=R+ D+

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Estimate	29	60	64	78	78	82	95	96	86	85	84	94
Estimate GoC	●●	●●	●●	●●	●●	●●	●	●●	●	●	●	●●
Official	NA	60	NA	NA	NA	NA	95	96	86	85	84	94
Administrative	29	60	64	78	78	82	81	96	86	85	84	94
Survey	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

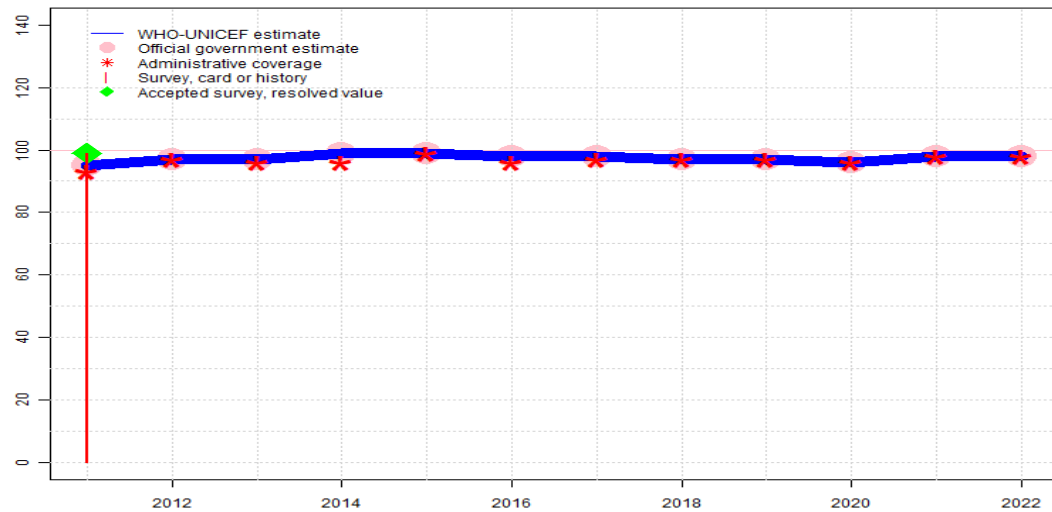
The WHO and UNICEF estimates of national immunization coverage (wuenic) are based on data and information that are of varying, and, in some instances, unknown quality. Beginning with the 2011 revision we describe the grade of confidence (GoC) we have in these estimates. As there is no underlying probability 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: 2022 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.

Bhutan - HepB3

BTN - HepB3



	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Estimate	95	97	97	99	99	98	98	97	97	96	98	98
Estimate GoC	●●●	●●●	●●●	●●	●●	●●	●●	●	●	●	●	●●
Official	95	97	97	99	99	98	98	97	97	96	98	98
Administrative	93	97	96	96	99	96	97	97	97	96	98	98
Survey	99	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: 2022 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.

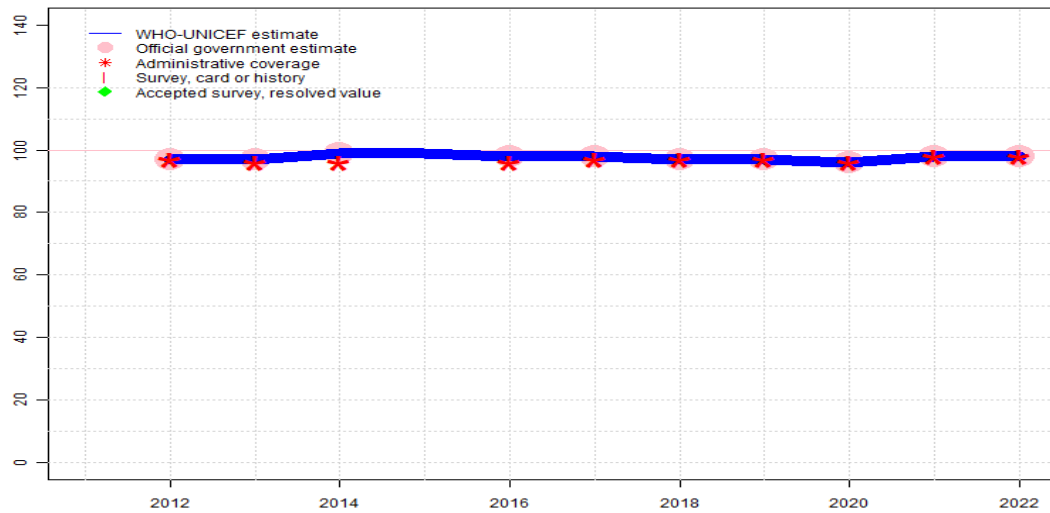
In all cases these estimates should be used with caution and should be assessed in light of the objective for which they are being used.

Description:

- 2022: Estimate informed by reported data. No nationally representative household survey within the last 5 years. WHO and UNICEF recommend a high-quality survey as well as a data review to confirm reported levels of coverage. GoC=R+ D+
- 2021: Estimate informed by reported data. Fluctuations in target population of surviving infants with unexplained decline between 2020 and 2021. Estimate challenged by: D-
- 2020: Estimate informed by reported data. Estimate challenged by: D-
- 2019: Estimate informed by reported data. Estimate challenged by: D-
- 2018: Estimate informed by reported data. Fluctuations in target population of surviving infants with unexplained decline between 2017 and 2018. Estimate challenged by: D-
- 2017: Estimate informed by reported data. GoC=R+ D+
- 2016: Estimate informed by reported data. Reported official coverage is based on National Health Survey, 2012. GoC=R+ D+
- 2015: Estimate informed by reported data. Reported official coverage is based on National Health Survey, 2012. GoC=R+ D+
- 2014: Estimate informed by reported data. Programme reports that official government estimate is based in part on the 2012 National Health Survey. GoC=R+ D+
- 2013: Estimate informed by reported data. GoC=R+ S+ D+
- 2012: Estimate informed by reported data. GoC=R+ S+ D+
- 2011: Estimate informed by reported data supported by survey. Survey evidence of 99 percent based on 1 survey(s). DTP-HepB-Hib combination vaccine re-introduced in July 2011. GoC=R+ S+ D+

Bhutan - Hib3

BTN - Hib3



	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Estimate	NA	97	97	99	99	98	98	97	97	96	98	98
Estimate GoC	NA	●●	●●	●●	●	●●	●●	●	●	●	●	●●
Official	NA	97	97	99	NA	98	98	97	97	96	98	98
Administrative	NA	97	96	96	NA	96	97	97	97	96	98	98
Survey	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

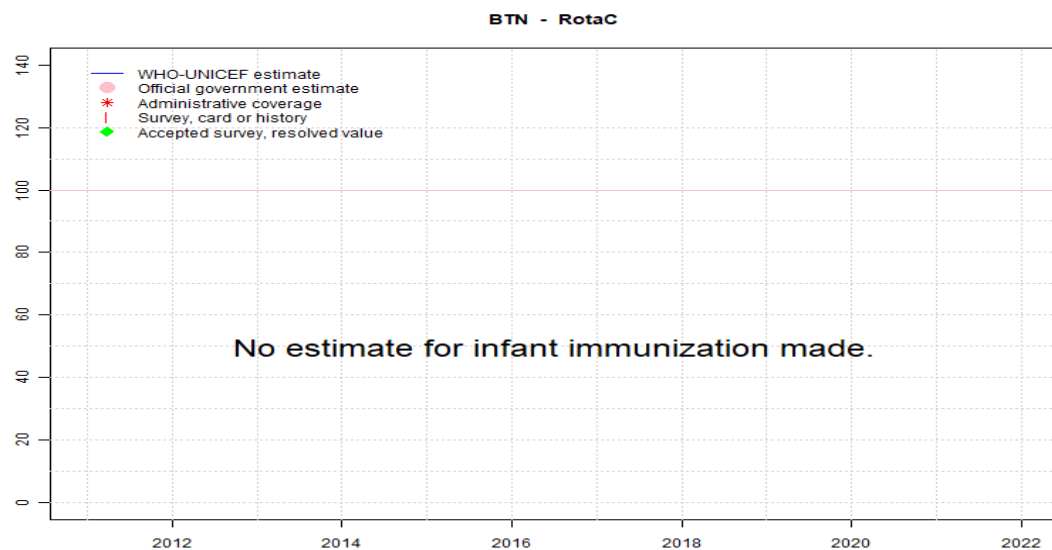
The WHO and UNICEF estimates of national immunization coverage (wuenic) are based on data and information that are of varying, and, in some instances, unknown quality. Beginning with the 2011 revision we describe the grade of confidence (GoC) we have in these estimates. As there is no underlying probability 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: 2022 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:

- 2022: Estimate informed by reported data. No nationally representative household survey within the last 5 years. WHO and UNICEF recommend a high-quality survey as well as a data review to confirm reported levels of coverage. GoC=R+ D+
- 2021: Estimate informed by reported data. Fluctuations in target population of surviving infants with unexplained decline between 2020 and 2021. Estimate challenged by: D-
- 2020: Estimate informed by reported data. Estimate challenged by: D-
- 2019: Estimate informed by reported data. Estimate challenged by: D-
- 2018: Estimate informed by reported data. Fluctuations in target population of surviving infants with unexplained decline between 2017 and 2018. Estimate challenged by: D-
- 2017: Estimate informed by reported data. GoC=R+ D+
- 2016: Estimate informed by reported data. Reported official coverage is based on National Health Survey, 2012. GoC=R+ D+
- 2015: Estimate informed by interpolation between reported data. Reported official coverage is based on National Health Survey, 2012. GoC=No accepted empirical data
- 2014: Estimate informed by reported data. Programme reports that official government estimate is based in part on the 2012 National Health Survey. GoC=R+ D+
- 2013: Estimate informed by reported data. GoC=R+ D+
- 2012: Estimate informed by reported data. DTP-HepB-Hib combination vaccine re-introduced in July 2011. Reporting began in 2012. GoC=R+ D+



	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
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

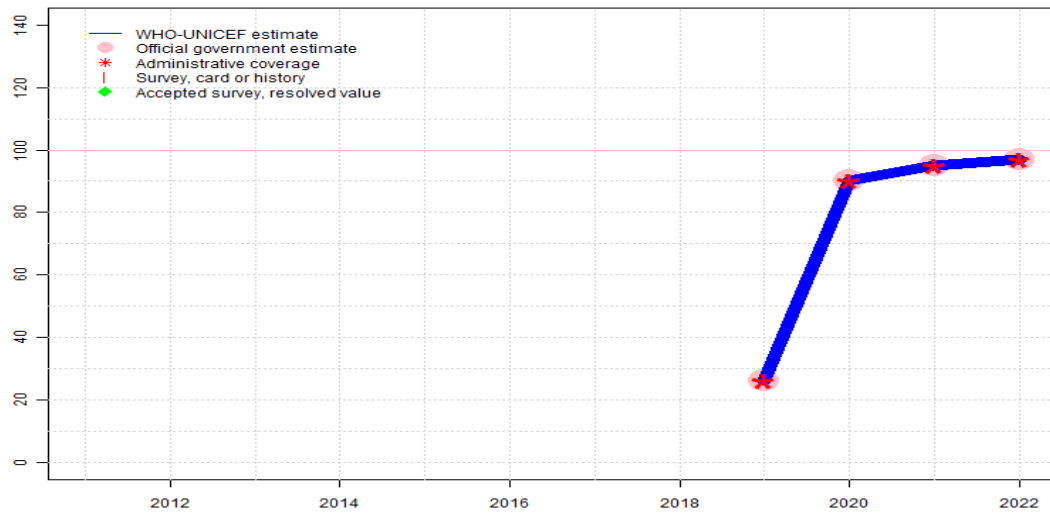
The WHO and UNICEF estimates of national immunization coverage (wuenic) are based on data and information that are of varying, and, in some instances, unknown quality. Beginning with the 2011 revision we describe the grade of confidence (GoC) we have in these estimates. As there is no underlying probability 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: 2022 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.

Bhutan - PcV3

BTN - PcV3



Description:

- 2022: Estimate informed by reported data. No nationally representative household survey within the last 5 years. WHO and UNICEF recommend a high-quality survey as well as a data review to confirm reported levels of coverage. GoC=R+ D+
- 2021: Estimate informed by reported data. Fluctuations in target population of surviving infants with unexplained decline between 2020 and 2021. Estimate challenged by: D-
- 2020: Estimate informed by reported data. GoC=R+ D+
- 2019: Estimate informed by reported data. Pneumococcal conjugate vaccine introduced during 2019. Programme reports one week vaccine stockout. GoC=R+ D+

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Estimate	NA	NA	NA	NA	NA	NA	NA	NA	26	90	95	97
Estimate GoC	NA	NA	NA	NA	NA	NA	NA	NA	••	••	•	••
Official	NA	NA	NA	NA	NA	NA	NA	NA	26	90	95	97
Administrative	NA	NA	NA	NA	NA	NA	NA	NA	26	90	95	97
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: 2022 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.

Bhutan - survey details

NOTE: A survey to measure vaccination coverage for infants (i.e., children aged 0 to 11 months) will sample children aged 12 to 23 months at the time of survey to capture the youngest annual cohort of children who should have completed the vaccination schedule. Because WUENIC are for infant vaccinations, survey data in this report are presented to reflect the birth year of the youngest survey cohort. For example, results for a survey conducted during December 2020 among children aged 12 to 23 months at the time of the survey reflect the immunization experience of children born in 2019. Depending on the timing of survey field work, results may reflect the immunization experience of children born and vaccinated 1 or 2 years prior to the survey field work.

2011 Bhutan National Health Survey 2012

Vaccine	Confirmation method	Coverage	Age cohort	Sample	Cards seen
BCG	Card	95.9	12-23 m	878	91
BCG	Card or History	100	12-23 m	916	91
BCG	History	4.1	12-23 m	38	91
DTP1	Card	95.4	12-23 m	878	91
DTP1	Card or History	99.7	12-23 m	916	91
DTP1	History	4.1	12-23 m	38	91
DTP3	Card	94.5	12-23 m	878	91
DTP3	Card or History	98.7	12-23 m	916	91
DTP3	History	4.1	12-23 m	38	91
HepB1	Card	95.4	12-23 m	878	91
HepB1	Card or History	99.7	12-23 m	916	91
HepB1	History	4.1	12-23 m	38	91
HepB3	Card	94.5	12-23 m	878	91
HepB3	Card or History	98.7	12-23 m	916	91
HepB3	History	4.1	12-23 m	38	91
Pol1	Card	95	12-23 m	878	91
Pol1	Card or History	99.2	12-23 m	916	91
Pol1	History	4.1	12-23 m	38	91
Pol3	Card	93.4	12-23 m	878	91
Pol3	Card or History	97.4	12-23 m	916	91
Pol3	History	4	12-23 m	38	91

2007 The National EPI Coverage Survey, 2009

Vaccine	Confirmation method	Coverage	Age cohort	Sample	Cards seen
BCG	Card	96.9	12-23 m	1193	98
BCG	Card or History	100	12-23 m	1193	98
BCG	History	3.1	12-23 m	1193	98
DTP1	Card	96.7	12-23 m	1193	98
DTP1	Card or History	100	12-23 m	1193	98
DTP1	History	3.3	12-23 m	1193	98
DTP3	Card	96.8	12-23 m	1193	98
DTP3	Card or History	99.9	12-23 m	1193	98
DTP3	History	3.1	12-23 m	1193	98
HepB1	Card	96.7	12-23 m	1193	98
HepB1	Card or History	100	12-23 m	1193	98
HepB1	History	3.3	12-23 m	1193	98
HepB3	Card	96.8	12-23 m	1193	98
HepB3	Card or History	99.9	12-23 m	1193	98
HepB3	History	3.1	12-23 m	1193	98
MCV1	Card	94.7	12-23 m	1193	98
MCV1	Card or History	99	12-23 m	1193	98
MCV1	History	4.3	12-23 m	1193	98
Pol1	Card	96.8	12-23 m	1193	98
Pol1	Card or History	100	12-23 m	1193	98
Pol1	History	3.2	12-23 m	1193	98
Pol3	Card	96.7	12-23 m	1193	98
Pol3	Card or History	99.9	12-23 m	1193	98
Pol3	History	3.2	12-23 m	1193	98

2001 Bhutan National EPI Coverage Evaluation Survey 2002

Vaccine	Confirmation method	Coverage	Age cohort	Sample	Cards seen
BCG	Card	95.3	12-23 m	214	95
BCG	Card or History	99.5	12-23 m	214	95
BCG	History	4.2	12-23 m	214	95
DTP1	Card	94.9	12-23 m	214	95
DTP1	Card or History	99.5	12-23 m	214	95
DTP1	History	4.7	12-23 m	214	95
DTP3	Card	93.9	12-23 m	214	95
DTP3	Card or History	98.6	12-23 m	214	95
DTP3	History	4.7	12-23 m	214	95

Bhutan - survey details

HepB1	Card	93.5	12-23 m	214	95	MCV1	History	4.7	12-23 m	214	95
HepB1	Card or History	98.1	12-23 m	214	95	Pol1	Card	94.9	12-23 m	214	95
HepB1	History	4.7	12-23 m	214	95	Pol1	Card or History	99.5	12-23 m	214	95
HepB3	Card	91.6	12-23 m	214	95	Pol1	History	4.7	12-23 m	214	95
HepB3	Card or History	96.3	12-23 m	214	95	Pol3	Card	93.9	12-23 m	214	95
HepB3	History	4.7	12-23 m	214	95	Pol3	Card or History	98.6	12-23 m	214	95
MCV1	Card	91.6	12-23 m	214	95	Pol3	History	4.7	12-23 m	214	95
MCV1	Card or History	96.3	12-23 m	214	95						

Bhutan - survey details

Further information and estimates for previous years are available at:

<https://data.unicef.org/topic/child-health/immunization/>

<https://immunizationdata.who.int/listing.html>