OFFICIAL coverage:

ADMINISTRATIVE coverage:

Reported by national authorities and based on aggregated
WHO and UNICEF estimates of national immunization coverage:

To identify the most likely estimate with consideration of the
attributable to estimated 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.

HepB: 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.

PvV3: percentage of surviving infants who received the 3rd dose of pneumococcal conjugate vaccine.

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.
The WHO and UNICEF estimates of national immunization coverage (vaccine) 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: 2017 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.
The WHO and UNICEF estimates of national immunization coverage (vaccine) 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: 2017 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.

<table>
<thead>
<tr>
<th>Year</th>
<th>Official</th>
<th>Administrative Survey</th>
<th>Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>99</td>
<td>NA</td>
<td>99</td>
</tr>
<tr>
<td>2008</td>
<td>99</td>
<td>NA</td>
<td>99</td>
</tr>
<tr>
<td>2009</td>
<td>99</td>
<td>NA</td>
<td>99</td>
</tr>
<tr>
<td>2010</td>
<td>99</td>
<td>NA</td>
<td>99</td>
</tr>
<tr>
<td>2011</td>
<td>99</td>
<td>NA</td>
<td>99</td>
</tr>
<tr>
<td>2012</td>
<td>99</td>
<td>NA</td>
<td>99</td>
</tr>
<tr>
<td>2013</td>
<td>99</td>
<td>NA</td>
<td>99</td>
</tr>
<tr>
<td>2014</td>
<td>99</td>
<td>NA</td>
<td>99</td>
</tr>
<tr>
<td>2015</td>
<td>99</td>
<td>NA</td>
<td>99</td>
</tr>
<tr>
<td>2016</td>
<td>99</td>
<td>NA</td>
<td>99</td>
</tr>
<tr>
<td>2017</td>
<td>99</td>
<td>NA</td>
<td>99</td>
</tr>
<tr>
<td>2018</td>
<td>99</td>
<td>NA</td>
<td>99</td>
</tr>
</tbody>
</table>

2018: DTP1 coverage estimated based on DTP3 coverage of 100. Estimate challenged by: R-
2017: DTP1 coverage estimated based on DTP3 coverage of 100. Estimate challenged by: R-
2016: DTP1 coverage estimated based on DTP3 coverage of 100. Estimate challenged by: R-
2015: DTP1 coverage estimated based on DTP3 coverage of 100. The estimates are based on the National Immunization Coverage Survey conducted in 2014 of children 2-3 years of age. Estimate challenged by: R-
2014: DTP1 coverage estimated based on DTP3 coverage of 100. The estimates are based on the National Immunization Coverage Survey conducted in 2014 of children 2-3 years of age. Estimate challenged by: R-
2013: DTP1 coverage estimated based on DTP3 coverage of 100. The estimates are based on the National Immunization Coverage Survey conducted in 2014 of children 2-3 years of age. Estimate challenged by: R-
2012: DTP1 coverage estimated based on DTP3 coverage of 100. The estimates are based on the National Immunization Coverage Survey conducted in 2012 of children 6 years of age. Estimate challenged by: R-
2011: DTP1 coverage estimated based on DTP3 coverage of 99. The estimates are based on the National Immunization Coverage Survey conducted in 2006. Estimate challenged by: R-
2010: DTP1 coverage estimated based on DTP3 coverage of 99. The estimates are based on the National Immunization Coverage Survey conducted in 2006. GoC=No accepted empirical data
2009: DTP1 coverage estimated based on DTP3 coverage of 99. The estimates are based on the National Immunization Coverage Survey conducted in 2006. Estimate challenged by: R-
2008: DTP1 coverage estimated based on DTP3 coverage of 99. The estimates are based on the National Immunization Coverage Survey conducted in 2006. Estimate challenged by: R-
2007: DTP1 coverage estimated based on DTP3 coverage of 99. The estimates are based on the National Immunization Coverage Survey conducted in 2006. Estimate challenged by: R-

July 2, 2019; page 4 WHO and UNICEF estimates of national immunization coverage - next revision available July 15, 2020 data received as of June 28, 2019
The WHO and UNICEF estimates of national immunization coverage (wunic) 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: 2017 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:

- **2018:** Estimate based on coverage reported by national government. GoC=R+
- **2017:** Estimate based on coverage reported by national government. GoC=R+
- **2016:** Estimate based on coverage reported by national government. GoC=R+
- **2015:** Estimate based on coverage reported by national government. GoC=R+
- **2014:** Estimate based on coverage reported by national government. The estimates are based on the National Immunization Coverage Survey conducted in 2014 of children 2-3 years of age. GoC=R+
- **2013:** Estimate based on coverage reported by national government. GoC=R+
- **2012:** Estimate based on coverage reported by national government. The estimates are based on the National Immunization Coverage Survey conducted in 2012 of children 6 years of age. GoC=R+
- **2011:** Estimate based on coverage reported by national government. The estimates are based on the National Immunization Coverage Survey conducted in 2006. GoC=R+
- **2010:** Estimate based on interpolation between data reported by national government. The estimates are based on the National Immunization Coverage Survey conducted in 2006. GoC=No accepted empirical data
- **2009:** Estimate based on coverage reported by national government. The estimates are based on the National Immunization Coverage Survey conducted in 2006. GoC=R+
- **2008:** Estimate based on coverage reported by national government. The estimates are based on the National Immunization Coverage Survey conducted in 2006. GoC=R+
- **2007:** Estimate based on coverage reported by national government. The estimates are based on the National Immunization Coverage Survey conducted in 2006. GoC=R+

The WHO and UNICEF estimates of national immunization coverage (wunic) 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: 2017 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.
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: 2017 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:

- 2018: Estimate based on coverage reported by national government. GoC=R+
- 2017: Estimate based on coverage reported by national government. GoC=R+
- 2016: Estimate based on coverage reported by national government. GoC=R+
- 2015: Estimate based on coverage reported by national government. GoC=R+
- 2014: Estimate based on coverage reported by national government. The estimates are based on the National Immunization Coverage Survey conducted in 2014 of children 2-3 years of age. GoC=R+
- 2013: Estimate based on coverage reported by national government. GoC=R+
- 2012: Estimate based on coverage reported by national government. The estimates are based on the National Immunization Coverage Survey conducted in 2012 of children 6 years of age. GoC=R+
- 2011: Estimate based on coverage reported by national government. The estimates are based on the National Immunization Coverage Survey conducted in 2006. GoC=R+
- 2010: Estimate based on interpolation between data reported by national government. The estimates are based on the National Immunization Coverage Survey conducted in 2006. GoC=No accepted empirical data
- 2009: Estimate based on coverage reported by national government. The estimates are based on the National Immunization Coverage Survey conducted in 2006. GoC=R+
- 2008: Estimate based on coverage reported by national government. The estimates are based on the National Immunization Coverage Survey conducted in 2006. GoC=R+
- 2007: Estimate based on coverage reported by national government. The estimates are based on the National Immunization Coverage Survey conducted in 2006. GoC=R+

### Table:

<table>
<thead>
<tr>
<th>Year</th>
<th>Estimate</th>
<th>GoC</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>99</td>
<td>R+</td>
</tr>
<tr>
<td>2008</td>
<td>99</td>
<td>R+</td>
</tr>
<tr>
<td>2009</td>
<td>99</td>
<td>R+</td>
</tr>
<tr>
<td>2010</td>
<td>99</td>
<td>R+</td>
</tr>
<tr>
<td>2011</td>
<td>99</td>
<td>R+</td>
</tr>
<tr>
<td>2012</td>
<td>99</td>
<td>R+</td>
</tr>
<tr>
<td>2013</td>
<td>99</td>
<td>R+</td>
</tr>
<tr>
<td>2014</td>
<td>99</td>
<td>R+</td>
</tr>
<tr>
<td>2015</td>
<td>99</td>
<td>R+</td>
</tr>
<tr>
<td>2016</td>
<td>99</td>
<td>R+</td>
</tr>
<tr>
<td>2017</td>
<td>99</td>
<td>R+</td>
</tr>
<tr>
<td>2018</td>
<td>99</td>
<td>R+</td>
</tr>
</tbody>
</table>

**Note:**

- Official
- Administrative
- Survey

The estimation process uses the following sources and methods to calculate the coverage estimates:

- **WHO-UNICEF**
- **Official government estimate**
- **Administrative coverage**
- **Survey 12-23 months of age, card or history**
- **Accepted survey, resolved value**
The WHO and UNICEF estimates of national immunization coverage (wunec) 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.

### 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).

2018: Estimate based on coverage reported by national government. GoC=R+
2017: Estimate based on coverage reported by national government. GoC=R+
2016: Estimate based on coverage reported by national government. GoC=R+
2015: Estimate based on coverage reported by national government. GoC=R+

---

**Estimate**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Data</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>99</td>
</tr>
</tbody>
</table>

**Estimate GoC**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Data</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
</tbody>
</table>

**Official**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Data</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
</tbody>
</table>

**Administrative**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Data</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
</tbody>
</table>

**Survey**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Data</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
</tbody>
</table>

---

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:

2018: Estimate based on coverage reported by national government. GoC=R+

2017: Estimate based on coverage reported by national government. GoC=R+

2016: Estimate based on coverage reported by national government. GoC=R+

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

2014: Estimate based on coverage reported by national government. The estimates are based on the National Immunization Coverage Survey conducted in 2014 of children 2-3 years of age. GoC=R+

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

2012: Estimate based on coverage reported by national government. The estimates are based on the National Immunization Coverage Survey conducted in 2012 of children 6 years of age. GoC=R+

2011: Estimate based on coverage reported by national government. The estimates are based on the National Immunization Coverage Survey conducted in 2006. GoC=R+

2010: Estimate based on interpolation between data reported by national government. The estimates are based on the National Immunization Coverage Survey conducted in 2006. GoC=No accepted empirical data

2009: Estimate based on coverage reported by national government. The estimates are based on the National Immunization Coverage Survey conducted in 2006. GoC=R+

2008: Estimate based on coverage reported by national government. The estimates are based on the National Immunization Coverage Survey conducted in 2006. GoC=R+

2007: Estimate based on coverage reported by national government. GoC=R+

---

<table>
<thead>
<tr>
<th>Year</th>
<th>Estimate</th>
<th>GoC</th>
</tr>
</thead>
<tbody>
<tr>
<td>2018</td>
<td>99</td>
<td>R+</td>
</tr>
<tr>
<td>2017</td>
<td>99</td>
<td>R+</td>
</tr>
<tr>
<td>2016</td>
<td>99</td>
<td>R+</td>
</tr>
<tr>
<td>2015</td>
<td>99</td>
<td>R+</td>
</tr>
<tr>
<td>2014</td>
<td>97</td>
<td>R+</td>
</tr>
<tr>
<td>2013</td>
<td>97</td>
<td>R+</td>
</tr>
<tr>
<td>2012</td>
<td>97</td>
<td>R+</td>
</tr>
<tr>
<td>2011</td>
<td>97</td>
<td>R+</td>
</tr>
<tr>
<td>2010</td>
<td>NA</td>
<td>R-</td>
</tr>
<tr>
<td>2009</td>
<td>99</td>
<td>R+</td>
</tr>
<tr>
<td>2008</td>
<td>99</td>
<td>R+</td>
</tr>
<tr>
<td>2007</td>
<td>99</td>
<td>R+</td>
</tr>
</tbody>
</table>

The WHO and UNICEF estimates of national immunization coverage (wunuic) 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: 2017 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.
Greece - MCV2

The WHO and UNICEF estimates of national immunization coverage (wuninc) 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: 2017 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.

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

- 2018: Estimate based on extrapolation from data reported by national government. GoC=No accepted empirical data
- 2017: Estimate based on extrapolation from data reported by national government. GoC=No accepted empirical data
- 2016: Estimate based on extrapolation from data reported by national government. GoC=No accepted empirical data
- 2015: Estimate based on extrapolation from data reported by national government. GoC=No accepted empirical data
- 2014: Estimate based on extrapolation from data reported by national government. The estimates are based on the National Immunization Coverage Survey conducted in 2014 of children 2-3 years of age. GoC=No accepted empirical data
- 2013: Estimate based on coverage reported by national government. GoC=R+
- 2012: Estimate based on coverage reported by national government. The estimates are based on the National Immunization Coverage Survey conducted in 2012 of children 6 years of age. GoC=R+
- 2011: Estimate based on coverage reported by national government. GoC=R+
- 2010: Estimate based on interpolation between reported values. GoC=No accepted empirical data
- 2009: Estimate based on coverage reported by national government. GoC=R+
- 2008: Estimate based on coverage reported by national government. GoC=R+
- 2007: Estimate based on coverage reported by national government. GoC=R+

July 2, 2019; page 9

WHO and UNICEF estimates of national immunization coverage - next revision available July 15, 2020
data received as of June 28, 2019
Greece - 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 accompanying graph and data table.

2018: Estimate based on estimated MCV1. GoC=R+
2017: Estimate based on estimated MCV1. GoC=R+
2016: Estimate based on estimated MCV1. GoC=R+
2015: Estimate based on estimated MCV1. GoC=R+
2014: Estimate based on estimated MCV1. The estimates are based on the National Immunization Coverage Survey conducted in 2014 of children 2-3 years of age. GoC=R+
2013: Estimate based on estimated MCV1. GoC=R+
2012: Estimate based on estimated MCV1. The estimates are based on the National Immunization Coverage Survey conducted in 2012 of children 6 years of age. GoC=R+
2011: Estimate based on estimated MCV1. GoC=R+
2010: Estimate based on estimated MCV1. GoC=No accepted empirical data
2009: Estimate based on estimated MCV1. GoC=R+
2008: Estimate based on estimated MCV1. GoC=R+
2007: Estimate based on estimated MCV1. GoC=R+

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: 2017 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.
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: 2017 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.
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: 2017 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.

<table>
<thead>
<tr>
<th>Year</th>
<th>Estimate</th>
<th>GoC</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2018</td>
<td>Estimate</td>
<td>R+</td>
<td>Estimate based on coverage reported by national government. GoC=R+</td>
</tr>
<tr>
<td>2017</td>
<td>Estimate</td>
<td>R+</td>
<td>Estimate based on coverage reported by national government. GoC=R+</td>
</tr>
<tr>
<td>2016</td>
<td>Estimate</td>
<td>R+</td>
<td>Estimate based on coverage reported by national government. GoC=R+</td>
</tr>
<tr>
<td>2015</td>
<td>Estimate</td>
<td>R+</td>
<td>Estimate based on coverage reported by national government. GoC=R+</td>
</tr>
<tr>
<td>2014</td>
<td>Estimate</td>
<td>R+</td>
<td>Estimate based on coverage reported by national government. The estimates are based on the National Immunization Coverage Survey conducted in 2014 of children 2-3 years of age. GoC=R+</td>
</tr>
<tr>
<td>2013</td>
<td>Estimate</td>
<td>R+</td>
<td>Estimate based on coverage reported by national government. GoC=R+</td>
</tr>
<tr>
<td>2012</td>
<td>Estimate</td>
<td>R+</td>
<td>Estimate based on coverage reported by national government. The estimates are based on the National Immunization Coverage Survey conducted in 2012 of children 6 years of age. GoC=R+</td>
</tr>
<tr>
<td>2011</td>
<td>Estimate</td>
<td>R+</td>
<td>Estimate based on coverage reported by national government. The estimates are based on the National Immunization Coverage Survey conducted in 2006. GoC=R+</td>
</tr>
<tr>
<td>2010</td>
<td>Estimate</td>
<td>No accepted empirical data</td>
<td>Estimate based on interpolation between data reported by national government. The estimates are based on the National Immunization Coverage Survey conducted in 2006. GoC=No accepted empirical data</td>
</tr>
<tr>
<td>2009</td>
<td>Estimate</td>
<td>R+</td>
<td>Estimate based on coverage reported by national government. The estimates are based on the National Immunization Coverage Survey conducted in 2006. GoC=R+</td>
</tr>
<tr>
<td>2008</td>
<td>Estimate</td>
<td>R+</td>
<td>Estimate based on coverage reported by national government. The estimates are based on the National Immunization Coverage Survey conducted in 2006. GoC=R+</td>
</tr>
<tr>
<td>2007</td>
<td>Estimate</td>
<td>R+</td>
<td>Estimate based on coverage reported by national government. The estimates are based on the National Immunization Coverage Survey conducted in 2006. GoC=R+</td>
</tr>
</tbody>
</table>
The WHO and UNICEF estimates of national immunization coverage (vunic) 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: 2017 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.
Greece - RotaC

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: 2017 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:

- **2018:** Estimate based on coverage reported by national government. GoC=R+
- **2017:** Estimate based on coverage reported by national government. GoC=R+
- **2016:** Estimate based on coverage reported by national government. GoC=R+
- **2015:** Estimate based on coverage reported by national government. Rotavirus vaccine introduced in 2011 at the ages of 2-6 months as recommended but the vaccine is not obligatory. GoC=R+
- **2014:** Estimate based on coverage reported by national government. The estimates are based on the National Immunization Coverage Survey conducted in 2014 of children 2-3 years of age. GoC=R+

### Table:

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
</tbody>
</table>

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: 2017 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.

July 2, 2019; page 14

WHO and UNICEF estimates of national immunization coverage - next revision available July 15, 2020

data received as of June 28, 2019
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: 2017 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:

2018: Estimate based on coverage reported by national government. GoC=R+
2017: Estimate based on coverage reported by national government. GoC=R+
2016: Estimate based on coverage reported by national government. GoC=R+
2015: Estimate based on coverage reported by national government. GoC=R+
2014: Estimate based on coverage reported by national government. The estimates are based on the National Immunization Coverage Survey conducted in 2014 of children 2-3 years of age. GoC=R+
2013: Estimate based on coverage reported by national government. GoC=R+
2012: Estimate based on coverage reported by national government. The estimates are based on the National Immunization Coverage Survey conducted in 2012 of children 6 years of age. Pneumococcal conjugate vaccine was introduced in 2006, reporting started in 2012. GoC=R+

<table>
<thead>
<tr>
<th>Year</th>
<th>Estimate</th>
<th>GoC</th>
</tr>
</thead>
<tbody>
<tr>
<td>2018</td>
<td>NA</td>
<td></td>
</tr>
<tr>
<td>2017</td>
<td>NA</td>
<td></td>
</tr>
<tr>
<td>2016</td>
<td>NA</td>
<td></td>
</tr>
<tr>
<td>2015</td>
<td>NA</td>
<td></td>
</tr>
<tr>
<td>2014</td>
<td>NA</td>
<td></td>
</tr>
<tr>
<td>2013</td>
<td>NA</td>
<td></td>
</tr>
<tr>
<td>2012</td>
<td>NA</td>
<td></td>
</tr>
</tbody>
</table>
### Greece - survey details

2011 A cross-sectional vaccination coverage study in preschool children attending nurseries-kindergartens: Implications on economic crisis effect, 2013

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Confirmation method</th>
<th>Coverage</th>
<th>Age cohort</th>
<th>Sample</th>
<th>Cards seen</th>
</tr>
</thead>
<tbody>
<tr>
<td>DTP1</td>
<td>Card</td>
<td>100</td>
<td>24-35 m</td>
<td>3114</td>
<td>82</td>
</tr>
<tr>
<td>DTP1</td>
<td>Card &lt; 12 months</td>
<td>95.7</td>
<td>24-35 m</td>
<td>3114</td>
<td>82</td>
</tr>
<tr>
<td>DTP3</td>
<td>Card</td>
<td>99.5</td>
<td>24-35 m</td>
<td>3114</td>
<td>82</td>
</tr>
<tr>
<td>DTP3</td>
<td>Card &lt; 12 months</td>
<td>92.9</td>
<td>24-35 m</td>
<td>3114</td>
<td>82</td>
</tr>
<tr>
<td>HepB1</td>
<td>Card</td>
<td>99.4</td>
<td>24-35 m</td>
<td>3114</td>
<td>82</td>
</tr>
<tr>
<td>HepB1</td>
<td>Card &lt; 12 months</td>
<td>82.2</td>
<td>24-35 m</td>
<td>3114</td>
<td>82</td>
</tr>
<tr>
<td>HepB3</td>
<td>Card</td>
<td>96.2</td>
<td>24-35 m</td>
<td>3114</td>
<td>82</td>
</tr>
<tr>
<td>HepB3</td>
<td>Card &lt; 12 months</td>
<td>81.4</td>
<td>24-35 m</td>
<td>3114</td>
<td>82</td>
</tr>
<tr>
<td>Hib1</td>
<td>Card</td>
<td>100</td>
<td>24-35 m</td>
<td>3114</td>
<td>82</td>
</tr>
<tr>
<td>Hib1</td>
<td>Card &lt; 12 months</td>
<td>94.9</td>
<td>24-35 m</td>
<td>3114</td>
<td>82</td>
</tr>
<tr>
<td>Hib3</td>
<td>Card</td>
<td>99.1</td>
<td>24-35 m</td>
<td>3114</td>
<td>82</td>
</tr>
<tr>
<td>Hib3</td>
<td>Card &lt; 12 months</td>
<td>91.6</td>
<td>24-35 m</td>
<td>3114</td>
<td>82</td>
</tr>
<tr>
<td>IPV1</td>
<td>Card</td>
<td>100</td>
<td>24-35 m</td>
<td>3114</td>
<td>82</td>
</tr>
<tr>
<td>IPV1</td>
<td>Card &lt; 12 months</td>
<td>99.1</td>
<td>24-35 m</td>
<td>3114</td>
<td>82</td>
</tr>
<tr>
<td>MCV1</td>
<td>Card</td>
<td>97.3</td>
<td>24-35 m</td>
<td>3114</td>
<td>82</td>
</tr>
<tr>
<td>PeV1</td>
<td>Card</td>
<td>99.8</td>
<td>24-35 m</td>
<td>3114</td>
<td>82</td>
</tr>
<tr>
<td>PeV1</td>
<td>Card &lt; 12 months</td>
<td>82.3</td>
<td>24-35 m</td>
<td>3114</td>
<td>82</td>
</tr>
<tr>
<td>PeV3</td>
<td>Card</td>
<td>95.6</td>
<td>24-35 m</td>
<td>3114</td>
<td>82</td>
</tr>
<tr>
<td>PeV3</td>
<td>Card &lt; 12 months</td>
<td>76.2</td>
<td>24-35 m</td>
<td>3114</td>
<td>82</td>
</tr>
<tr>
<td>Pol3</td>
<td>Card</td>
<td>99</td>
<td>24-35 m</td>
<td>3114</td>
<td>82</td>
</tr>
<tr>
<td>Pol3</td>
<td>Card &lt; 12 months</td>
<td>99</td>
<td>24-35 m</td>
<td>3114</td>
<td>82</td>
</tr>
<tr>
<td>RotaC</td>
<td>Card</td>
<td>23.3</td>
<td>24-35 m</td>
<td>3114</td>
<td>82</td>
</tr>
</tbody>
</table>

Further information and estimates for previous years are available at:
http://www.data.unicef.org/child-health/immunization