

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.

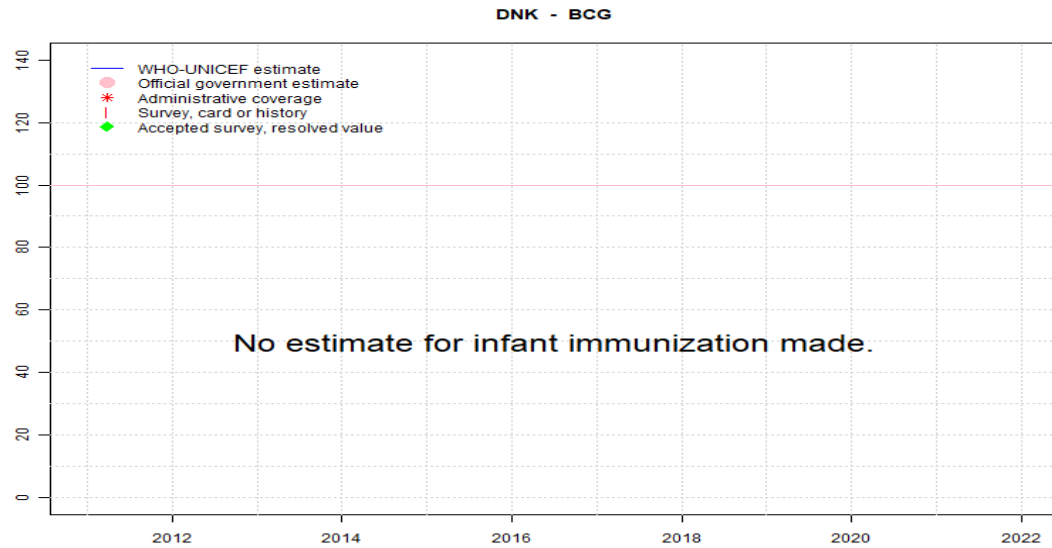
RotaC: percentage of surviving infants who received the final recommended dose of rotavirus vaccine, which can be either the 2nd or the 3rd dose depending on the vaccine.

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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Denmark - BCG



	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Estimate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Estimate GoC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Official	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Administrative	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Survey	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

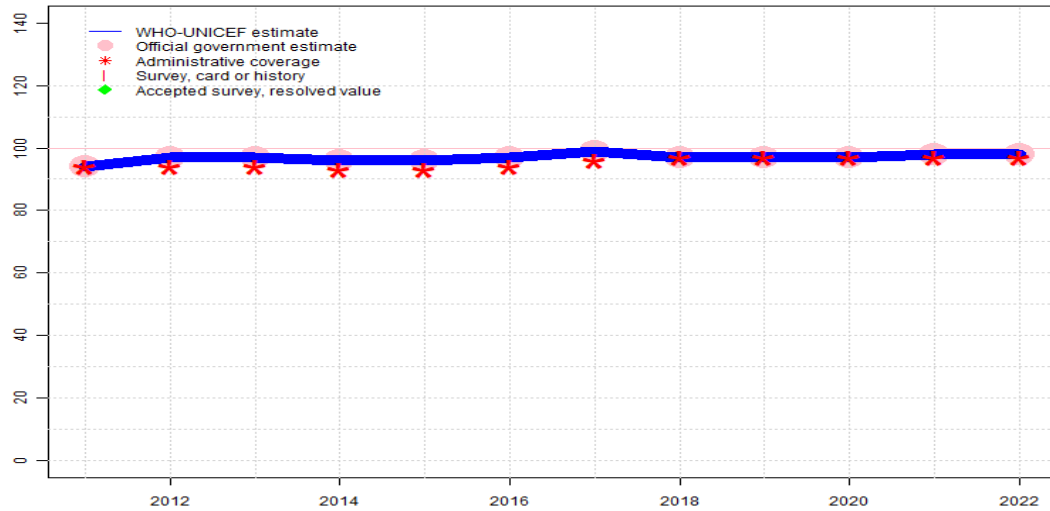
The WHO and UNICEF estimates of national immunization coverage (wuenic) are based on data and information that are of varying, and, in some instances, unknown quality. Beginning with the 2011 revision we describe the grade of confidence (GoC) we have in these estimates. As there is no underlying probability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

- Estimate is supported by reported data [R+], coverage recalculated with an independent denominator from the World Population Prospects: 2022 revision from the UN Population Division (D+), and at least one supporting survey within 2 years [S+]. While well supported, the estimate still carries a risk of being wrong.
- Estimate is supported by at least one data source; [R+], [S+], or [D+]; and no data source, [R-], [D-], or [S-], challenges the estimate.
- There are no directly supporting data; or data from at least one source; [R-], [D-], [S-]; challenge the estimate.

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

Denmark - DTP1

DNK - DTP1



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

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

Description:

2022: Estimate informed by reported data. Reported coverage corrected for under-reporting in the registry by 0.6 percent. This is based on a cross-sectional study of parents of children born in 2010, living in Copenhagen and who were not registered with a 5-year tetanus, diphtheria, pertussis and polio booster according to the Danish Vaccination Register (DDV). See study of the vaccination coverage for the 5-year booster in Copenhagen, see <https://en.ssi.dk/news/epi-news/2019/no-20—2019>. This study documents that under-reporting to the DDV occurs but to a lesser extent that was found in the previous study in 2013. GoC=R+ D+

2021: Estimate informed by reported data. Reported coverage corrected for under-reporting in the registry by 0.6 percent. This is based on a cross-sectional study of parents of children born in 2010, living in Copenhagen and who were not registered with a 5-year tetanus, diphtheria, pertussis and polio booster according to the Danish Vaccination Register (DDV). See study of the vaccination coverage for the 5-year booster in Copenhagen, see <https://en.ssi.dk/news/epi-news/2019/no-20—2019>. This study documents that under-reporting to the DDV occurs but to a lesser extent that was found in the previous study in 2013. GoC=R+ D+

2020: Estimate informed by reported data. Reported coverage corrected for under-reporting in the registry by 0.6 percent. The correction is informed by data in the publication: Wojcik at all, Vaccine 2013; 31(6). GoC=R+ D+

2019: Estimate informed by reported data. Reported coverage, which reflects that for children born in 2018, corrected for under-reporting in the registry by 0.4 percent. The correction is informed by data in the publication: Wojcik at all, Vaccine 2013; 31(6). GoC=R+ D+

2018: Estimate informed by reported data. Reported coverage corrected for under-reporting in the registry by 0.6 percent. The correction is based on the publication: Wojcik at al, Vaccine 2013; 31(6). GoC=R+ D+

2017: Estimate informed by reported data. Programme reports half month of stockout. Survey results (described <http://www.ssi.dk/English/News/EPI-NEWS/2012/>) document the presence of under-reporting therefore the official country estimate reflects an added 3 percentage points for DTP, Hib, IPV, PcV and MMR coverage. GoC=R+ D+

2016: Estimate informed by reported data. Survey results (described <http://www.ssi.dk/English/News/EPI-NEWS/2012/>) document the presence of under-reporting therefore the official country estimate reflects an added 3 percentage points for DTP, Hib, IPV, PcV and MMR coverage. GoC=R+ D+

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2014: Estimate informed by reported data. Survey results (described <http://www.ssi.dk/English/News/EPI-NEWS/2012/>) document the presence of under-

Denmark - DTP1

reporting therefore the official country estimate reflects an added 3 percentage points for DTP, Hib, IPV, PcV and MMR coverage. Denmark reported use of HepB given to all children in 2014. It was explained by a shortage of DTaP-Hib-IPV vaccine. HepB vaccine is not recommended by national programme for others than risk groups. Hence, no coverage data reported for HepB3. GoC=R+ D+

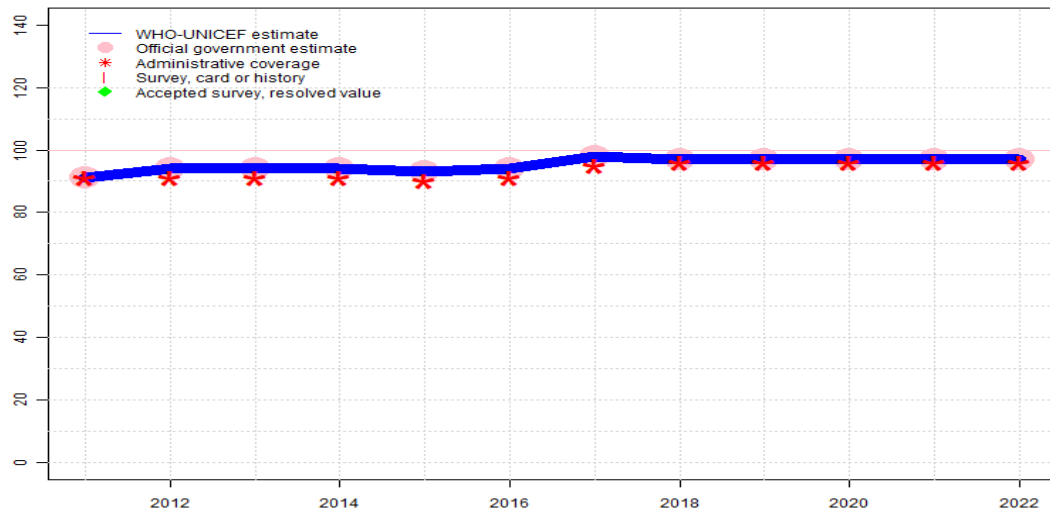
2013: Estimate informed by reported data. Survey results (described <http://www.ssi.dk/English/News/EPI-NEWS/2012/>) document the presence of under-reporting therefore the official country estimate reflects an added 3 percentage points for DTP, Hib, IPV, PcV and MMR coverage. GoC=R+ D+

2012: Estimate informed by reported data. Survey results (described <http://www.ssi.dk/English/News/EPI-NEWS/2012/>) document the presence of under-reporting therefore the official country estimate reflects an added 3 percentage points for DTP, Hib, IPV, PcV and MMR coverage. GoC=R+ D+

2011: Estimate informed by reported data. GoC=R+

Denmark - DTP3

DNK - DTP3



	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Estimate	91	94	94	94	93	94	98	97	97	97	97	97
Estimate GoC	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●
Official	91	94	94	94	93	94	98	97	97	97	97	97
Administrative	91	91	91	91	90	91	95	96	96	96	96	96
Survey	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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

Description:

2022: Estimate informed by reported data. Reported coverage corrected for under-reporting in the registry by 1.1 percent. This is based on a cross-sectional study of parents of children born in 2010, living in Copenhagen and who were not registered with a 5-year tetanus, diphtheria, pertussis and polio booster according to the Danish Vaccination Register (DDV). See study of the vaccination coverage for the 5-year booster in Copenhagen, see <https://en.ssi.dk/news/epi-news/2019/no-20—2019>. This study documents that under-reporting to the DDV occurs but to a lesser extent that was found in the previous study in 2013. GoC=R+ D+

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2019: Estimate informed by reported data. Reported coverage, which reflects that for children born in 2017, corrected for under-reporting in the registry by 0.4 percent. The correction is informed by data in the publication: Wojcik at all, Vaccine 2013; 31(6). GoC=R+ D+

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2014: Estimate informed by reported data. Survey results (described

Denmark - DTP3

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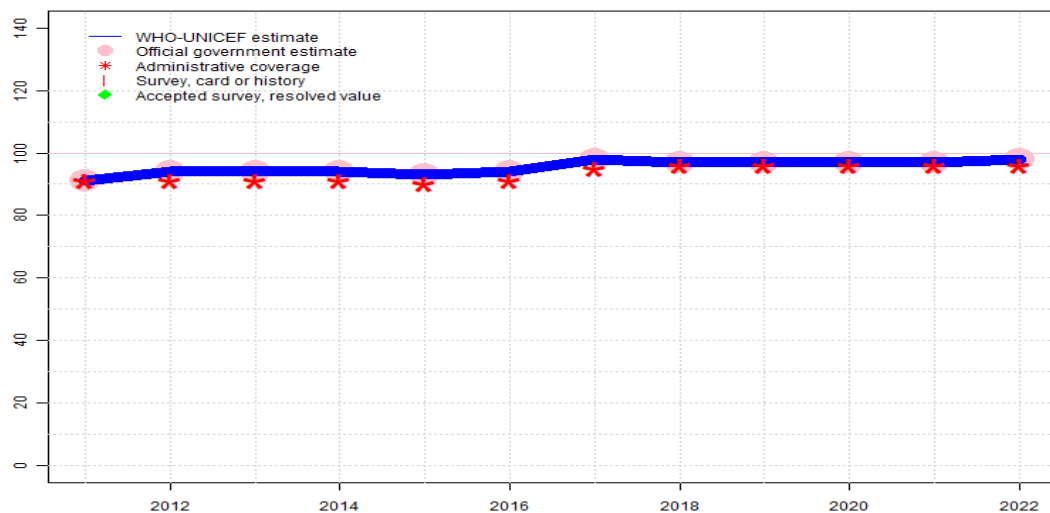
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2011: Estimate informed by reported data. GoC=R+

Denmark - Pol3

DNK - Pol3



	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Estimate	91	94	94	94	93	94	98	97	97	97	97	98
Estimate GoC	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●
Official	91	94	94	94	93	94	98	97	97	97	97	98
Administrative	91	91	91	91	90	91	95	96	96	96	96	96
Survey	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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- 2021: Estimate informed by reported data. Reported coverage corrected for under-reporting in the registry by 1.1 percent. This is based on a cross-sectional study of parents of children born in 2010, living in Copenhagen and who were not registered with a 5-year tetanus, diphtheria, pertussis and polio booster according to the Danish Vaccination Register (DDV). See study of the vaccination coverage for the 5-year booster in Copenhagen, see <https://en.ssi.dk/news/epi-news/2019/no-20—2019>. This study documents that under-reporting to the DDV occurs but to a lesser extent that was found in the previous study in 2013. GoC=R+ D+
- 2020: Estimate informed by reported data. Reported coverage corrected for under-reporting in the registry by 1.1 percent. The correction is informed by data in the publication: Wojcik at all, Vaccine 2013; 31(6). GoC=R+ D+
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- 2017: Estimate informed by reported data. Survey results (described <http://www.ssi.dk/English/News/EPI-NEWS/2012/>) document the presence of under-reporting, therefore the official country estimate reflects an added three percentage points for DTP, Hib, IPV, PcV and MMR coverage. GoC=R+ D+
- 2016: Estimate informed by reported data. Survey results (described <http://www.ssi.dk/English/News/EPI-NEWS/2012/>) document the presence of under-reporting, therefore the official country estimate reflects an added three percentage points for DTP, Hib, IPV, PcV and MMR coverage. GoC=R+ D+
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Denmark - Pol3

IPV vaccine. GoC=R+ D+

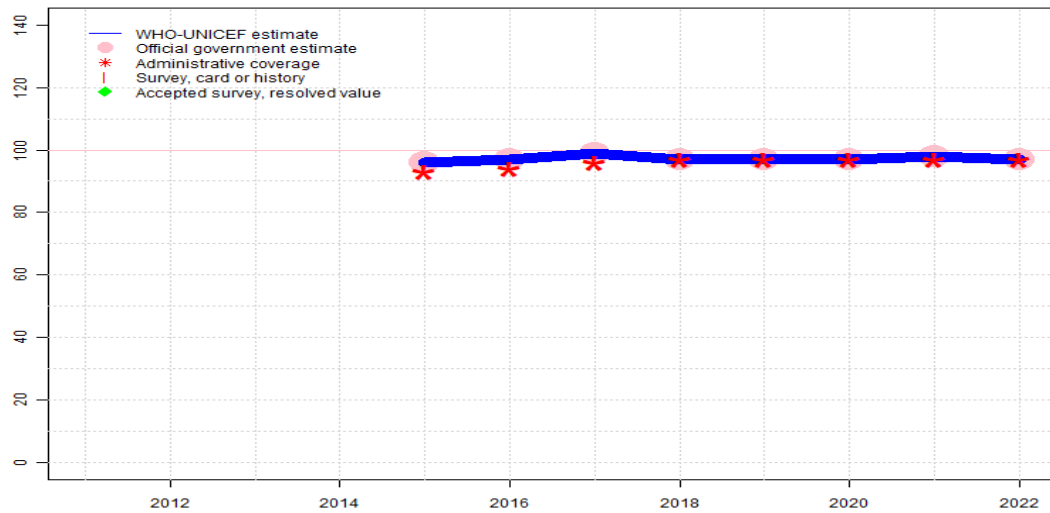
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2011: Estimate informed by reported data. GoC=R+

Denmark - IPV1

DNK - IPV1



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

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Description:

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

2022: Estimate informed by reported data. Reported coverage corrected for under-reporting in the registry by 0.6 percent. This is based on a cross-sectional study of parents of children born in 2010, living in Copenhagen and who were not registered with a 5-year tetanus, diphtheria, pertussis and polio booster according to the Danish Vaccination Register (DDV). See study of the vaccination coverage for the 5-year booster in Copenhagen, see <https://en.ssi.dk/news/epi-news/2019/no-20—2019>. This study documents that under-reporting to the DDV occurs but to a lesser extent that was found in the previous study in 2013. GoC=R+ D+

2021: Estimate informed by reported data. Reported coverage corrected for under-reporting in the registry by 0.6 percent. This is based on a cross-sectional study of parents of children born in 2010, living in Copenhagen and who were not registered with a 5-year tetanus, diphtheria, pertussis and polio booster according to the Danish Vaccination Register (DDV). See study of the vaccination coverage for the 5-year booster in Copenhagen, see <https://en.ssi.dk/news/epi-news/2019/no-20—2019>. This study documents that under-reporting to the DDV occurs but to a lesser extent that was found in the previous study in 2013. GoC=R+ D+

2020: Estimate informed by reported data. Reported coverage corrected for under-reporting in the registry by 0.6 percent. The correction is informed by data in the publication: Wojcik at all, Vaccine 2013; 31(6). GoC=R+ D+

2019: Estimate informed by reported data. Reported coverage, which reflects that for children born in 2018, corrected for under-reporting in the registry by 0.4 percent. The correction is informed by data in the publication: Wojcik at all, Vaccine 2013; 31(6). GoC=R+ D+

2018: Estimate informed by reported data. Reported coverage corrected for under-reporting in the registry by 0.6 percent. The correction is based on the publication: Wojcik at al, Vaccine 2013; 31(6). GoC=R+ D+

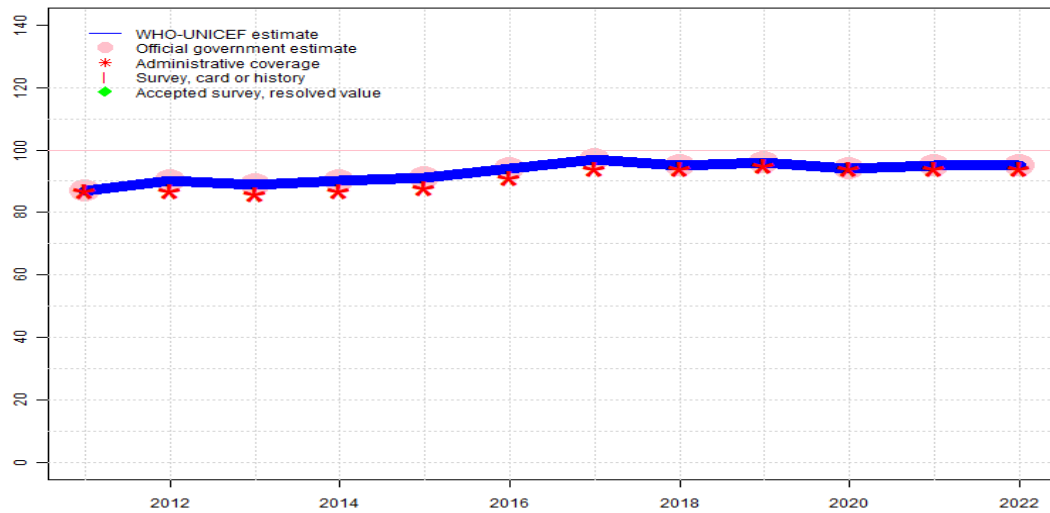
2017: Estimate informed by reported data. Programme reports half month of stockout. GoC=R+ D+

2016: Estimate informed by reported data. GoC=R+ D+

2015: Estimate informed by reported data. GoC=R+ D+

Denmark - MCV1

DNK - MCV1



	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Estimate	87	90	89	90	91	94	97	95	96	94	95	95
Estimate GoC	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●
Official	87	90	89	90	91	94	97	95	96	94	95	95
Administrative	87	87	86	87	88	91	94	94	95	94	94	94
Survey	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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

- Estimate is supported by reported data [R+], coverage recalculated with an independent denominator from the World Population Prospects: 2022 revision from the UN Population Division (D+), and at least one supporting survey within 2 years [S+]. While well supported, the estimate still carries a risk of being wrong.
- Estimate is supported by at least one data source; [R+], [S+], or [D+]; and no data source, [R-], [D-], or [S-], challenges the estimate.
- There are no directly supporting data; or data from at least one source; [R-], [D-], [S-]; challenge the estimate.

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

Description:

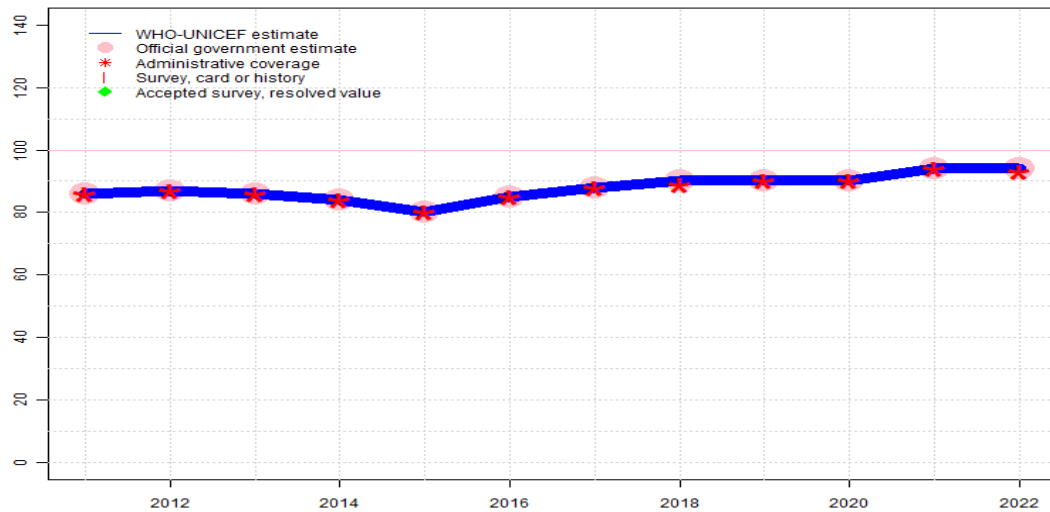
- 2022: Estimate informed by reported data. Reported coverage corrected for under-reporting in the registry by 0.8 percent. This is based on a cross-sectional study of parents of children born in 2010, living in Copenhagen and who were not registered with a 5-year tetanus, diphtheria, pertussis and polio booster according to the Danish Vaccination Register (DDV). See study of the vaccination coverage for the 5-year booster in Copenhagen, see <https://en.ssi.dk/news/epi-news/2019/no-20—2019>. This study documents that under-reporting to the DDV occurs but to a lesser extent that was found in the previous study in 2013. GoC=R+ D+
- 2021: Estimate informed by reported data. Reported coverage corrected for under-reporting in the registry by 0.8 percent. This is based on a cross-sectional study of parents of children born in 2010, living in Copenhagen and who were not registered with a 5-year tetanus, diphtheria, pertussis and polio booster according to the Danish Vaccination Register (DDV). See study of the vaccination coverage for the 5-year booster in Copenhagen, see <https://en.ssi.dk/news/epi-news/2019/no-20—2019>. This study documents that under-reporting to the DDV occurs but to a lesser extent that was found in the previous study in 2013. GoC=R+ D+
- 2020: Estimate informed by reported data. Reported coverage corrected for under-reporting in the registry by 0.8 percent. The correction is informed by data in the publication: Wojcik at all, Vaccine 2013; 31(6). GoC=R+ D+
- 2019: Estimate informed by reported data. Reported coverage, which reflects that for children born in 2017, corrected for under-reporting in the registry by 0.8 percent. The correction is informed by data in the publication: Wojcik at all, Vaccine 2013; 31(6). GoC=R+ D+
- 2018: Estimate informed by reported data. Reported coverage corrected for under-reporting in the registry by 0.8 percent. The correction is based on the publication: Wojcik at al, Vaccine 2013; 31(6). GoC=R+ D+
- 2017: Estimate informed by reported data. Survey results (described <http://www.ssi.dk/English/News/EPI-NEWS/2012/>) document the presence of under-reporting therefore the official country estimate reflects an added 3 percentage points for DTP, Hib, IPV, PcV and MMR coverage. GoC=R+ D+
- 2016: Estimate informed by reported data. Survey results (described <http://www.ssi.dk/English/News/EPI-NEWS/2012/>) document the presence of under-reporting therefore the official country estimate reflects an added 3 percentage points for DTP, Hib, IPV, PcV and MMR coverage. GoC=R+ D+
- 2015: Estimate informed by reported data. Survey results (described <http://www.ssi.dk/English/News/EPI-NEWS/2012/>) document the presence of under-reporting therefore the official country estimate reflects an added 3 to 4 percentage points for DTP, Hib, IPV, PcV and MMR coverage. GoC=R+ D+
- 2014: Estimate informed by reported data. Survey results (described <http://www.ssi.dk/English/News/EPI-NEWS/2012/>) document the presence of under-reporting therefore the official country estimate reflects an added 3 to 4 percentage points for DTP, Hib, IPV, PcV and MMR coverage. GoC=R+ D+

Denmark - MCV1

- 2013: Estimate informed by reported data. Survey results (described <http://www.ssi.dk/English/News/EPI-NEWS/2012/>) document the presence of under-reporting therefore the official country estimate reflects an added 3 to 4 percentage points for DTP, Hib, IPV, PcV and MMR coverage. GoC=R+ D+
- 2012: Estimate informed by reported data. Survey results (described <http://www.ssi.dk/English/News/EPI-NEWS/2012/>) document the presence of under-reporting therefore the official country estimate reflects an added 3 to 4 percentage points for DTP, Hib, IPV, PcV and MMR coverage. GoC=R+ D+
- 2011: Estimate informed by reported data. GoC=R+

Denmark - MCV2

DNK - MCV2



	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Estimate	86	87	86	84	80	85	88	90	90	90	94	94
Estimate GoC	••	•	•	•	•	••	••	••	••	••	••	••
Official	86	87	86	84	80	85	88	90	90	90	94	94
Administrative	86	87	86	84	80	85	88	89	90	90	94	93
Survey	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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

- Estimate is supported by reported data [R+], coverage recalculated with an independent denominator from the World Population Prospects: 2022 revision from the UN Population Division (D+), and at least one supporting survey within 2 years [S+]. While well supported, the estimate still carries a risk of being wrong.
- Estimate is supported by at least one data source; [R+], [S+], or [D+]; and no data source, [R-], [D-], or [S-], challenges the estimate.
- There are no directly supporting data; or data from at least one source; [R-], [D-], [S-]; challenge the estimate.

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

Description:

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

2022: Estimate informed by reported data. Reported coverage corrected for under-reporting in the registry by 0.6 percent. This is based on a cross-sectional study of parents of children born in 2010, living in Copenhagen and who were not registered with a 5-year tetanus, diphtheria, pertussis and polio booster according to the Danish Vaccination Register (DDV). See study of the vaccination coverage for the 5-year booster in Copenhagen, see <https://en.ssi.dk/news/epi-news/2019/no-20—2019>. This study documents that under-reporting to the DDV occurs but to a lesser extent that was found in the previous study in 2013. GoC=R+ D+

2021: Estimate informed by reported data. Reported coverage corrected for under-reporting in the registry by 0.6 percent. This is based on a cross-sectional study of parents of children born in 2010, living in Copenhagen and who were not registered with a 5-year tetanus, diphtheria, pertussis and polio booster according to the Danish Vaccination Register (DDV). See study of the vaccination coverage for the 5-year booster in Copenhagen, see <https://en.ssi.dk/news/epi-news/2019/no-20—2019>. This study documents that under-reporting to the DDV occurs but to a lesser extent that was found in the previous study in 2013. GoC=R+ D+

2020: Estimate informed by reported data. Reported coverage corrected for under-reporting in the registry by 0.6 percent. The correction is informed by data in the publication: Wojcik at all, Vaccine 2013; 31(6). GoC=R+ D+

2019: Estimate informed by reported data. Reported coverage, which reflects that for children born in 2014, corrected for under-reporting in the registry by 0.6 percent. The correction is informed by data in the publication: Wojcik at all, Vaccine 2013; 31(6). GoC=R+ D+

2018: Estimate informed by reported data. Reported coverage corrected for under-reporting in the registry by 0.6 percent. The correction is based on the publication: Wojcik at all, Vaccine 2013; 31(6). GoC=R+ D+

2017: Estimate informed by reported data. GoC=R+ D+

2016: Estimate informed by reported data. GoC=R+ D+

2015: Estimate informed by reported data. Estimate challenged by: D-

2014: Estimate informed by reported data. Survey results (described <http://www.ssi.dk/English/News/EPI-NEWS/2012/>) document the presence of under-reporting therefore the official country estimate reflects an added 3 to 4 percentage points for MMR first dose coverage but not for the second dose coverage. Estimate challenged by: D-

2013: Estimate informed by reported data. Survey results (described <http://www.ssi.dk/English/News/EPI-NEWS/2012/>) document the presence of under-reporting therefore the official country estimate reflects an added 3 to 4 percentage points for MMR first dose coverage but not for the second dose coverage. Estimate challenged by: D-

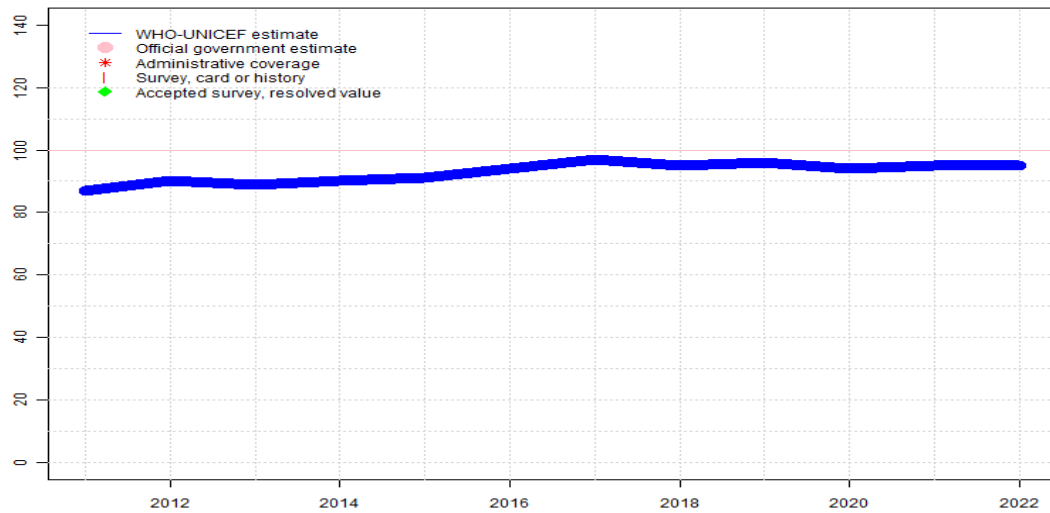
Denmark - MCV2

2012: Estimate informed by reported data. Survey results (described <http://www.ssi.dk/English/News/EPI-NEWS/2012/>) document the presence of under-reporting therefore the official country estimate reflects an added 3 to 4 percentage points for MMR first dose coverage but not for the second dose coverage. Estimate challenged by: D-

2011: Estimate informed by reported data. GoC=R+

Denmark - RCV1

DNK - RCV1



Description:

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

- 2022: Estimate based on estimated MCV1. GoC=R+ D+
- 2021: Estimate based on estimated MCV1. GoC=R+ D+
- 2020: Estimate based on estimated MCV1. GoC=R+ D+
- 2019: Estimate based on estimated MCV1. GoC=R+ D+
- 2018: Estimate based on estimated MCV1. Reported coverage corrected for under-reporting in the registry by 0.8 percent. The correction is based on the publication: Wojcik at al, Vaccine 2013; 31(6). GoC=R+ D+
- 2017: Estimate based on estimated MCV1. GoC=R+ D+
- 2016: Estimate based on estimated MCV1. GoC=R+ D+
- 2015: Estimate based on estimated MCV1. GoC=R+ D+
- 2014: Estimate based on estimated MCV1. GoC=R+ D+
- 2013: Estimate based on estimated MCV1. GoC=R+ D+
- 2012: Estimate based on estimated MCV1. GoC=R+ D+
- 2011: Estimate based on estimated MCV1. GoC=R+

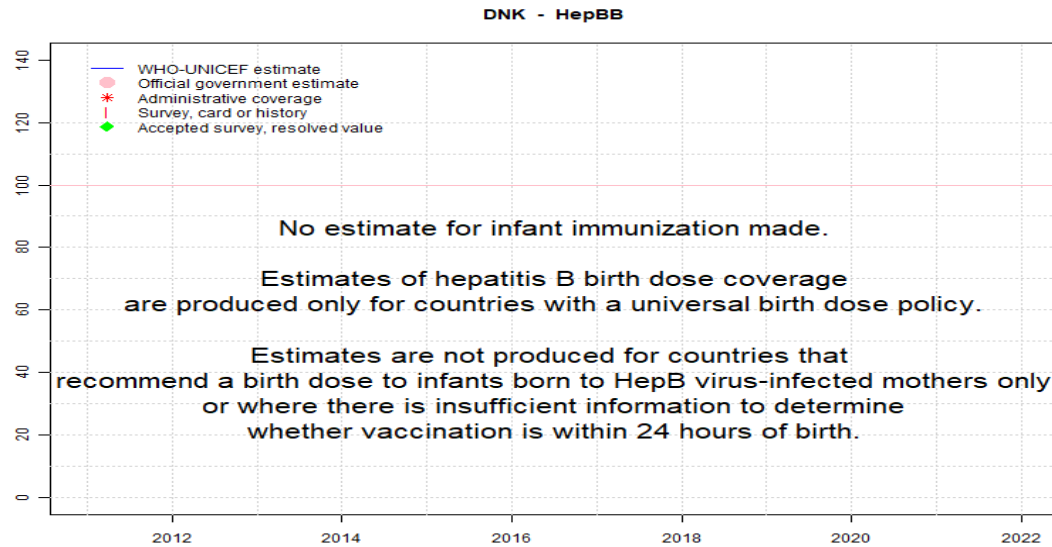
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Estimate	87	90	89	90	91	94	97	95	96	94	95	95
Estimate GoC	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●
Official	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Administrative	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Survey	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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

- Estimate is supported by reported data [R+], coverage recalculated with an independent denominator from the World Population Prospects: 2022 revision from the UN Population Division (D+), and at least one supporting survey within 2 years [S+]. While well supported, the estimate still carries a risk of being wrong.
- Estimate is supported by at least one data source; [R+], [S+], or [D+]; and no data source, [R-], [D-], or [S-], challenges the estimate.
- There are no directly supporting data; or data from at least one source; [R-], [D-], [S-]; challenge the estimate.

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

Denmark - HepBB



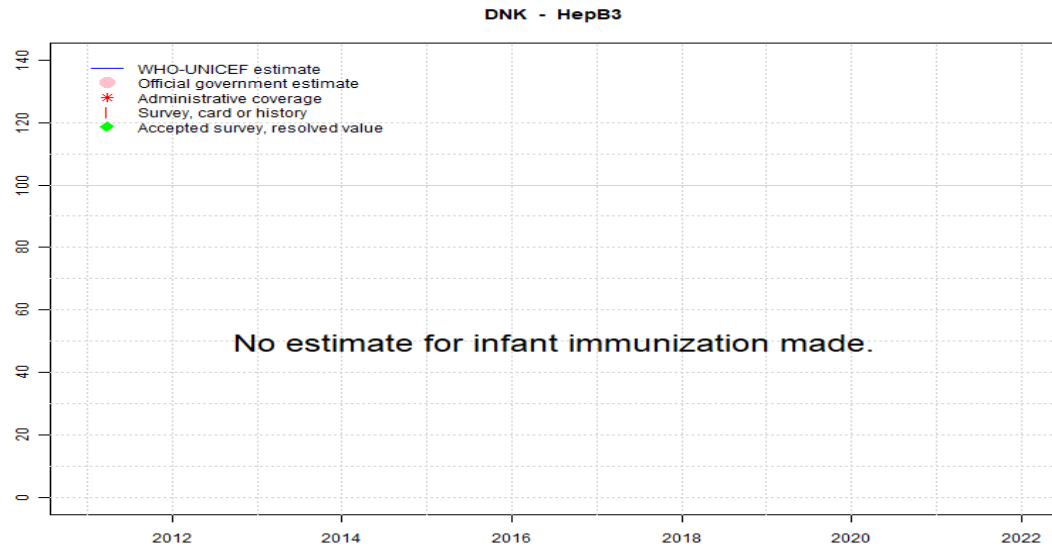
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Estimate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Estimate GoC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Official	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Administrative	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Survey	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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

- Estimate is supported by reported data [R+], coverage recalculated with an independent denominator from the World Population Prospects: 2022 revision from the UN Population Division (D+), and at least one supporting survey within 2 years [S+]. While well supported, the estimate still carries a risk of being wrong.
- Estimate is supported by at least one data source; [R+], [S+], or [D+]; and no data source, [R-], [D-], or [S-], challenges the estimate.
- There are no directly supporting data; or data from at least one source; [R-], [D-], [S-]; challenge the estimate.

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

Denmark - HepB3



	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Estimate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Estimate GoC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Official	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Administrative	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Survey	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

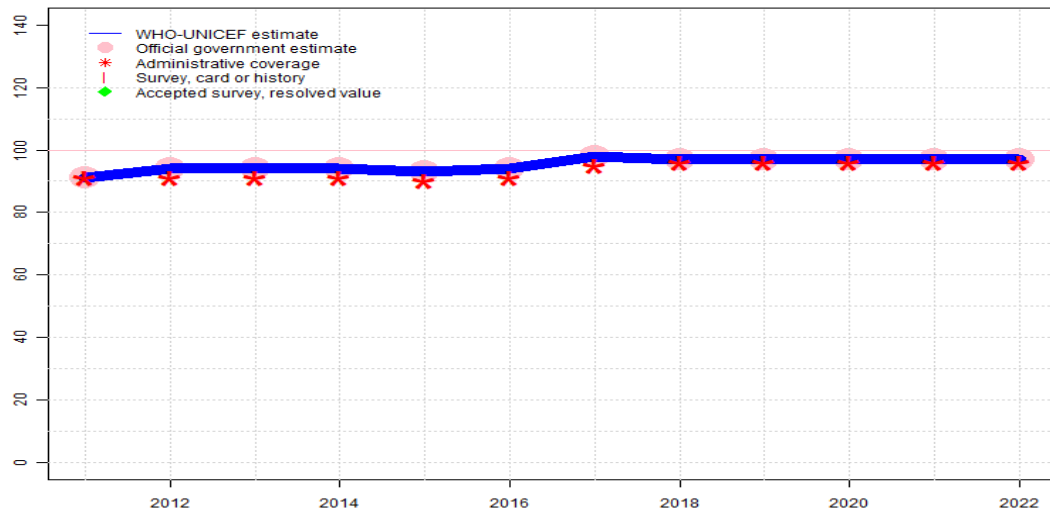
The WHO and UNICEF estimates of national immunization coverage (wuenic) are based on data and information that are of varying, and, in some instances, unknown quality. Beginning with the 2011 revision we describe the grade of confidence (GoC) we have in these estimates. As there is no underlying probability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

- Estimate is supported by reported data [R+], coverage recalculated with an independent denominator from the World Population Prospects: 2022 revision from the UN Population Division (D+), and at least one supporting survey within 2 years [S+]. While well supported, the estimate still carries a risk of being wrong.
- Estimate is supported by at least one data source; [R+], [S+], or [D+]; and no data source, [R-], [D-], or [S-], challenges the estimate.
- There are no directly supporting data; or data from at least one source; [R-], [D-], [S-]; challenge the estimate.

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

Denmark - Hib3

DNK - Hib3



	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Estimate	91	94	94	94	93	94	98	97	97	97	97	97
Estimate GoC	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●
Official	91	94	94	94	93	94	98	97	97	97	97	97
Administrative	91	91	91	91	90	91	95	96	96	96	96	96
Survey	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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

- Estimate is supported by reported data [R+], coverage recalculated with an independent denominator from the World Population Prospects: 2022 revision from the UN Population Division (D+), and at least one supporting survey within 2 years [S+]. While well supported, the estimate still carries a risk of being wrong.
- Estimate is supported by at least one data source; [R+], [S+], or [D+]; and no data source, [R-], [D-], or [S-], challenges the estimate.
- There are no directly supporting data; or data from at least one source; [R-], [D-], [S-]; challenge the estimate.

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

Description:

2022: Estimate informed by reported data. Reported coverage corrected for under-reporting in the registry by 1.1 percent. This is based on a cross-sectional study of parents of children born in 2010, living in Copenhagen and who were not registered with a 5-year tetanus, diphtheria, pertussis and polio booster according to the Danish Vaccination Register (DDV). See study of the vaccination coverage for the 5-year booster in Copenhagen, see <https://en.ssi.dk/news/epi-news/2019/no-20—2019>. This study documents that under-reporting to the DDV occurs but to a lesser extent that was found in the previous study in 2013. GoC=R+ D+

2021: Estimate informed by reported data. Reported coverage corrected for under-reporting in the registry by 1.1 percent. This is based on a cross-sectional study of parents of children born in 2010, living in Copenhagen and who were not registered with a 5-year tetanus, diphtheria, pertussis and polio booster according to the Danish Vaccination Register (DDV). See study of the vaccination coverage for the 5-year booster in Copenhagen, see <https://en.ssi.dk/news/epi-news/2019/no-20—2019>. This study documents that under-reporting to the DDV occurs but to a lesser extent that was found in the previous study in 2013. GoC=R+ D+

2020: Estimate informed by reported data. Reported coverage corrected for under-reporting in the registry by 1.1 percent. The correction is informed by data in the publication: Wojcik at all, Vaccine 2013; 31(6). GoC=R+ D+

2019: Estimate informed by reported data. Reported coverage, which reflects that for children born in 2017, corrected for under-reporting in the registry by 0.4 percent. The correction is informed by data in the publication: Wojcik at all, Vaccine 2013; 31(6). GoC=R+ D+

2018: Estimate informed by reported data. Reported coverage corrected for under-reporting in the registry by 1.1 percent. The correction is based on the publication: Wojcik at al, Vaccine 2013; 31(6). GoC=R+ D+

2017: Estimate informed by reported data. Survey results (described <http://www.ssi.dk/English/News/EPI-NEWS/2012/>) document the presence of under-reporting therefore the official country estimate reflects an added 3 percentage points for DTP, Hib, IPV, PcV and MMR coverage. Programme reports half month of stockout. GoC=R+ D+

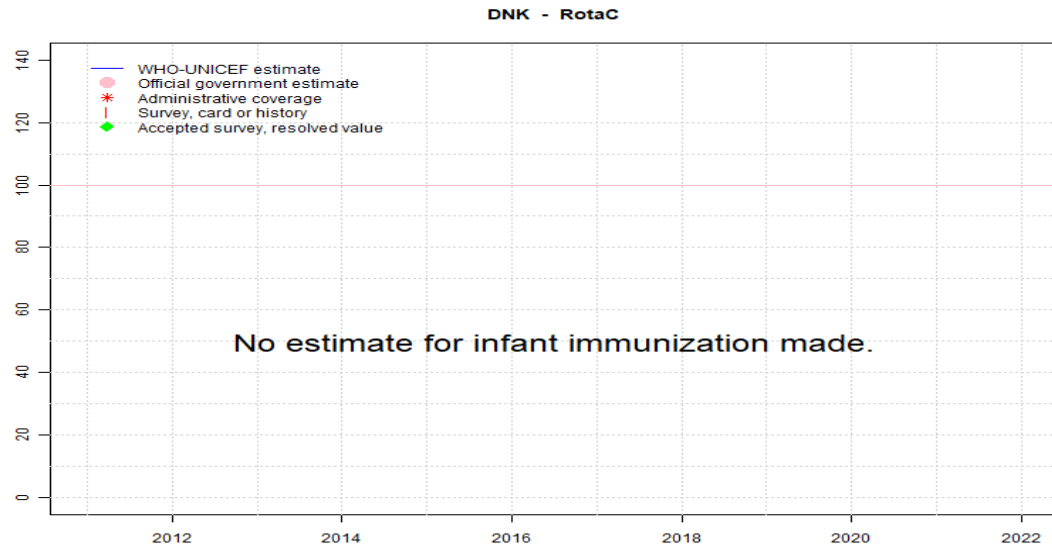
2016: Estimate informed by reported data. Survey results (described <http://www.ssi.dk/English/News/EPI-NEWS/2012/>) document the presence of under-reporting therefore the official country estimate reflects an added 3 percentage points for DTP, Hib, IPV, PcV and MMR coverage. GoC=R+ D+

2015: Estimate informed by reported data. Survey results (described <http://www.ssi.dk/English/News/EPI-NEWS/2012/>) document the presence of under-reporting therefore the official country estimate reflects an added 3 percentage points for DTP, Hib, IPV, PcV and MMR coverage. Denmark reported use of HepB given to all children in 2014. It was explained by a shortage of DTaP-Hib-IPV vaccine. HepB vaccine is not recommended by national programme for others than risk groups. Hence, no coverage data reported for HepB3. GoC=R+ D+

Denmark - Hib3

- 2014: Estimate informed by reported data. Survey results (described <http://www.ssi.dk/English/News/EPI-NEWS/2012/>) document the presence of under-reporting therefore the official country estimate reflects an added 3 percentage points for DTP, Hib, IPV, PcV and MMR coverage. Denmark reported use of HepB given to all children in 2014. It was explained by a shortage of DTaP-Hib-IPV vaccine. HepB vaccine is not recommended by national programme for others than risk groups. Hence, no coverage data reported for HepB3. GoC=R+ D+
- 2013: Estimate informed by reported data. Survey results (described <http://www.ssi.dk/English/News/EPI-NEWS/2012/>) document the presence of under-reporting therefore the official country estimate reflects an added 3 percentage points for DTP, Hib, IPV, PcV and MMR coverage. GoC=R+ D+
- 2012: Estimate informed by reported data. Survey results (described <http://www.ssi.dk/English/News/EPI-NEWS/2012/>) document the presence of under-reporting therefore the official country estimate reflects an added 3 percentage points for DTP, Hib, IPV, PcV and MMR coverage. GoC=R+ D+
- 2011: Estimate informed by reported data. GoC=R+

Denmark - RotaC



	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Estimate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Estimate GoC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Official	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Administrative	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Survey	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

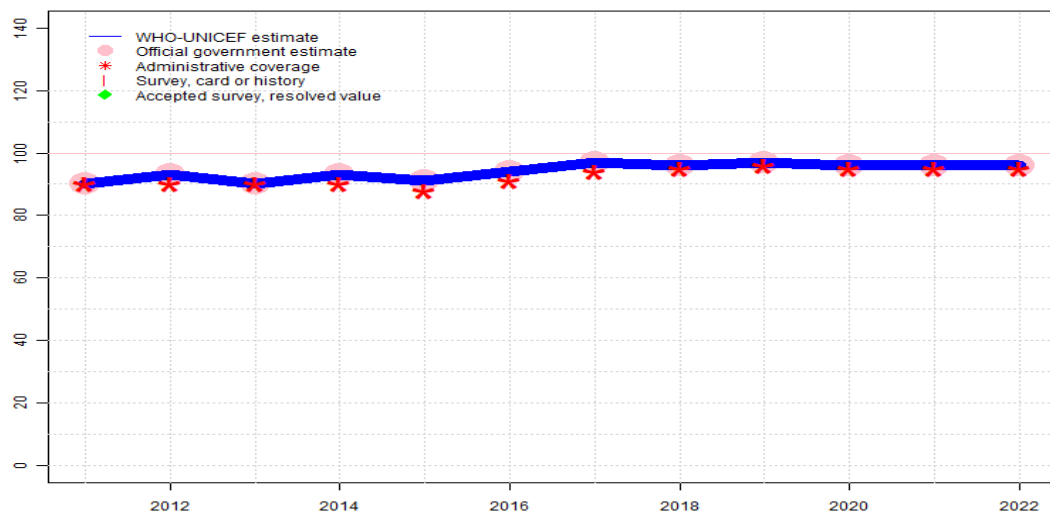
The WHO and UNICEF estimates of national immunization coverage (wuenic) are based on data and information that are of varying, and, in some instances, unknown quality. Beginning with the 2011 revision we describe the grade of confidence (GoC) we have in these estimates. As there is no underlying probability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

- Estimate is supported by reported data [R+], coverage recalculated with an independent denominator from the World Population Prospects: 2022 revision from the UN Population Division (D+), and at least one supporting survey within 2 years [S+]. While well supported, the estimate still carries a risk of being wrong.
- Estimate is supported by at least one data source; [R+], [S+], or [D+]; and no data source, [R-], [D-], or [S-], challenges the estimate.
- There are no directly supporting data; or data from at least one source; [R-], [D-], [S-]; challenge the estimate.

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

Denmark - PcV3

DNK - PcV3



	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Estimate	90	93	90	93	91	94	97	96	97	96	96	96
Estimate GoC	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●
Official	90	93	90	93	91	94	97	96	97	96	96	96
Administrative	90	90	90	90	88	91	94	95	96	95	95	95
Survey	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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

- Estimate is supported by reported data [R+], coverage recalculated with an independent denominator from the World Population Prospects: 2022 revision from the UN Population Division (D+), and at least one supporting survey within 2 years [S+]. While well supported, the estimate still carries a risk of being wrong.
- Estimate is supported by at least one data source; [R+], [S+], or [D+]; and no data source, [R-], [D-], or [S-], challenges the estimate.
- There are no directly supporting data; or data from at least one source; [R-], [D-], [S-]; challenge the estimate.

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

Description:

- 2022: Estimate informed by reported data. Reported coverage corrected for under-reporting in the registry by 1.1 percent. This is based on a cross-sectional study of parents of children born in 2010, living in Copenhagen and who were not registered with a 5-year tetanus, diphtheria, pertussis and polio booster according to the Danish Vaccination Register (DDV). See study of the vaccination coverage for the 5-year booster in Copenhagen, see <https://en.ssi.dk/news/epi-news/2019/no-20—2019>. This study documents that under-reporting to the DDV occurs but to a lesser extent that was found in the previous study in 2013. GoC=R+ D+
- 2021: Estimate informed by reported data. Reported coverage corrected for under-reporting in the registry by 1.1 percent. This is based on a cross-sectional study of parents of children born in 2010, living in Copenhagen and who were not registered with a 5-year tetanus, diphtheria, pertussis and polio booster according to the Danish Vaccination Register (DDV). See study of the vaccination coverage for the 5-year booster in Copenhagen, see <https://en.ssi.dk/news/epi-news/2019/no-20—2019>. This study documents that under-reporting to the DDV occurs but to a lesser extent that was found in the previous study in 2013. GoC=R+ D+
- 2020: Estimate informed by reported data. Reported coverage corrected for under-reporting in the registry by 1.1 percent. The correction is informed by data in the publication: Wojcik at all, Vaccine 2013; 31(6). GoC=R+ D+
- 2019: Estimate informed by reported data. GoC=R+ D+
- 2018: Estimate informed by reported data. Reported coverage corrected for under-reporting in the registry by 1.1 percent. The correction is based on the publication: Wojcik at al, Vaccine 2013; 31(6). GoC=R+ D+
- 2017: Estimate informed by reported data. Survey results (described <http://www.ssi.dk/English/News/EPI-NEWS/2012/>) document the presence of under-reporting therefore the official country estimate reflects an added 3 percentage points for DTP, Hib, IPV, PcV and MMR coverage. GoC=R+ D+
- 2016: Estimate informed by reported data. Survey results (described <http://www.ssi.dk/English/News/EPI-NEWS/2012/>) document the presence of under-reporting therefore the official country estimate reflects an added 3 percentage points for DTP, Hib, IPV, PcV and MMR coverage. GoC=R+ D+
- 2015: Estimate informed by reported data. Survey results (described <http://www.ssi.dk/English/News/EPI-NEWS/2012/>) document the presence of under-reporting therefore the official country estimate reflects an added 3 to 4 percentage points for DTP, Hib, IPV, PcV and MMR coverage. GoC=R+ D+
- 2014: Estimate informed by reported data. Survey results (described <http://www.ssi.dk/English/News/EPI-NEWS/2012/>) document the presence of under-reporting therefore the official country estimate reflects an added 3 to 4 percentage points for DTP, Hib, IPV, PcV and MMR coverage. GoC=R+ D+
- 2013: Estimate informed by reported data. Survey results (described <http://www.ssi.dk/English/News/EPI-NEWS/2012/>) document the presence of under-

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reporting therefore the official country estimate reflects an added 3 to 4 percentage points for DTP, Hib, IPV, PcV and MMR coverage. GoC=R+ D+

2012: Estimate informed by reported data. Survey results (described <http://www.ssi.dk/English/News/EPI-NEWS/2012/>) document the presence of under-reporting therefore the official country estimate reflects an added 3 to 4 percentage points for DTP, Hib, IPV, PcV and MMR coverage. GoC=R+ D+

2011: Estimate informed by reported data. GoC=R+

Further information and estimates for previous years are available at:

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

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