

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.

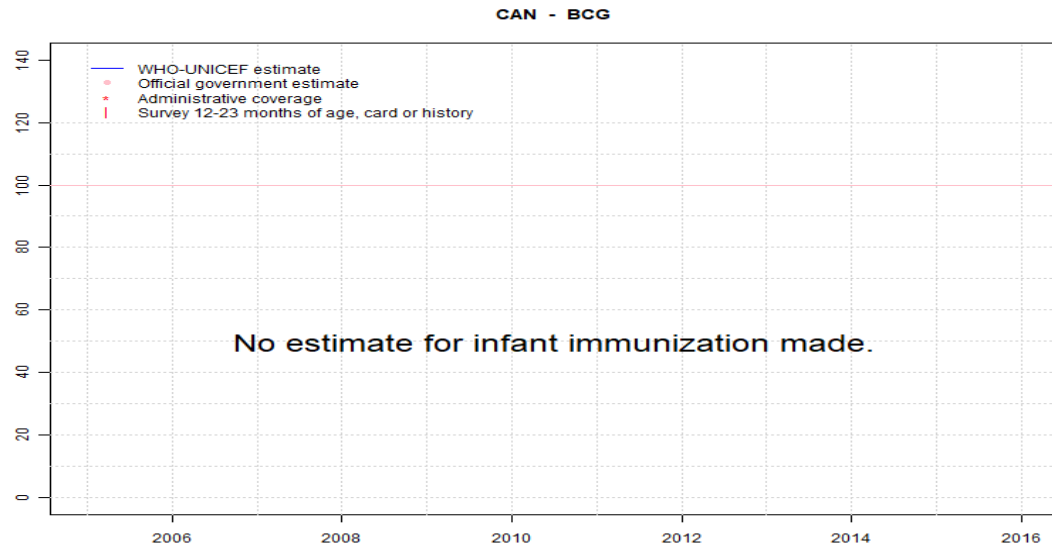
Hib3: percentage of surviving infants who received the 3rd dose of Haemophilus influenzae type b containing vaccine.

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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	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

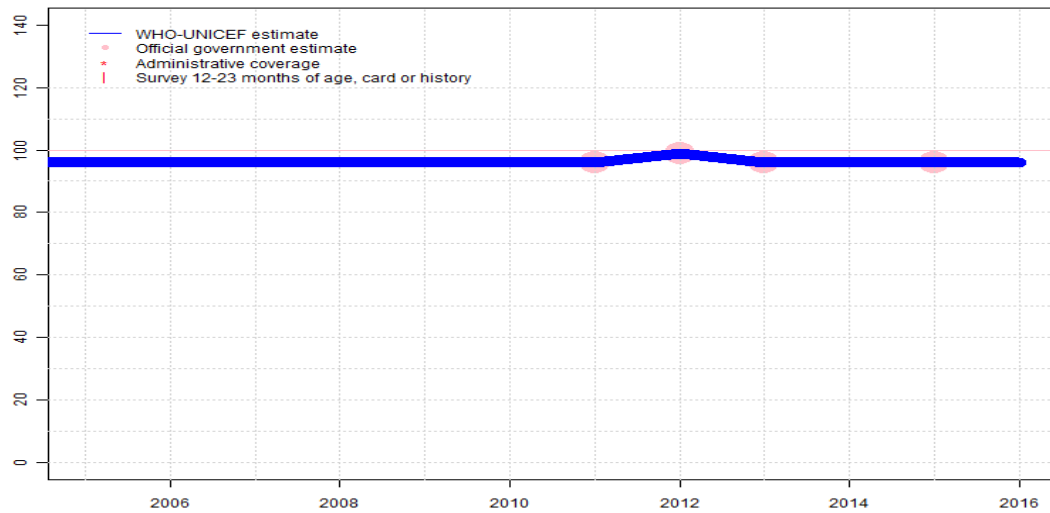
The WHO and UNICEF estimates of national immunization coverage (wuenic) are based on data and information that are of varying, and, in some instances, unknown quality. Beginning with the 2011 revision we describe the grade of confidence (GoC) we have in these estimates. As there is no underlying probability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

Canada - DTP1

CAN - DTP1



	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Estimate	96	96	96	96	96	96	96	99	96	96	96	96
Estimate GoC	•	•	•	•	•	•	••	••	•	••	•	•
Official	NA	NA	NA	NA	NA	NA	96	99	96	NA	96	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

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

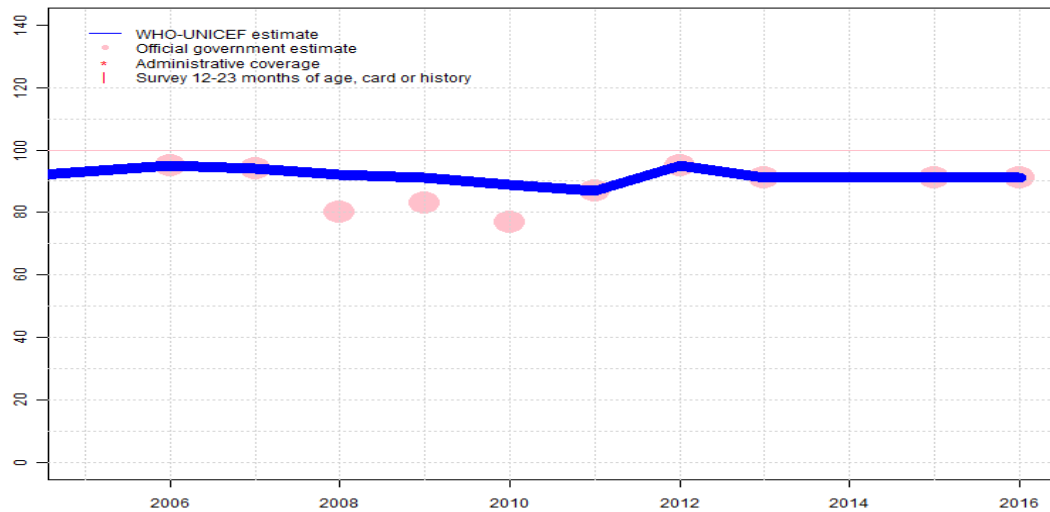
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Description:

- 2016: Estimate based on extrapolation from data reported by national government. GoC=No accepted empirical data
- 2015: Estimate based on coverage reported by national government. Reported coverage are obtained from the validation component of the 2013 Childhood National Immunization Coverage Survey for children 24 months or less. Immunization coverage estimates obtained from the national survey may yield lower than actual immunization coverage due to provincial variations in vaccine delivery programmes. GoC=R+
- 2014: Estimate based on interpolation between data reported by national government. See note for 2013 on source of reported coverage. GoC=No accepted empirical data
- 2013: Estimate based on coverage reported by national government. Reported coverage are obtained from the validation component of the 2011 Childhood National Immunization Coverage Survey for children 24 months or less. Immunization coverage estimates obtained from the national survey may yield lower than actual immunization coverage due to provincial variations in vaccine delivery programmes. GoC=R+
- 2012: Estimate based on coverage reported by national government. GoC=R+
- 2011: Reported DTP1 data started in 2011. Estimate is based on reported data. GoC=R+
- 2010: Reported data calibrated to 1997 and 2011 levels. The first dose of DTP containing vaccine was not monitored. GoC=No accepted empirical data
- 2009: Reported data calibrated to 1997 and 2011 levels. The first dose of DTP containing vaccine was not monitored. GoC=No accepted empirical data
- 2008: Reported data calibrated to 1997 and 2011 levels. Nationally reported data for 2008 are based on the results of the 2006 Childhood National Immunization Coverage Survey. The first dose of DTP containing vaccine was not monitored. GoC=No accepted empirical data
- 2007: Reported data calibrated to 1997 and 2011 levels. The first dose of DTP containing vaccine was not monitored. GoC=No accepted empirical data
- 2006: Reported data calibrated to 1997 and 2011 levels. The first dose of DTP containing vaccine was not monitored. GoC=No accepted empirical data
- 2005: Reported data calibrated to 1997 and 2011 levels. The first dose of DTP containing vaccine was not monitored. GoC=No accepted empirical data

Canada - DTP3

CAN - DTP3



	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Estimate	93	95	94	92	91	89	87	95	91	91	91	91
Estimate GoC	•	••	••	••	••	••	••	••	••	•	••	••
Official	NA	95	94	80	83	77	87	95	91	NA	91	91
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

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- 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.

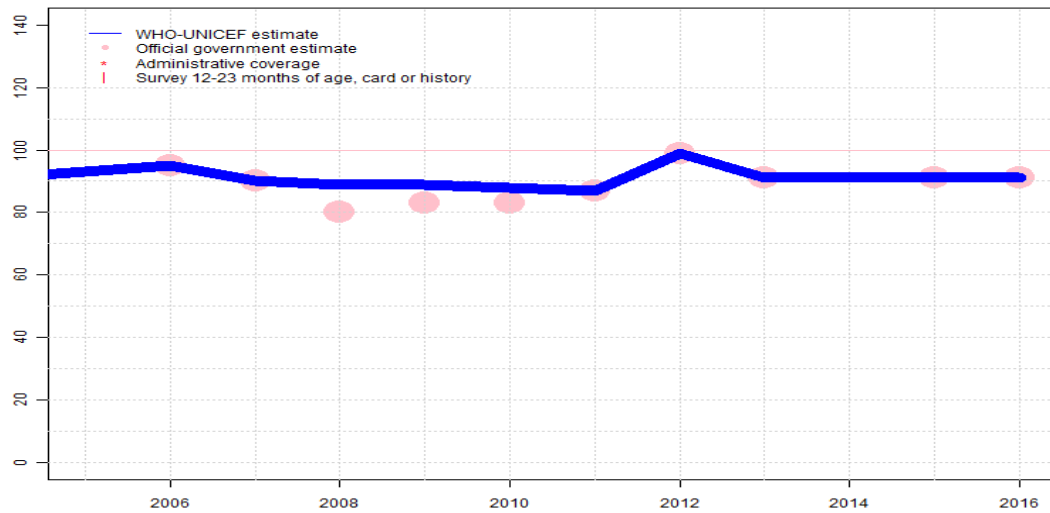
In all cases these estimates should be used with caution and should be assessed in light of the objective for which they are being used.

Description:

- 2016: Estimate based on coverage reported by national government. Reported coverage are obtained from the validation component of the 2013 Childhood National Immunization Coverage Survey for children 24 months or less. Immunization coverage estimates obtained from the national survey may yield lower than actual immunization coverage due to provincial variations in vaccine delivery programmes. GoC=R+
- 2015: Estimate based on coverage reported by national government. Reported coverage are obtained from the validation component of the 2013 Childhood National Immunization Coverage Survey for children 24 months or less. Immunization coverage estimates obtained from the national survey may yield lower than actual immunization coverage due to provincial variations in vaccine delivery programmes. GoC=R+
- 2014: Estimate based on interpolation between data reported by national government. See note for 2013 on source of reported coverage. Reported coverage is based on that for the third dose of polio vaccine administered in combination with DTP. The programme monitors the fourth dose of DTP containing vaccine at 2 years of age. GoC=No accepted empirical data
- 2013: Estimate based on coverage reported by national government. Reported coverage are obtained from the validation component of the 2011 Childhood National Immunization Coverage Survey for children 24 months or less. Immunization coverage estimates obtained from the national survey may yield lower than actual immunization coverage due to provincial variations in vaccine delivery programmes. GoC=R+
- 2012: Estimate based on coverage reported by national government. GoC=R+
- 2011: Estimate based on coverage reported by national government. Estimate is based on reported data. GoC=R+
- 2010: Estimate based on interpolation between data reported by national government. Reported data excluded. Decline in coverage unexplained. GoC=R+
- 2009: Estimate based on interpolation between data reported by national government. Reported data excluded. Decline in coverage unexplained. The Government of Canada conducts periodic nationally representative national immunization coverage surveys. In the 2011 Childhood National Immunization Coverage Survey (cNICS) questions were asked of the parents of 395 children who turned 2 years of age within 12 months prior to the survey. GoC=R+
- 2008: Estimate based on interpolation between data reported by national government. Reported data excluded. Decline in coverage unexplained. Nationally reported data for 2008 are based on the results of the 2006 Childhood National Immunization Coverage Survey. GoC=R+
- 2007: Estimate based on coverage reported by national government. GoC=R+
- 2006: Estimate based on coverage reported by national government. GoC=R+
- 2005: Estimate based on interpolation between data reported by national government. GoC=No accepted empirical data

Canada - Pol3

CAN - Pol3



	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Estimate	93	95	90	89	89	88	87	99	91	91	91	91
Estimate GoC	•	••	••	••	••	••	••	••	••	•	••	••
Official	NA	95	90	80	83	83	87	99	91	NA	91	91
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

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- There are no directly supporting data; or data from at least one source; [R-], [D-], [S-]; challenge the estimate.

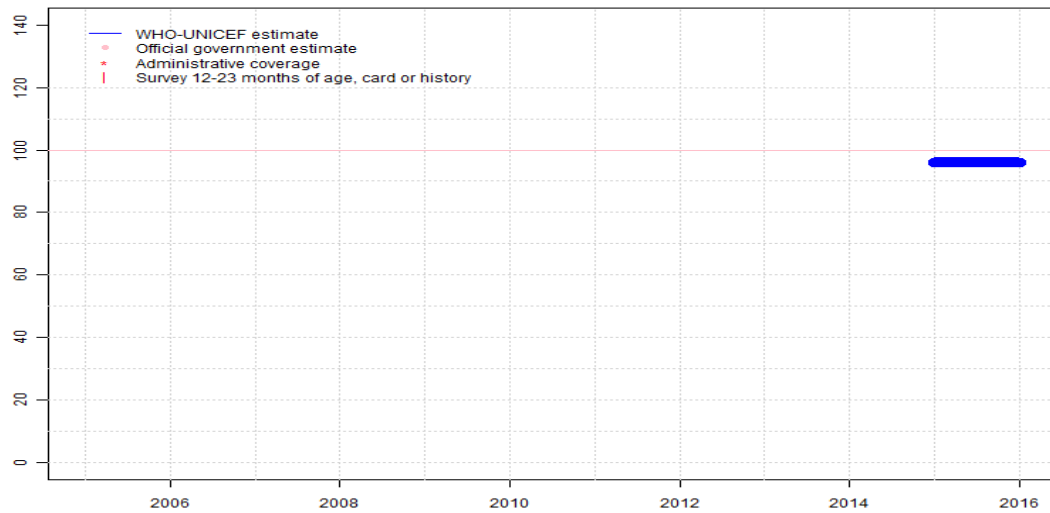
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Description:

- 2016: Estimate based on coverage reported by national government. Reported coverage are obtained from the validation component of the 2013 Childhood National Immunization Coverage Survey for children 24 months or less. Immunization coverage estimates obtained from the national survey may yield lower than actual immunization coverage due to provincial variations in vaccine delivery programmes. GoC=R+
- 2015: Estimate based on coverage reported by national government. Reported coverage are obtained from the validation component of the 2013 Childhood National Immunization Coverage Survey for children 24 months or less. Immunization coverage estimates obtained from the national survey may yield lower than actual immunization coverage due to provincial variations in vaccine delivery programmes. GoC=R+
- 2014: Estimate based on interpolation between data reported by national government. See note for 2013 on source of reported coverage. GoC=No accepted empirical data
- 2013: Estimate based on coverage reported by national government. Reported coverage are obtained from the validation component of the 2011 Childhood National Immunization Coverage Survey for children 24 months or less. Immunization coverage estimates obtained from the national survey may yield lower than actual immunization coverage due to provincial variations in vaccine delivery programmes. GoC=R+
- 2012: Estimate based on coverage reported by national government. GoC=R+
- 2011: Estimate based on coverage reported by national government. Estimate is based on reported data. GoC=R+
- 2010: Estimate based on interpolation between data reported by national government. Reported data excluded. Decline in coverage unexplained. GoC=R+
- 2009: Estimate based on interpolation between data reported by national government. Reported data excluded. Decline in coverage unexplained. The Government of Canada conducts periodic nationally representative national immunization coverage surveys. In the 2011 Childhood National Immunization Coverage Survey (cNICS) questions were asked of the parents of 395 children who turned 2 years of age within 12 months prior to the survey. Results suggests coverage of 96 percent for four doses of IPV vaccine by the 2nd birthday. GoC=R+
- 2008: Estimate based on interpolation between data reported by national government. Reported data excluded. Decline in coverage unexplained. Nationally reported data for 2008 are based on the results of the 2006 Childhood National Immunization Coverage Survey. GoC=R+
- 2007: Estimate based on coverage reported by national government. GoC=R+
- 2006: Estimate based on coverage reported by national government. GoC=R+
- 2005: Estimate based on interpolation between data reported by national government. GoC=No accepted empirical data

Canada - IPV1

CAN - IPV1



Description:

2016: Programme uses DTP-HepB-Hib-IPV vaccine. Estimate based on DTP1 coverage estimates. GoC=No accepted empirical data

2015: Programme uses DTP-HepB-Hib-IPV vaccine. Estimate based on DTP1 coverage estimates. Reported coverage are obtained from the validation component of the 2013 Childhood National Immunization Coverage Survey for children 24 months or less. Immunization coverage estimates obtained from the national survey may yield lower than actual immunization coverage due to provincial variations in vaccine delivery programmes. 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	96	96
Estimate GoC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	●	●
Official	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Administrative	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Survey	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

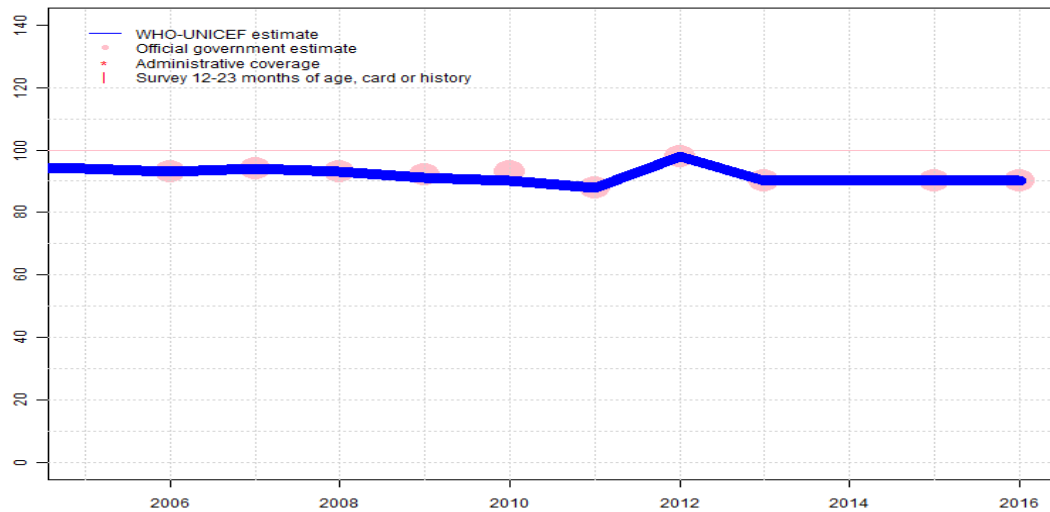
The WHO and UNICEF estimates of national immunization coverage (wuenic) are based on data and information that are of varying, and, in some instances, unknown quality. Beginning with the 2011 revision we describe the grade of confidence (GoC) we have in these estimates. As there is no underlying probability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

- Estimate is supported by reported data [R+], coverage recalculated with an independent denominator from the World Population Prospects: 2015 revision from the UN Population Division (D+), and at least one supporting survey within 2 years [S+]. While well supported, the estimate still carries a risk of being wrong.
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Canada - MCV1

CAN - MCV1



	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Estimate	94	93	94	93	91	90	88	98	90	90	90	90
Estimate GoC	•	••	••	••	••	••	••	••	••	•	••	••
Official	NA	93	94	93	92	93	88	98	90	NA	90	90
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

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

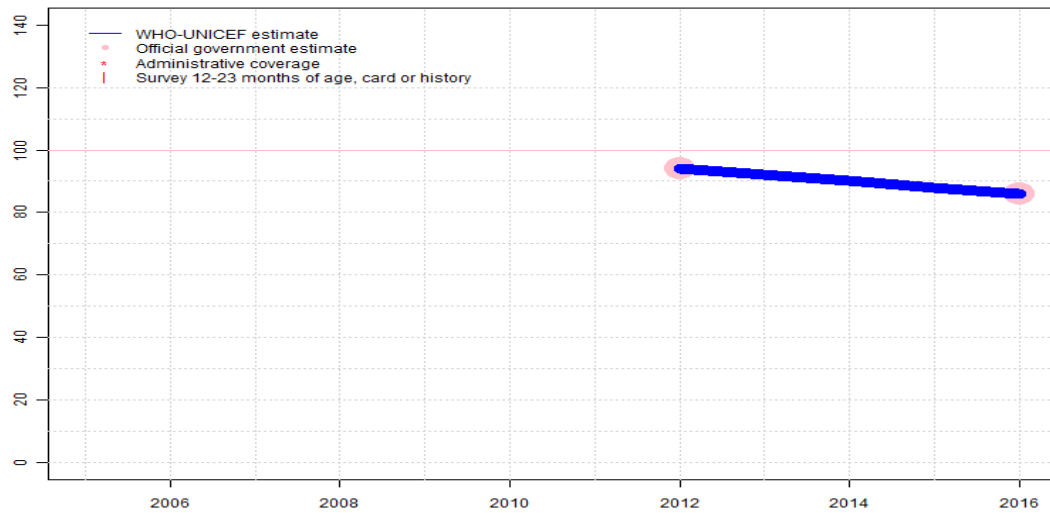
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Description:

- 2016: Estimate based on coverage reported by national government. Reported coverage are obtained from the validation component of the 2013 Childhood National Immunization Coverage Survey for children 24 months or less. Immunization coverage estimates obtained from the national survey may yield lower than actual immunization coverage due to provincial variations in vaccine delivery programmes. GoC=R+
- 2015: Estimate based on coverage reported by national government. Reported coverage are obtained from the validation component of the 2013 Childhood National Immunization Coverage Survey for children 24 months or less. Immunization coverage estimates obtained from the national survey may yield lower than actual immunization coverage due to provincial variations in vaccine delivery programmes. GoC=R+
- 2014: Estimate based on interpolation between data reported by national government. See note for 2013 on source of reported coverage. GoC=No accepted empirical data
- 2013: Estimate based on coverage reported by national government. Reported coverage are obtained from the validation component of the 2011 Childhood National Immunization Coverage Survey for children 24 months or less. Immunization coverage estimates obtained from the national survey may yield lower than actual immunization coverage due to provincial variations in vaccine delivery programmes. GoC=R+
- 2012: Estimate based on coverage reported by national government. GoC=R+
- 2011: Estimate based on coverage reported by national government. Estimate is based on reported data. GoC=R+
- 2010: Estimate based on interpolation between data reported by national government. Reported data excluded. Decline in coverage unexplained. GoC=R+
- 2009: Estimate based on interpolation between data reported by national government. Reported data excluded. Decline in coverage unexplained. The Government of Canada conducts periodic nationally representative national immunization coverage surveys. In the 2011 Childhood National Immunization Coverage Survey (cNICS) questions were asked of the parents of 395 children who turned 2 years of age within 12 months prior to the survey. Results suggests coverage of 95 percent for MMR vaccine by the 2nd birthday. GoC=R+
- 2008: Estimate based on interpolation between data reported by national government. Reported data excluded. Decline in coverage unexplained. Nationally reported data for 2008 are based on the results of the 2006 Childhood National Immunization Coverage Survey. GoC=R+
- 2007: Estimate based on coverage reported by national government. GoC=R+
- 2006: Estimate based on coverage reported by national government. GoC=R+
- 2005: Estimate based on interpolation between data reported by national government. GoC=No accepted empirical data

Canada - MCV2

CAN - 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. Reported coverage are obtained from the validation component of the 2013 Childhood National Immunization Coverage Survey for children 7 years or less. Immunization coverage estimates obtained from the national survey may yield lower than actual immunization coverage due to provincial variations in vaccine delivery programmes. GoC=R+

2015: Estimate based on interpolation between reported values. Reported coverage are obtained from the validation component of the 2013 Childhood National Immunization Coverage Survey for children 24 months or less. Immunization coverage estimates obtained from the national survey may yield lower than actual immunization coverage due to provincial variations in vaccine delivery programmes. Estimate of 88 percent changed from previous revision value of 94 percent. GoC=No accepted empirical data

2014: Estimate based on interpolation between reported values. See note for 2013 on source of reported coverage. Estimate of 90 percent changed from previous revision value of 94 percent. GoC=No accepted empirical data

2013: Estimate based on interpolation between reported values. Reported coverage are obtained from the validation component of the 2011 Childhood National Immunization Coverage Survey for children 24 months or less. Immunization coverage estimates obtained from the national survey may yield lower than actual immunization coverage due to provincial variations in vaccine delivery programmes. Estimate of 92 percent changed from previous revision value of 94 percent. GoC=No accepted empirical data

2012: Estimate based on coverage reported by national government. MCV second dose introduced in 1997. Reporting started in 2012. GoC=R+

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Estimate	NA	NA	NA	NA	NA	NA	NA	94	92	90	88	86
Estimate GoC	NA	NA	NA	NA	NA	NA	NA	••	•	•	•	••
Official	NA	NA	NA	NA	NA	NA	NA	94	NA	NA	NA	86
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

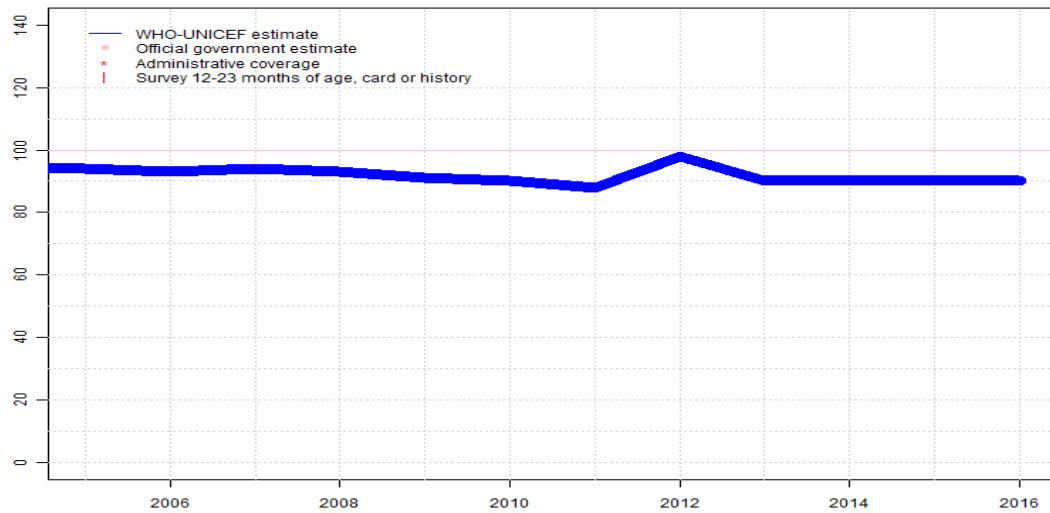
The WHO and UNICEF estimates of national immunization coverage (wuenic) are based on data and information that are of varying, and, in some instances, unknown quality. Beginning with the 2011 revision we describe the grade of confidence (GoC) we have in these estimates. As there is no underlying probability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

Canada - RCV1

CAN - RCV1



	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Estimate	94	93	94	93	91	90	88	98	90	90	90	90
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: 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:

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

2016: Estimate based on estimated MCV1. GoC=R+

2015: Estimate based on estimated MCV1. Reported coverage are obtained from the validation component of the 2013 Childhood National Immunization Coverage Survey for children 24 months or less. Immunization coverage estimates obtained from the national survey may yield lower than actual immunization coverage due to provincial variations in vaccine delivery programmes. GoC=R+

2014: Estimate based on estimated MCV1. See note for 2013 on source of reported coverage. GoC=No accepted empirical data

2013: Estimate based on estimated MCV1. Reported coverage are obtained from the validation component of the 2011 Childhood National Immunization Coverage Survey for children 24 months or less. Immunization coverage estimates obtained from the national survey may yield lower than actual immunization coverage due to provincial variations in vaccine delivery programmes. GoC=R+

2012: Estimate based on estimated MCV1. GoC=R+

2011: Estimate based on estimated MCV1. Estimate is based on reported data. GoC=R+

2010: Estimate based on estimated MCV1. GoC=R+

2009: Estimate based on estimated MCV1. GoC=R+

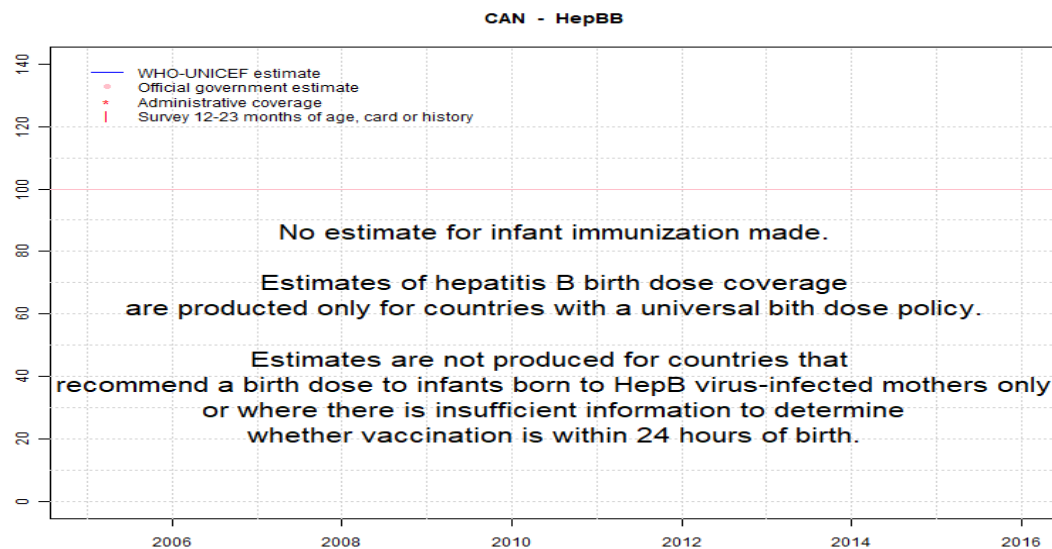
2008: Estimate based on estimated MCV1. Nationally reported data for 2008 are based on the results of the 2006 Childhood National Immunization Coverage Survey. GoC=R+

2007: Estimate based on estimated MCV1. GoC=R+

2006: Estimate based on estimated MCV1. GoC=R+

2005: Estimate based on estimated MCV1. GoC=No accepted empirical data

Canada - 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

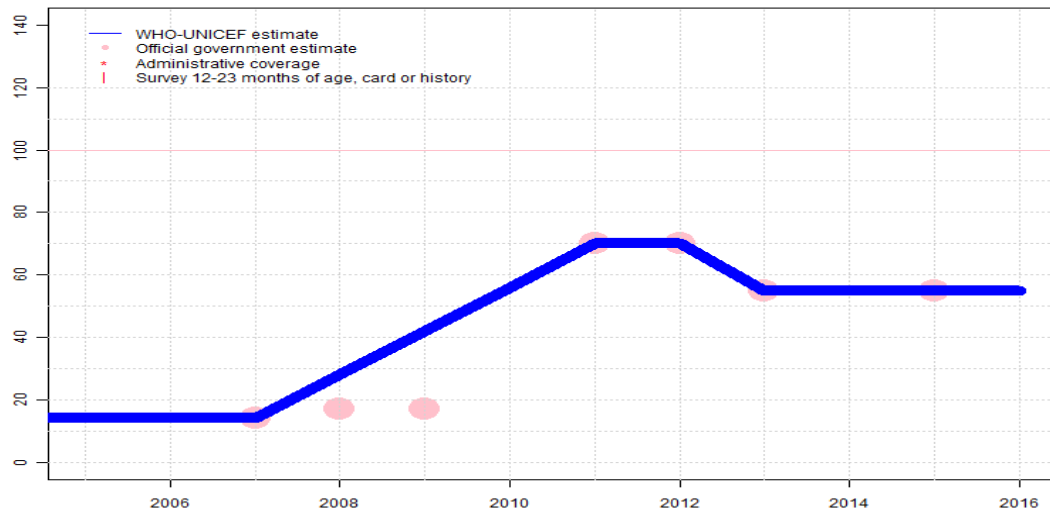
The WHO and UNICEF estimates of national immunization coverage (wuenic) are based on data and information that are of varying, and, in some instances, unknown quality. Beginning with the 2011 revision we describe the grade of confidence (GoC) we have in these estimates. As there is no underlying probability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

Canada - HepB3

CAN - HepB3



	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Estimate	14	14	14	28	42	56	70	70	55	55	55	55
Estimate GoC	•	•	••	••	••	•	••	••	••	•	••	•
Official	NA	NA	14	17	17	NA	70	70	55	NA	55	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.

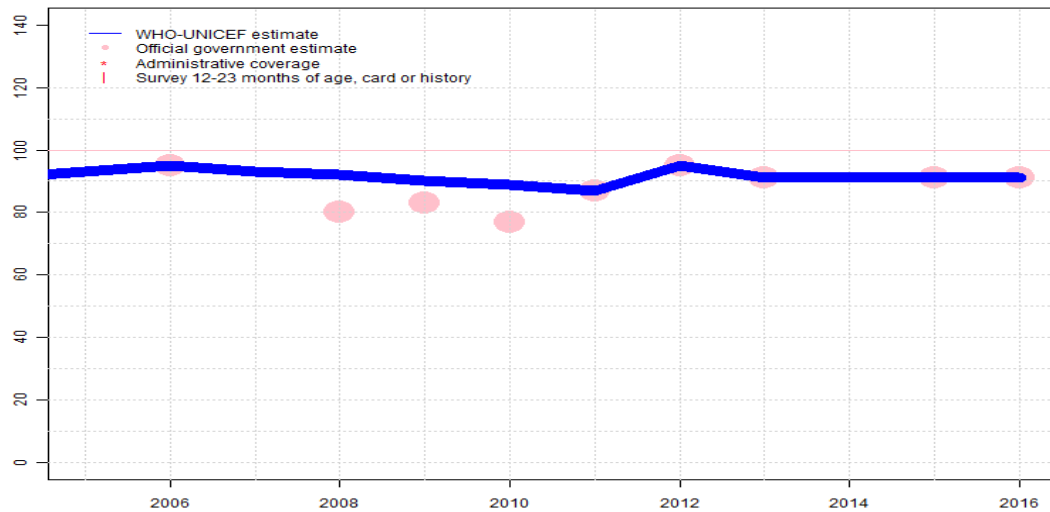
In all cases these estimates should be used with caution and should be assessed in light of the objective for which they are being used.

Description:

- 2016: Estimate based on extrapolation from data reported by national government. GoC=No accepted empirical data
- 2015: Estimate based on coverage reported by national government. Reported coverage are obtained from the validation component of the 2013 Childhood National Immunization Coverage Survey for children 24 months or less. Immunization coverage estimates obtained from the national survey may yield lower than actual immunization coverage due to provincial variations in vaccine delivery programmes. Data reflect coverage for the six jurisdictions that recommend HepB vaccine among infants. GoC=R+
- 2014: Estimate based on interpolation between reported values. See note for 2013 on source of reported coverage. GoC=No accepted empirical data
- 2013: Estimate based on coverage reported by national government. Reported coverage are obtained from the validation component of the 2011 Childhood National Immunization Coverage Survey for children 24 months or less. Immunization coverage estimates obtained from the national survey may yield lower than actual immunization coverage due to provincial variations in vaccine delivery programmes. GoC=R+
- 2012: Estimate based on coverage reported by national government. GoC=R+
- 2011: Estimate based on coverage reported by national government. Not all provinces immunized infants for Hep B in 2011. Estimate is based on reported data. GoC=R+
- 2010: Estimate based on interpolation between reported values. GoC=No accepted empirical data
- 2009: Estimate based on interpolation between reported values. Reported data excluded. Decline in coverage unexplained. GoC=R+
- 2008: Estimate based on interpolation between reported values. Reported data excluded. Decline in coverage unexplained. Nationally reported data for 2008 are based on the results of the 2006 Childhood National Immunization Coverage Survey. GoC=R+
- 2007: Estimate based on coverage reported by national government. GoC=R+
- 2006: Estimate based on extrapolation from data reported by national government. GoC=No accepted empirical data
- 2005: Estimate based on extrapolation from data reported by national government. GoC=No accepted empirical data

Canada - Hib3

CAN - Hib3



	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Estimate	93	95	93	92	90	89	87	95	91	91	91	91
Estimate GoC	•	••	•	••	••	••	••	••	••	•	••	••
Official	NA	95	NA	80	83	77	87	95	91	NA	91	91
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.

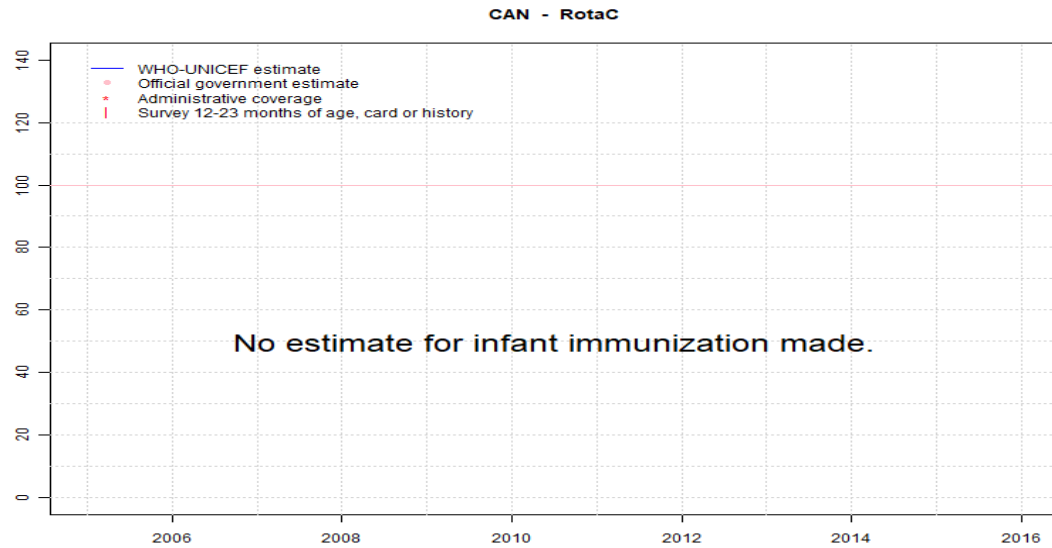
- Estimate is supported by reported data [R+], coverage recalculated with an independent denominator from the World Population Prospects: 2015 revision from the UN Population Division (D+), and at least one supporting survey within 2 years [S+]. While well supported, the estimate still carries a risk 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.

Description:

- 2016: Estimate based on coverage reported by national government. Reported coverage are obtained from the validation component of the 2013 Childhood National Immunization Coverage Survey for children 24 months or less. Immunization coverage estimates obtained from the national survey may yield lower than actual immunization coverage due to provincial variations in vaccine delivery programmes. GoC=R+
- 2015: Estimate based on coverage reported by national government. Reported coverage are obtained from the validation component of the 2013 Childhood National Immunization Coverage Survey for children 24 months or less. Immunization coverage estimates obtained from the national survey may yield lower than actual immunization coverage due to provincial variations in vaccine delivery programmes. GoC=R+
- 2014: Estimate based on interpolation between data reported by national government. See note for 2013 on source of reported coverage. Reported coverage is based on that for the third dose of polio vaccine administered in combination with Hib. The programme monitors the fourth dose of Hib containing vaccine at 2 years of age. GoC=No accepted empirical data
- 2013: Estimate based on coverage reported by national government. Reported coverage are obtained from the validation component of the 2011 Childhood National Immunization Coverage Survey for children 24 months or less. Immunization coverage estimates obtained from the national survey may yield lower than actual immunization coverage due to provincial variations in vaccine delivery programmes. GoC=R+
- 2012: Estimate based on coverage reported by national government. GoC=R+
- 2011: Estimate based on coverage reported by national government. Estimate is based on reported data. GoC=R+
- 2010: Estimate based on interpolation between data reported by national government. Reported data excluded. Decline in coverage unexplained. GoC=R+
- 2009: Estimate based on interpolation between data reported by national government. Reported data excluded. Decline in coverage unexplained. The Government of Canada conducts periodic nationally representative national immunization coverage surveys. In the 2011 Childhood National Immunization Coverage Survey (cNICS) questions were asked of the parents of 395 children who turned 2 years of age within 12 months prior to the survey. Results suggests coverage of 88 percent for four doses of Hib vaccine by the 2nd birthday. GoC=R+
- 2008: Estimate based on interpolation between data reported by national government. Reported data excluded. Decline in coverage unexplained. Nationally reported data for 2008 are based on the results of the 2006 Childhood National Immunization Coverage Survey. GoC=R+
- 2007: Estimate based on interpolation between data reported by national government. GoC=No accepted empirical data
- 2006: Estimate based on coverage reported by national government. GoC=R+
- 2005: Estimate based on interpolation between data reported by national government. GoC=No accepted empirical data

Canada - RotaC



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

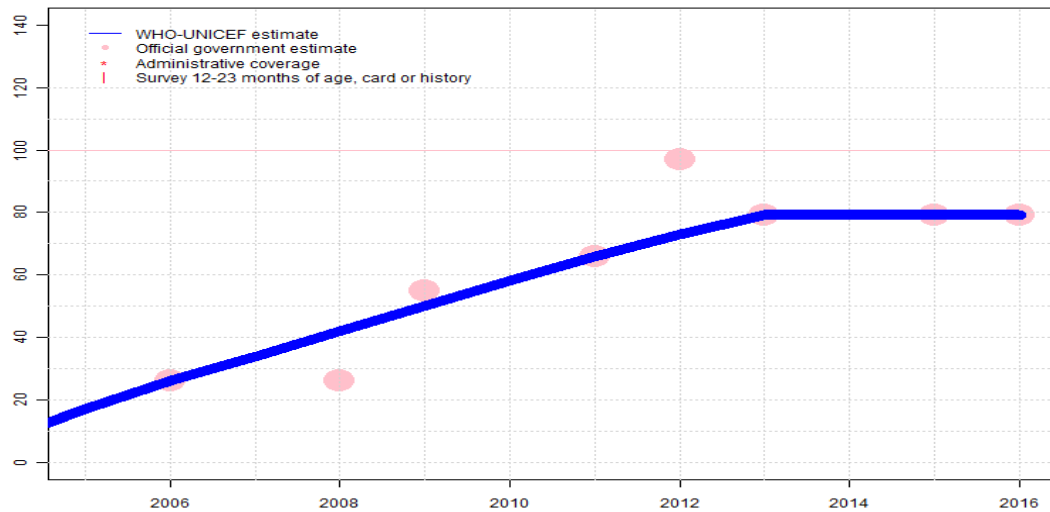
The WHO and UNICEF estimates of national immunization coverage (wuenic) are based on data and information that are of varying, and, in some instances, unknown quality. Beginning with the 2011 revision we describe the grade of confidence (GoC) we have in these estimates. As there is no underlying probability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

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

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

Canada - PcV3

CAN - PcV3



	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Estimate	17	26	34	42	50	58	66	73	79	79	79	79
Estimate GoC	•	••	•	••	••	•	••	••	••	•	••	••
Official	NA	26	NA	26	55	NA	66	97	79	NA	79	79
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.

Description:

- 2016: Estimate based on coverage reported by national government. Reported coverage are obtained from the validation component of the 2013 Childhood National Immunization Coverage Survey for children 24 months or less. Immunization coverage estimates obtained from the national survey may yield lower than actual immunization coverage due to provincial variations in vaccine delivery programmes. GoC=R+
- 2015: Estimate based on coverage reported by national government. Reported coverage are obtained from the validation component of the 2013 Childhood National Immunization Coverage Survey for children 24 months or less. Immunization coverage estimates obtained from the national survey may yield lower than actual immunization coverage due to provincial variations in vaccine delivery programmes. Estimate of 79 percent changed from previous revision value of 91 percent. GoC=R+
- 2014: Estimate based on interpolation between reported values. See note for 2013 on source of reported coverage. Estimate of 79 percent changed from previous revision value of 94 percent. GoC=No accepted empirical data
- 2013: Estimate based on coverage reported by national government. Reported coverage are obtained from the validation component of the 2011 Childhood National Immunization Coverage Survey for children 24 months or less. Immunization coverage estimates obtained from the national survey may yield lower than actual immunization coverage due to provincial variations in vaccine delivery programmes. For the PcV dose recommended at 4 months of age reported coverage is ninety-seven percent. Reported official data is for a PcV dose given at 6 months to high risk groups. Estimate of 79 percent changed from previous revision value of 97 percent. GoC=R+
- 2012: Estimate based on interpolation between reported values. Reported data excluded due to an unexplained increase from 66 percent to 97 percent with decrease 79 percent. For the PcV dose recommended at 4 months of age reported coverage is ninety-seven percent. Reported official data is for a PcV dose given at 6 months to high risk groups. Estimate of 73 percent changed from previous revision value of 97 percent. GoC=R+
- 2011: Estimate based on coverage reported by national government. Reported coverage reflects that for the third dose or fourth dose depending on jurisdiction. Estimate is based on reported data. GoC=R+
- 2010: Estimate based on interpolation between reported values. Reported coverage reflects that for the third dose or fourth dose depending on jurisdiction. GoC=No accepted empirical data
- 2009: Estimate based on interpolation between reported values. Reported data excluded. Decline in coverage unexplained. Reported coverage reflects that for the third dose or fourth dose depending on jurisdiction. GoC=R+
- 2008: Estimate based on interpolation between reported values. Reported data excluded. Decline in coverage unexplained. Nationally reported data for 2008 are based on the results of the 2006 Childhood National Immunization Coverage Survey. GoC=R+
- 2007: Estimate based on interpolation between reported values. GoC=No accepted empirical data

Canada - PcV3

2006: Estimate based on coverage reported by national government. GoC=R+

2005: Estimate based on interpolation between reported values. Pneumococcal conjugate vaccine introduced in 2002. GoC=No accepted empirical data

Canada - survey details

2003 National Immunization Coverage Survey 2004

Vaccine	Confirmation method	Coverage	Age cohort	Sample	Cards seen
HepB3	Card	14	20-40 m	-	-
MCV1	Card	94	20-40 m	-	-
Pol3	Card	89	20-40 m	-	-

2000 Canada, National Immunization Coverage Survey, 2002

Vaccine	Confirmation method	Coverage	Age cohort	Sample	Cards seen
DTP3	History	91	24-35 m	629	85
MCV1	History	94	24-35 m	629	85
Pol3	History	88	24-35 m	629	85

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