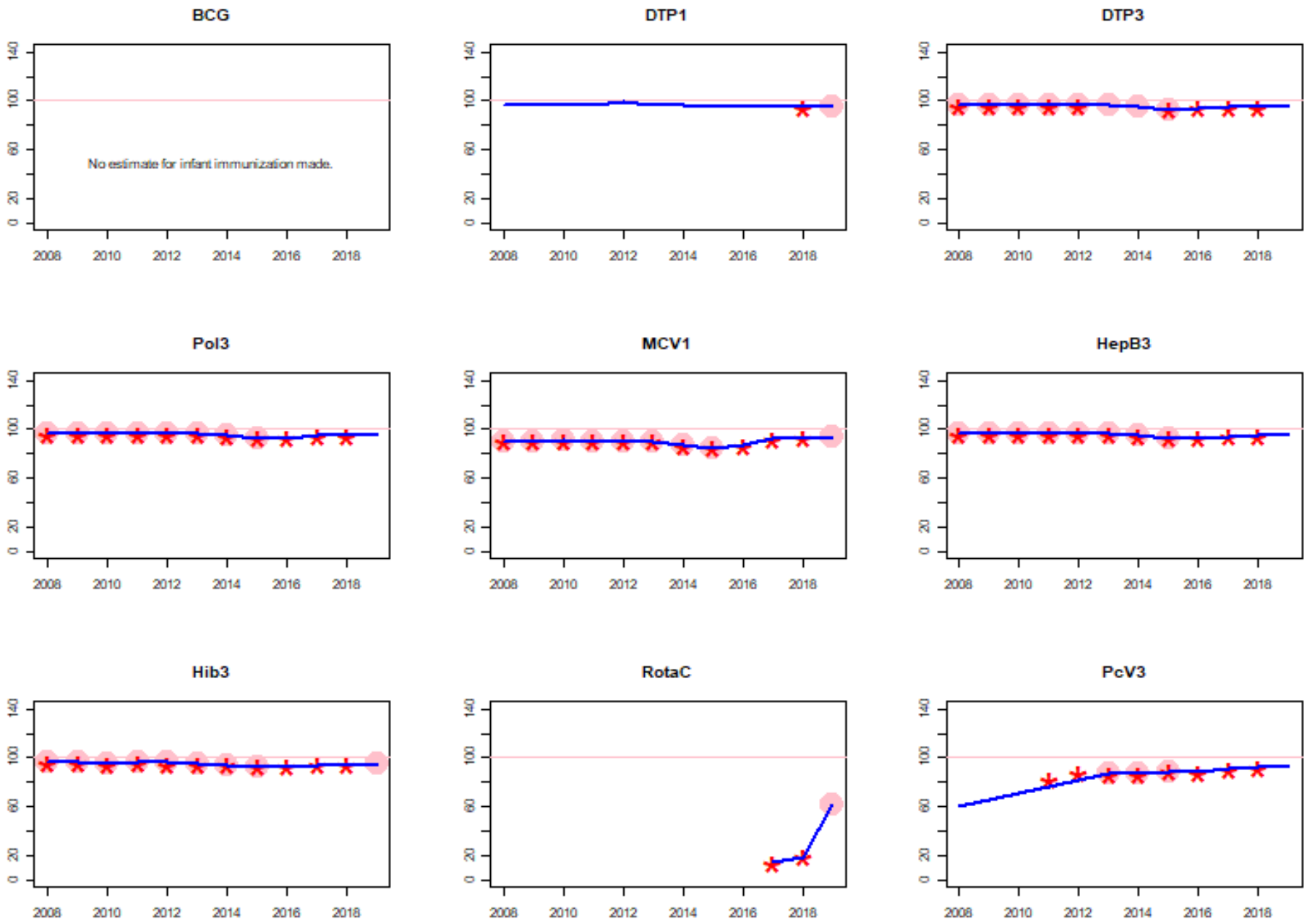

BCG
No estimate for infant immunization made.
DTP1
DTP3
Pol3
MCV1
HepB3
Hib3
RotaC
PcV3
0
20
60
100
140
2008
2010
2012
2014
2016
2018

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. Co verage 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.

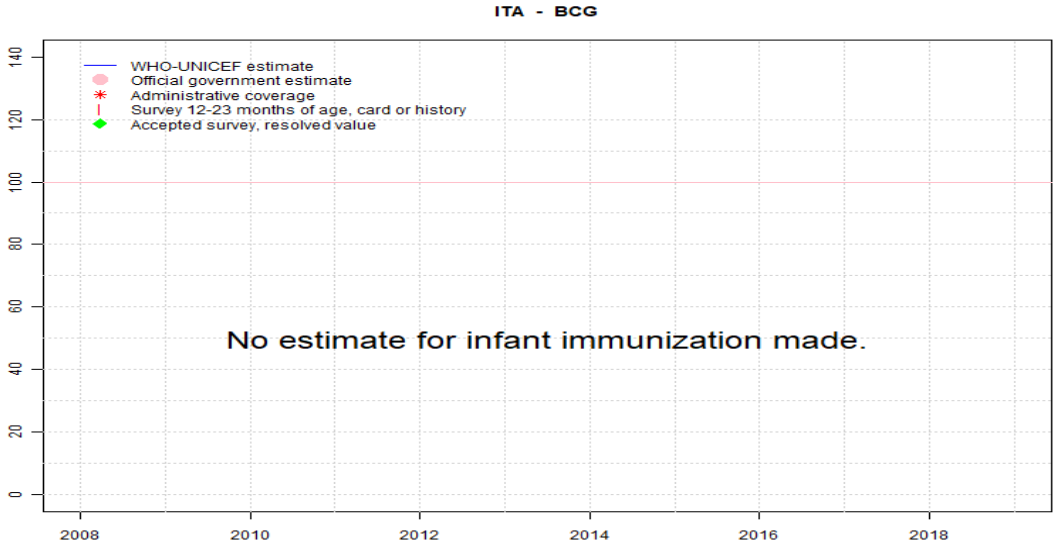
RotaC: percentage of surviving infants who received the final recommended dose of rotavirus vaccine, which can be either the 2nd or the 3rd dose depending on the vaccine.

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.

Disclaimer: All reasonable precautions have been taken by the World Health Organization and United Nations Children's Fund to verify the information contained in this publication. However, the published material is being distributed without warranty of any kind, either expressed or implied. The responsibility for the interpretation and use of the material lies with the reader. In no event shall the World Health Organization or United Nations Children's Fund be liable for damages arising from its use.

Italy - BCG



	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
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.

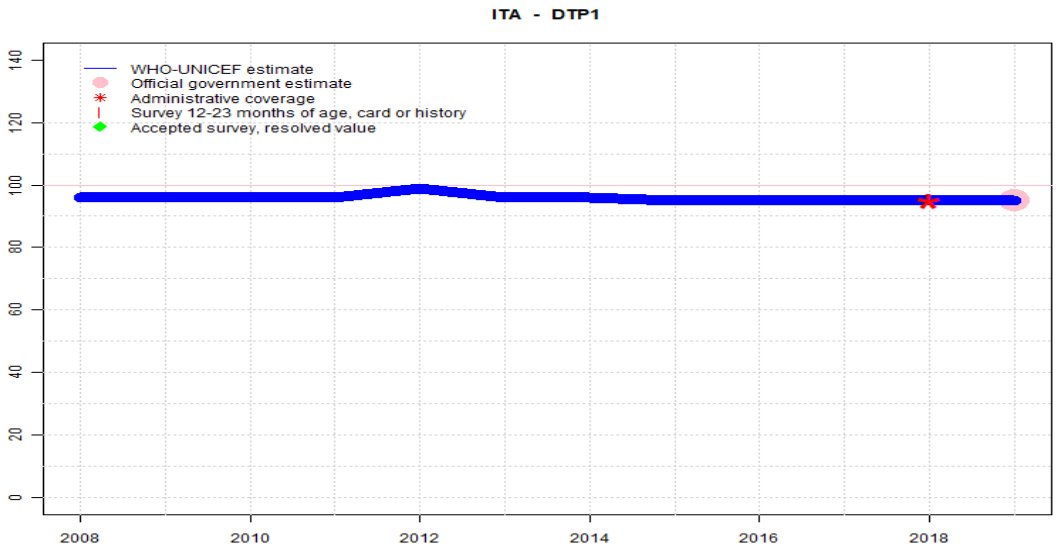
●●● Estimate is supported by reported data [R+], coverage recalculated with an independent denominator from the World Population Prospects: 2019 revision from the UN Population Division (D+), and at least one supporting survey within 2 years [S+]. While well supported, the estimate still carries a risk 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.

Italy - DTP1



	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Estimate	96	96	96	96	99	96	96	95	95	95	95	95
Estimate GoC	•	•	•	•	•	•	•	•	•	•	••	••
Official	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	95
Administrative	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	95	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: 2019 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:

2019: Estimate based on coverage reported by national government. No nationally representative independent assessment within the last 5 years. WHO and UNICEF recommend a high-quality independent empirical assessment to confirm reported levels of coverage. GoC=R+

2018: Estimate is based on reported data. Programme reports vaccine stock-out for an unspecified duration. Estimate of 95 percent changed from previous revision value of 98 percent. GoC=R+

2017: Reported data calibrated to 1997 and 2018 levels. Estimate of 95 percent changed from previous revision value of 98 percent. GoC=No accepted empirical data

2016: Reported data calibrated to 1997 and 2018 levels. Estimate of 95 percent changed from previous revision value of 98 percent. GoC=No accepted empirical data

2015: Reported data calibrated to 1997 and 2018 levels. Estimate of 95 percent changed from previous revision value of 97 percent. GoC=No accepted empirical data

2014: Reported data calibrated to 1997 and 2018 levels. Estimate of 96 percent changed from previous revision value of 98 percent. GoC=No accepted empirical data

2013: Reported data calibrated to 1997 and 2018 levels. Estimate of 96 percent changed from previous revision value of 98 percent. GoC=No accepted empirical data

2012: DTP1 coverage estimated based on DTP3 coverage of 97. GoC=No accepted empirical data

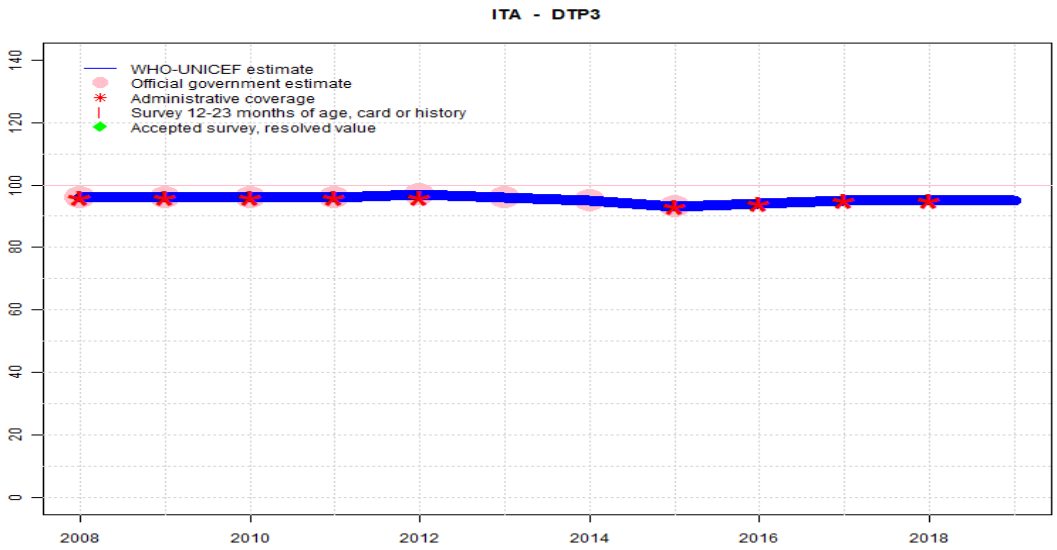
2011: Reported data calibrated to 1997 and 2018 levels. Estimate of 96 percent changed from previous revision value of 98 percent. GoC=No accepted empirical data

2010: Reported data calibrated to 1997 and 2018 levels. Estimate of 96 percent changed from previous revision value of 98 percent. GoC=No accepted empirical data

2009: Reported data calibrated to 1997 and 2018 levels. Estimate of 96 percent changed from previous revision value of 98 percent. GoC=No accepted empirical data

2008: Reported data calibrated to 1997 and 2018 levels. Estimate of 96 percent changed from previous revision value of 98 percent. GoC=No accepted empirical data

Italy - DTP3



	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Estimate	96	96	96	96	97	96	95	93	94	95	95	95
Estimate GoC	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●
Official	96	96	96	96	97	96	95	93	NA	NA	NA	NA
Administrative	96	96	96	96	96	NA	NA	93	94	95	95	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: 2019 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:

2019: Estimate based on extrapolation from data reported by national government. No nationally representative independent assessment within the last 5 years. WHO and UNICEF recommend a high-quality independent empirical assessment to confirm reported levels of coverage. GoC=No accepted empirical data

2018: Estimate based on reported administrative data. Programme reports vaccine stock-out of unspecified duration. GoC=R+ D+

2017: Estimate based on reported administrative data. GoC=R+ D+

2016: Estimate based on reported administrative data. GoC=R+

2015: Estimate based on coverage reported by national government. GoC=R+ D+

2014: Estimate based on coverage reported by national government. GoC=R+

2013: Estimate based on coverage reported by national government. GoC=R+

2012: Estimate based on coverage reported by national government. GoC=R+

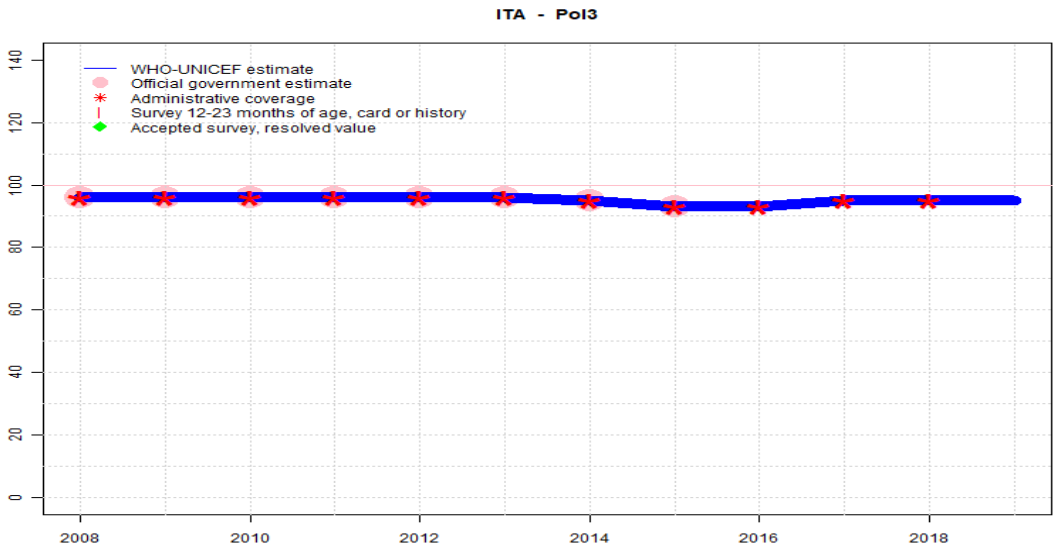
2011: Estimate based on coverage reported by national government. GoC=R+

2010: Estimate based on coverage reported by national government. GoC=R+

2009: Estimate based on coverage reported by national government. GoC=R+ S+

2008: Estimate based on coverage reported by national government. GoC=R+ S+

Italy - Pol3



	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Estimate	96	96	96	96	96	96	95	93	93	95	95	95
Estimate GoC	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●
Official	96	96	96	96	96	96	95	93	NA	NA	NA	NA
Administrative	96	96	96	96	96	96	95	93	93	95	95	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: 2019 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:

2019: Estimate based on extrapolation from data reported by national government. No nationally representative independent assessment within the last 5 years. WHO and UNICEF recommend a high-quality independent empirical assessment to confirm reported levels of coverage. GoC=No accepted empirical data

2018: Estimate based on reported administrative data. Programme reports vaccine stock-out of unspecified duration. GoC=R+ D+

2017: Estimate based on reported administrative data. GoC=R+ D+

2016: Estimate based on reported administrative data. GoC=R+

2015: Estimate based on coverage reported by national government. GoC=R+ D+

2014: Estimate based on coverage reported by national government. GoC=R+

2013: Estimate based on coverage reported by national government. GoC=R+

2012: Estimate based on coverage reported by national government. GoC=R+

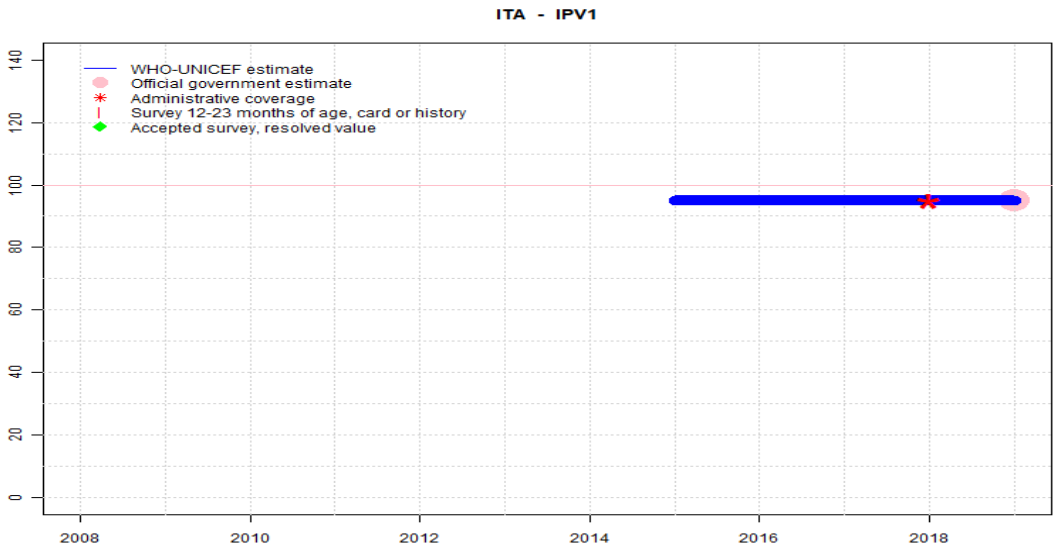
2011: Estimate based on coverage reported by national government. GoC=R+

2010: Estimate based on coverage reported by national government. GoC=R+

2009: Estimate based on coverage reported by national government. GoC=R+ S+

2008: Estimate based on coverage reported by national government. GoC=R+ S+

Italy - IPV1



	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Estimate	NA	NA	NA	NA	NA	NA	NA	95	95	95	95	95
Estimate GoC	NA	NA	NA	NA	NA	NA	NA	●	●	●	●	●
Official	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	95
Administrative	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	95	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: 2019 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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● 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:

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).

2019: Estimate based on estimated DTP1 coverage. No nationally representative independent assessment within the last 5 years. WHO and UNICEF recommend a high-quality independent empirical assessment to confirm reported levels of coverage. Estimate challenged by: R-

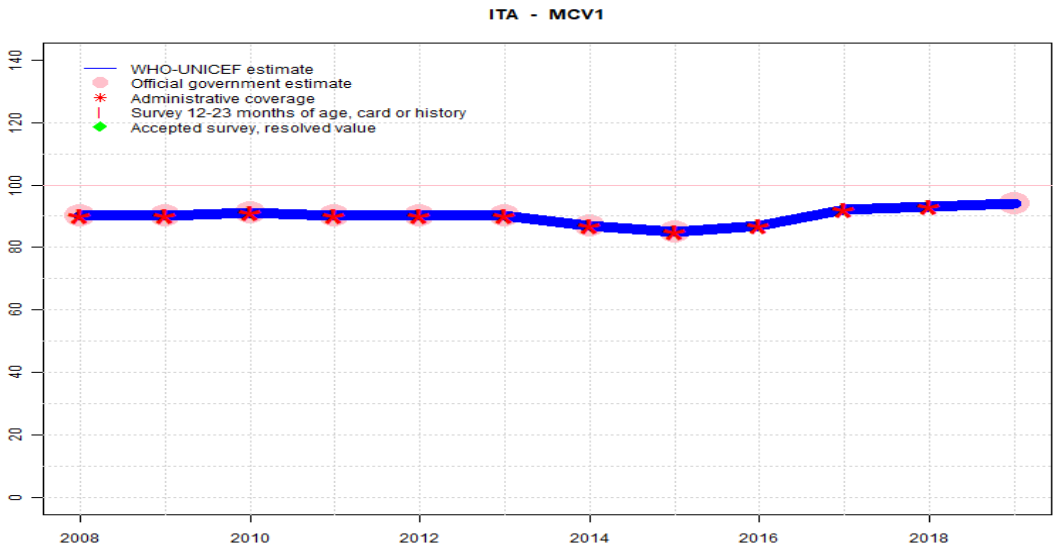
2018: Estimate based on estimated DTP1 coverage. Programme reports vaccine stock-out of unspecified duration. Estimate of 95 percent changed from previous revision value of 98 percent. Estimate challenged by: R-

2017: Estimate based on estimated DTP1 coverage. Estimate of 95 percent changed from previous revision value of 98 percent. GoC=No accepted empirical data

2016: Estimate based on estimated DTP1 coverage. Estimate of 95 percent changed from previous revision value of 98 percent. GoC=No accepted empirical data

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

Italy - MCV1



	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Estimate	90	90	91	90	90	90	87	85	87	92	93	94
Estimate GoC	••	••	••	••	••	••	••	••	••	••	••	••
Official	90	90	91	90	90	90	87	85	NA	NA	NA	94
Administrative	90	90	91	90	90	90	87	85	87	92	93	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: 2019 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:

2019: Estimate based on coverage reported by national government. No nationally representative independent assessment within the last 5 years. WHO and UNICEF recommend a high-quality independent empirical assessment to confirm reported levels of coverage. GoC=R+

2018: Estimate based on reported administrative data. GoC=R+ D+

2017: Estimate based on reported administrative data. GoC=R+ D+

2016: Estimate based on reported administrative data. GoC=R+

2015: Estimate based on coverage reported by national government. GoC=R+ D+

2014: Estimate based on coverage reported by national government. GoC=R+

2013: Estimate based on coverage reported by national government. GoC=R+

2012: Estimate based on coverage reported by national government. GoC=R+

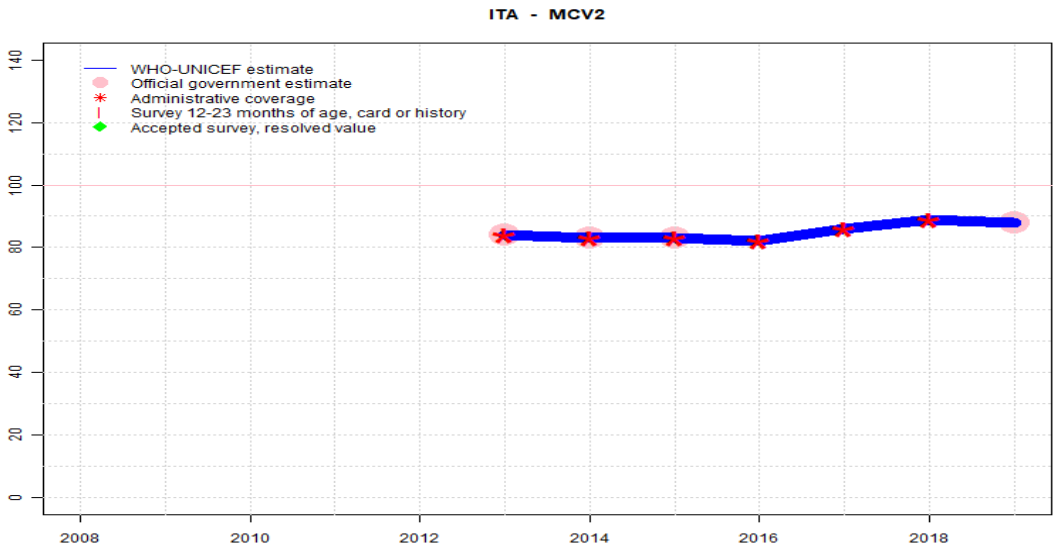
2011: Estimate based on coverage reported by national government. GoC=R+

2010: Estimate based on coverage reported by national government. GoC=R+

2009: Estimate based on coverage reported by national government. GoC=R+

2008: Estimate based on coverage reported by national government. GoC=R+ S+

Italy - MCV2



	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Estimate	NA	NA	NA	NA	NA	84	83	83	82	86	89	88
Estimate GoC	NA	NA	NA	NA	NA	●●	●●	●●	●●	●	●	●●
Official	NA	NA	NA	NA	NA	84	83	83	NA	NA	NA	88
Administrative	NA	NA	NA	NA	NA	84	83	83	82	86	89	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: 2019 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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● 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:

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

2019: Estimate based on coverage reported by national government. No nationally representative independent assessment within the last 5 years. WHO and UNICEF recommend a high-quality independent empirical assessment to confirm reported levels of coverage. GoC=R+

2018: Estimate based on reported administrative estimate. Estimate challenged by: D-

2017: Estimate based on reported administrative estimate. Estimate challenged by: D-

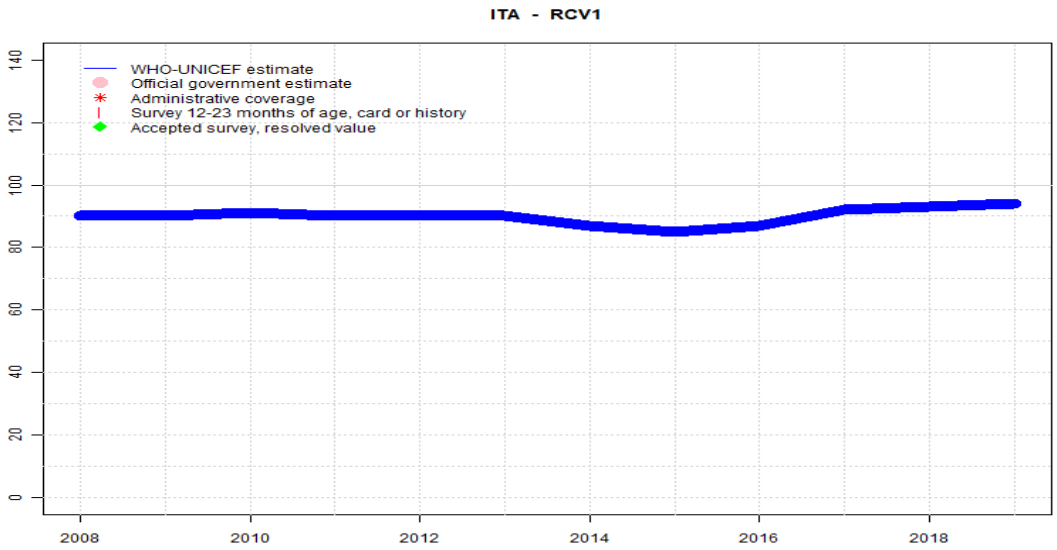
2016: Estimate based on reported administrative estimate. GoC=R+

2015: Estimate based on coverage reported by national government. GoC=R+ D+

2014: Estimate based on coverage reported by national government. GoC=R+

2013: Estimate based on coverage reported by national government. Second dose of measles containing vaccine introduced in 2004. Reporting started in 2013. GoC=R+

Italy - RCV1



	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Estimate	90	90	91	90	90	90	87	85	87	92	93	94
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: 2019 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.

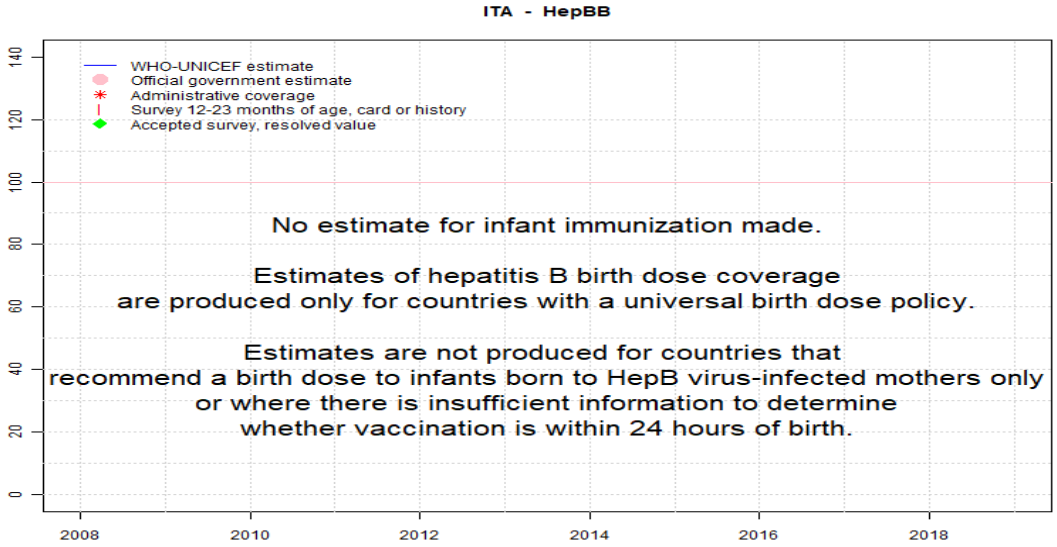
In all cases these estimates should be used with caution and should be assessed in light of the objective for which they are being used.

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.

2019: Estimate based on estimated MCV1. No nationally representative independent assessment within the last 5 years. WHO and UNICEF recommend a high-quality independent empirical assessment to confirm reported levels of coverage. GoC=R+
2018: Estimate based on estimated MCV1. GoC=R+ D+
2017: Estimate based on estimated MCV1. GoC=R+ D+
2016: Estimate based on estimated MCV1. GoC=R+
2015: Estimate based on estimated MCV1. GoC=R+ D+
2014: Estimate based on estimated MCV1. GoC=R+
2013: Estimate based on estimated MCV1. GoC=R+
2012: Estimate based on estimated MCV1. GoC=R+
2011: Estimate based on estimated MCV1. GoC=R+
2010: Estimate based on estimated MCV1. GoC=R+
2009: Estimate based on estimated MCV1. GoC=R+
2008: Estimate based on estimated MCV1. GoC=R+ S+

Italy - HepBB



	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
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.

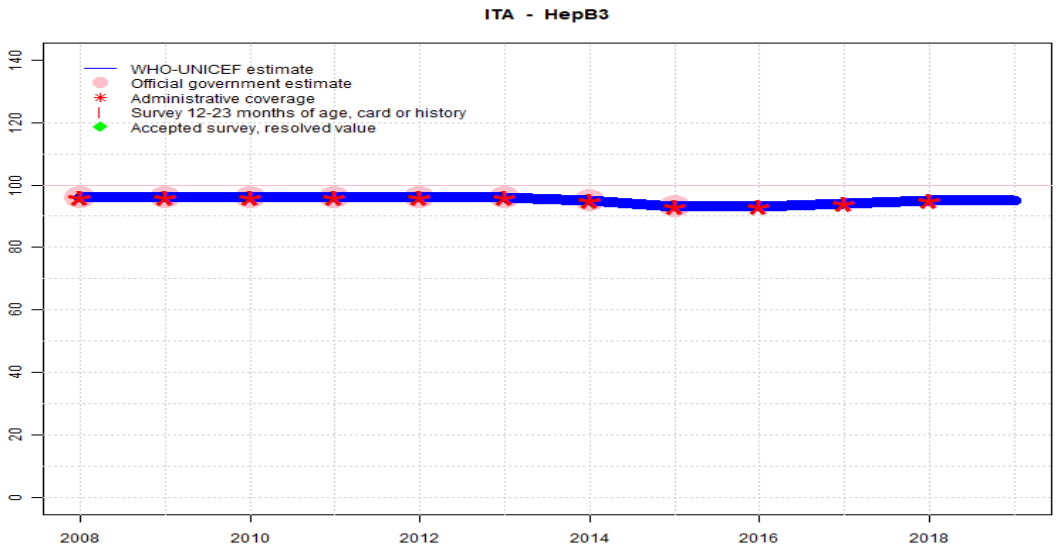
●●● Estimate is supported by reported data [R+], coverage recalculated with an independent denominator from the World Population Prospects: 2019 revision from the UN Population Division (D+), and at least one supporting survey within 2 years [S+]. While well supported, the estimate still carries a risk 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.

Italy - HepB3



	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Estimate	96	96	96	96	96	96	95	93	93	94	95	95
Estimate GoC	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●
Official	96	96	96	96	96	96	95	93	NA	NA	NA	NA
Administrative	96	96	96	96	96	96	95	93	93	94	95	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: 2019 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.

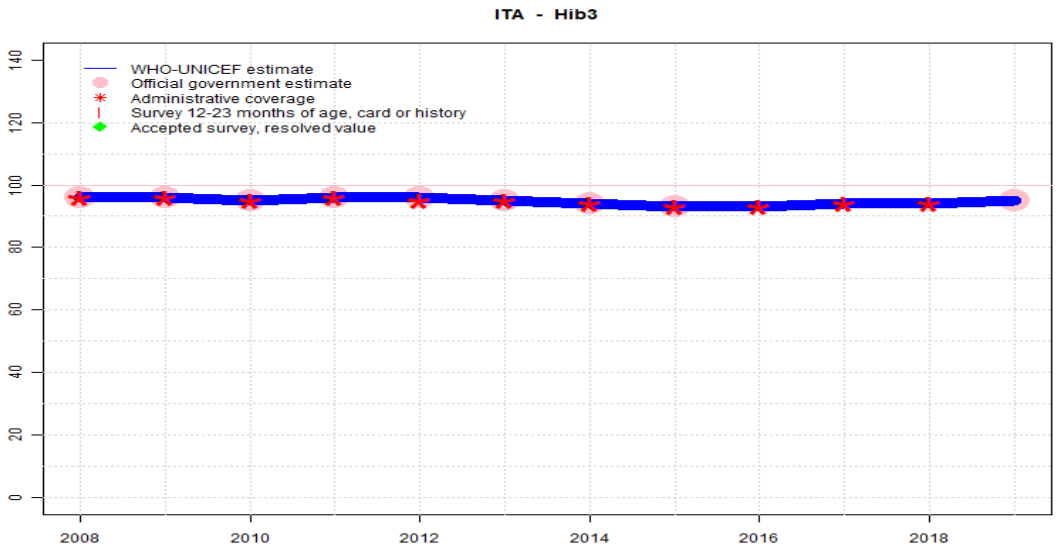
● There are no directly supporting data; or data from at least one source; [R-], [D-], [S-]; challenge the estimate.

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:

2019: Estimate based on extrapolation from data reported by national government. No nationally representative independent assessment within the last 5 years. WHO and UNICEF recommend a high-quality independent empirical assessment to confirm reported levels of coverage. GoC=No accepted empirical data
2018: Estimate based on reported administrative data. GoC=R+ D+
2017: Estimate based on reported administrative data. Programme reports vaccine stock-out of unknown duration. GoC=R+ D+
2016: Estimate based on reported administrative data. GoC=R+
2015: Estimate based on coverage reported by national government. GoC=R+ D+
2014: Estimate based on coverage reported by national government. GoC=R+
2013: Estimate based on coverage reported by national government. GoC=R+
2012: Estimate based on coverage reported by national government. GoC=R+
2011: Estimate based on coverage reported by national government. GoC=R+
2010: Estimate based on coverage reported by national government. GoC=R+
2009: Estimate based on coverage reported by national government. GoC=R+ S+
2008: Estimate based on coverage reported by national government. GoC=R+ S+

Italy - Hib3



	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Estimate	96	96	95	96	96	95	94	93	93	94	94	95
Estimate GoC	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●
Official	96	96	95	96	96	95	94	93	NA	NA	NA	95
Administrative	96	96	95	96	95	95	94	93	93	94	94	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: 2019 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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● 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:

2019: Estimate based on coverage reported by national government. No nationally representative independent assessment within the last 5 years. WHO and UNICEF recommend a high-quality independent empirical assessment to confirm reported levels of coverage. GoC=R+

2018: Estimate based on reported administrative data. GoC=R+ D+

2017: Estimate based on reported administrative data. Programme reports vaccine stock-out of unknown duration. GoC=R+ D+

2016: Estimate based on reported administrative data. GoC=R+

2015: Estimate based on coverage reported by national government. GoC=R+ D+

2014: Estimate based on coverage reported by national government. GoC=R+

2013: Estimate based on coverage reported by national government. GoC=R+

2012: Estimate based on coverage reported by national government. GoC=R+

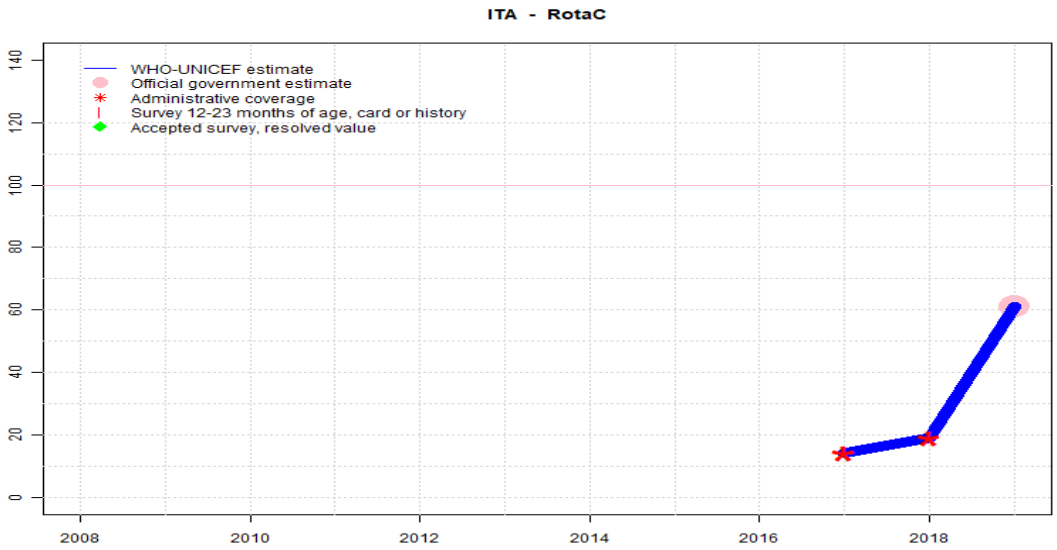
2011: Estimate based on coverage reported by national government. GoC=R+

2010: Estimate based on coverage reported by national government. GoC=R+

2009: Estimate based on coverage reported by national government. GoC=R+ S+

2008: Estimate based on coverage reported by national government. GoC=R+ S+

Italy - RotaC



	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Estimate	NA	NA	NA	NA	NA	NA	NA	NA	NA	14	19	61
Estimate GoC	NA	NA	NA	NA	NA	NA	NA	NA	NA	●●	●●	●●
Official	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	61
Administrative	NA	NA	NA	NA	NA	NA	NA	NA	NA	14	19	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: 2019 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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● 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.

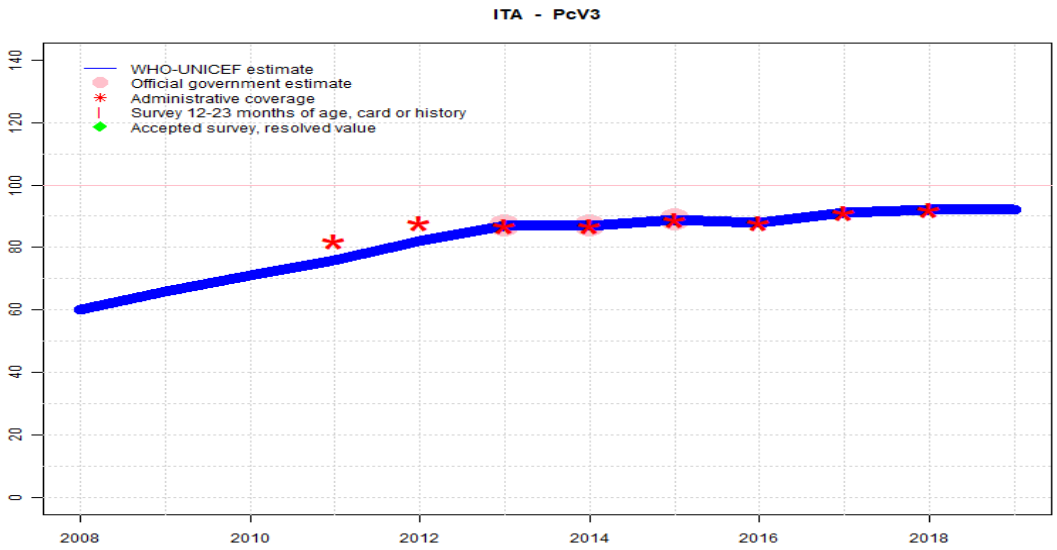
Description:

2019: Estimate based on coverage reported by national government. No nationally representative independent assessment within the last 5 years. WHO and UNICEF recommend a high-quality independent empirical assessment to confirm reported levels of coverage. GoC=R+

2018: Estimate based on reported administrative estimate. GoC=R+ D+

2017: Estimate based on reported administrative estimate. Rotavirus vaccine introduced during 2017. GoC=R+ D+

Italy - PcV3



	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Estimate	60	66	71	76	82	87	87	89	88	91	92	92
Estimate GoC	●●	●	●	●	●	●●	●●	●●	●●	●●	●●	●
Official	NA	NA	NA	NA	NA	87	87	89	NA	NA	NA	NA
Administrative	NA	NA	NA	82	88	87	87	89	88	91	92	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: 2019 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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Description:

2019: Estimate based on extrapolation from data reported by national government. No nationally representative independent assessment within the last 5 years. WHO and UNICEF recommend a high-quality independent empirical assessment to confirm reported levels of coverage. GoC=No accepted empirical data

2018: Estimate based on reported administrative data. GoC=R+ D+

2017: Estimate based on reported administrative data. GoC=R+ D+

2016: Estimate based on reported administrative data. GoC=R+

2015: Estimate based on coverage reported by national government. GoC=R+ D+

2014: Estimate based on coverage reported by national government. GoC=R+

2013: Estimate based on reported data. GoC=R+

2012: Estimate based on interpolation between 2007 and 2013 levels. . Estimate challenged by: R-

2011: Estimate based on interpolation between 2007 and 2013 levels. . Estimate challenged by: R-

2010: Estimate based on interpolation between 2007 and 2013 levels. . GoC=No accepted empirical data

2009: Estimate based on interpolation between 2007 and 2013 levels. . Estimate challenged by: S-

2008: Estimate based on interpolation between 2007 and 2013 levels. . GoC=S+

Italy - survey details

2007 ICONA 2008: Indagine di Copertura vaccinale Nazionale nei bambini e negli adolescenti

Vaccine	Confirmation method	Coverage	Age cohort	Sample	Cards seen
DTP3	Card or History	96.6	12-23 m	3806	-
HepB3	Card or History	96.7	12-23 m	3806	-
Hib3	Card or History	96.2	12-23 m	3806	-
PcV3	Card or History	55.1	12-23 m	3806	-
Pol3	Card or History	96.8	12-23 m	3806	-
RotaC	Card or History	0.4	12-23 m	3806	-

2006 ICONA 2008: Indagine di Copertura vaccinale Nazionale nei bambini e negli adolescenti

Vaccine	Confirmation method	Coverage	Age cohort	Sample	Cards seen
MCV1	Card or History	90.2	15-26 m	3806	-

2002 ICONA Survey 2003

Vaccine	Confirmation method	Coverage	Age cohort	Sample	Cards seen
DTP3	Card	95.8	16-28 m	4602	-
HepB3	Card	95.5	16-28 m	4602	-
Hib3	Card	87	16-28 m	4602	-
MCV1	Card	76.9	16-28 m	4602	-
Pol3	Card	95.7	16-28 m	4602	-

1997 ICONA: indagine nazionale sulla copertura vaccinale infantile 1998

Vaccine	Confirmation method	Coverage	Age cohort	Sample	Cards seen
DTP3	Card or History	94.8	12-24 m	4310	-
HepB3	Card or History	94.5	12-24 m	4310	-
MCV1	Card or History	56.4	12-24 m	4310	-
Pol3	Card or History	94.6	12-24 m	4310	-

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