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:

*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 approaches. 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.

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 (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:

- **2017:** Estimate based on coverage reported by national government. Programme reports an unexplained increase in the target population size from 2015 to 2016 while coverage remained similar. No nationally representative household survey within the last 5 years. WHO and UNICEF recommend a high-quality survey to confirm reported levels of coverage. GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.

- **2016:** Estimate based on coverage reported by national government. GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.

- **2015:** Estimate based on coverage reported by national government. Recent trends in reported data on target population and number of children vaccinated, along with exceptionally high reported coverage, appear to suggest that the reported data are not reflective of all areas of the country (i.e., partial reporting). GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.

- **2014:** Estimate based on coverage reported by national government. Recent trends in reported data on target population and number of children vaccinated, along with exceptionally high reported coverage, appear to suggest that the reported data are not reflective of all areas of the country (i.e., partial reporting). GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.

- **2013:** Estimate based on reported administrative data. Recent trends in reported data on target population and number of children vaccinated, along with exceptionally high reported coverage, appear to suggest that the reported data are not reflective of all areas of the country (i.e., partial reporting). GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.

- **2012:** Estimate based on coverage reported by national government. Recent trends in reported data on target population and number of children vaccinated, along with exceptionally high reported coverage, appear to suggest that the reported data are not reflective of all areas of the country (i.e., partial reporting). GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.

- **2011:** Estimate based on interpolation between data reported by national government. GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.

- **2010:** Estimate based on coverage reported by national government. GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.

- **2009:** Estimate based on interpolation between data reported by national government. GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.

- **2008:** Estimate based on coverage reported by national government. GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.

- **2007:** Estimate based on coverage reported by national government. GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.

- **2006:** Estimate based on coverage reported by national government. GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.

- **Estimate**

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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.

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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.

July 7, 2018; page 3

WHO and UNICEF estimates of national immunization coverage - next revision available July 15, 2019

Data received as of July 4, 2018
group. GoC assigned to maintain consistency across vaccines.
### United Arab Emirates - DTP1

#### Description:

2017: Estimate based on coverage reported by national government. Programme reports an unexplained increase in the target population size from 2015 to 2016 while coverage remained similar. No nationally representative household survey within the last 5 years. WHO and UNICEF recommend a high-quality survey to confirm reported levels of coverage. GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.

2016: DTP1 coverage estimated based on DTP3 coverage of 100. GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.

2015: Estimate based on coverage reported by national government. Recent trends in reported data on target population and number of children vaccinated, along with exceptionally high reported coverage, appear to suggest that the reported data are not reflective of all areas of the country (i.e., partial reporting). GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.

2014: Estimate based on interpolation between data reported by national government. Reported data excluded because 120 percent greater than 100 percent. Reported data excluded due to an increase from 107 percent to 120 percent with decrease 100 percent. Recent trends in reported data on target population and number of children vaccinated, along with exceptionally high reported coverage, appear to suggest that the reported data are not reflective of all areas of the country (i.e., partial reporting). GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.

2013: Estimate based on interpolation between data reported by national government. Reported data excluded because 107 percent greater than 100 percent. Recent trends in reported data on target population and number of children vaccinated, along with exceptionally high reported coverage, appear to suggest that the reported data are not reflective of all areas of the country (i.e., partial reporting). GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.

2012: Estimate based on interpolation between data reported by national government. Reported data excluded because 111 percent greater than 100 percent. Recent trends in reported data on target population and number of children vaccinated, along with exceptionally high reported coverage, appear to suggest that the reported data are not reflective of all areas of the country (i.e., partial reporting). Rise in reported coverage above 100 percent is attributed to the inclusion of foreign-born children in the numerator. GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.

2011: Estimate based on interpolation between data reported by national government. GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.

2010: Estimate based on coverage reported by national government. GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.

2009: Estimate based on interpolation between data reported by national government. GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.

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**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.

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**Note:**
- 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.

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2008: Estimate based on interpolation between data reported by national government. GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.

2007: Estimate based on coverage reported by national government. GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.

2006: Estimate based on coverage reported by national government. GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.
United Arab Emirates - DTP3

Description:

2017: Estimate based on coverage reported by national government. Programme reports an unexplained increase in the target population size from 2015 to 2016 while coverage remained similar. No nationally representative household survey within the last 5 years. WHO and UNICEF recommend a high-quality survey to confirm reported levels of coverage. GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.

2016: Estimate based on coverage reported by national government. GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.

2015: Estimate based on coverage reported by national government. Recent trends in reported data on target population and number of children vaccinated, along with exceptionally high reported coverage, appear to suggest that the reported data are not reflective of all areas of the country (i.e., partial reporting). GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.

2014: Estimate based on interpolation between data reported by national government. Reported data excluded because 142 percent greater than 100 percent. Reported data excluded due to an increase from 125 percent to 142 percent with decrease 100 percent. Recent trends in reported data on target population and number of children vaccinated, along with exceptionally high reported coverage, appear to suggest that the reported data are not reflective of all areas of the country (i.e., partial reporting). GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.

2013: Estimate based on interpolation between data reported by national government. Reported data excluded because 125 percent greater than 100 percent. Recent trends in reported data on target population and number of children vaccinated, along with exceptionally high reported coverage, appear to suggest that the reported data are not reflective of all areas of the country (i.e., partial reporting). GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.

2012: Estimate based on interpolation between data reported by national government. Reported data excluded because 120 percent greater than 100 percent. Recent trends in reported data on target population and number of children vaccinated, along with exceptionally high reported coverage, appear to suggest that the reported data are not reflective of all areas of the country (i.e., partial reporting). GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.

2011: Estimate based on interpolation between data reported by national government. GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.

2010: Estimate based on coverage reported by national government. GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.

2009: Estimate based on interpolation between data reported by national government. GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.

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.

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**Description:**

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2014: Estimate based on interpolation between data reported by national government. Reported data excluded because 144 percent greater than 100 percent. Reported data excluded due to an increase from 124 percent to 144 percent with decrease 100 percent. Recent trends in reported data on target population and number of children vaccinated, along with exceptionally high reported coverage, appear to suggest that the reported data are not reflective of all areas of the country (i.e., partial reporting). GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.

2013: Estimate based on interpolation between data reported by national government. Reported data excluded because 124 percent greater than 100 percent. Recent trends in reported data on target population and number of children vaccinated, along with exceptionally high reported coverage, appear to suggest that the reported data are not reflective of all areas of the country (i.e., partial reporting). GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.

2012: Estimate based on interpolation between data reported by national government. Reported data excluded because 118 percent greater than 100 percent. Recent trends in reported data on target population and number of children vaccinated, along with exceptionally high reported coverage, appear to suggest that the reported data are not reflective of all areas of the country (i.e., partial reporting). GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.

2011: Estimate based on interpolation between data reported by national government. GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.

2010: Estimate based on coverage reported by national government. GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.

2009: Estimate based on interpolation between data reported by national government. GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.
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United Arab Emirates - IPV1

Estimates for a dose of IPV begin in 2015 following the Global Polio Eradication Initiative’s Polio Eradication and Endgame Strategic Plan: 2013-2018 which recommended at least one dose of inactivated polio vaccine (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).

2017: Estimate based on coverage reported by national government. Programme reports an unexplained increase in the target population size from 2015 to 2016 while coverage remained similar. No nationally representative household survey within the last 5 years. WHO and UNICEF recommend a high-quality survey to confirm reported levels of coverage. GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.

2016: Estimate based on coverage reported by national government. GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.

2015: Estimate based on coverage reported by national government. Recent trends in reported data on target population and number of children vaccinated, along with exceptionally high reported coverage, appear to suggest that the reported data are not reflective of all areas of the country (i.e., partial reporting). IPV introduced during 2010 using a sequential sequential schedule with first two doses recommended at ages 2 and 4 months. Reporting started in 2015. GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.

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- 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.
United Arab Emirates - MCV1

Description:

2017: Estimate based on coverage reported by national government. Programme reports an unexplained increase in the target population size from 2015 to 2016 while coverage remained similar. No nationally representative household survey within the last 5 years. WHO and UNICEF recommend a high-quality survey to confirm reported levels of coverage. GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.

2016: Estimate based on coverage reported by national government. GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.

2015: Estimate based on coverage reported by national government. Recent trends in reported data on target population and number of children vaccinated, along with exceptionally high reported coverage, appear to suggest that the reported data are not reflective of all areas of the country (i.e., partial reporting). GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.

2014: Estimate based on interpolation between data reported by national government. Reported data excluded because 138 percent greater than 100 percent. Recent trends in reported data on target population and number of children vaccinated, along with exceptionally high reported coverage, appear to suggest that the reported data are not reflective of all areas of the country (i.e., partial reporting). GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.

2013: Estimate based on interpolation between data reported by national government. Reported data excluded because 128 percent greater than 100 percent. Recent trends in reported data on target population and number of children vaccinated, along with exceptionally high reported coverage, appear to suggest that the reported data are not reflective of all areas of the country (i.e., partial reporting). GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.

2012: Estimate based on interpolation between data reported by national government. Reported data excluded because 111 percent greater than 100 percent. Recent trends in reported data on target population and number of children vaccinated, along with exceptionally high reported coverage, appear to suggest that the reported data are not reflective of all areas of the country (i.e., partial reporting). Rise in reported coverage above 100 percent is attributed to the inclusion of foreign-born children in the numerator. GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.

2011: Estimate based on interpolation between data reported by national government. GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.

2010: Estimate based on coverage reported by national government. GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.

2009: Estimate based on interpolation between data reported by national government. GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.

2008: Estimate based on coverage reported by national government. GoC=Assigned by working group.

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.
United Arab Emirates - MCV1

group. GoC assigned to maintain consistency across vaccines.
2007: Estimate based on coverage reported by national government. GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.
2006: Estimate based on coverage reported by national government. GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.
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.

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

2017: Estimate based on extrapolation from data reported by national government. Programme reports an unexplained increase in the target population size from 2015 to 2016 while coverage remained similar. No nationally representative household survey within the last 5 years. WHO and UNICEF recommend a high-quality survey to confirm reported levels of coverage. GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.

2016: Estimate based on extrapolation from data reported by national government. GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.

2015: Estimate based on coverage reported by national government. Recent trends in reported data on target population and number of children vaccinated, along with exceptionally high reported coverage, appear to suggest that the reported data are not reflective of all areas of the country (i.e., partial reporting). GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.

2014: Estimate based on interpolation between reported values. Recent trends in reported data on target population and number of children vaccinated, along with exceptionally high reported coverage, appear to suggest that the reported data are not reflective of all areas of the country (i.e., partial reporting). GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.

2013: Estimate based on interpolation between reported values. Recent trends in reported data on target population and number of children vaccinated, along with exceptionally high reported coverage, appear to suggest that the reported data are not reflective of all areas of the country (i.e., partial reporting). GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.

2012: Estimate based on interpolation between reported values. Reported data excluded because 105 percent greater than 100 percent. Recent trends in reported data on target population and number of children vaccinated, along with exceptionally high reported coverage, appear to suggest that the reported data are not reflective of all areas of the country (i.e., partial reporting). Rise in reported coverage above 100 percent is attributed to the inclusion of foreign-born children in the numerator. GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.

2011: Estimate based on interpolation between reported values. GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.

2010: Estimate based on coverage reported by national government. GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.

2009: Estimate based on interpolation between reported values. GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.

2008: Estimate based on coverage reported by national government. GoC=Assigned by working
United Arab Emirates - MCV2

group. GoC assigned to maintain consistency across vaccines.

2007: Estimate based on interpolation between reported values. GoC=Assigned by working
group. GoC assigned to maintain consistency across vaccines.

2006: Estimate based on interpolation between reported values. GoC=Assigned by working
group. GoC assigned to maintain consistency across vaccines.
The WHO and UNICEF estimates of national immunization coverage (uvinic) 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:**

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.

2017: Estimate based on estimated MCV1. Programme reports an unexplained increase in the target population size from 2015 to 2016 while coverage remained similar. No nationally representative household survey within the last 5 years. WHO and UNICEF recommend a high-quality survey to confirm reported levels of coverage. GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.


2015: Estimate based on estimated MCV1. Recent trends in reported data on target population and number of children vaccinated, along with exceptionally high reported coverage, appear to suggest that the reported data are not reflective of all areas of the country (i.e., partial reporting). GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.

2014: Estimate based on estimated MCV1. Recent trends in reported data on target population and number of children vaccinated, along with exceptionally high reported coverage, appear to suggest that the reported data are not reflective of all areas of the country (i.e., partial reporting). GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.

2013: Estimate based on estimated MCV1. Recent trends in reported data on target population and number of children vaccinated, along with exceptionally high reported coverage, appear to suggest that the reported data are not reflective of all areas of the country (i.e., partial reporting). GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.

2012: Estimate based on estimated MCV1. Recent trends in reported data on target population and number of children vaccinated, along with exceptionally high reported coverage, appear to suggest that the reported data are not reflective of all areas of the country (i.e., partial reporting). GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.


maintain consistency across vaccines.

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:

2017: Estimate based on coverage reported by national government. Programme reports an unexplained increase in the target population size from 2015 to 2016 while coverage remained similar. No nationally representative household survey within the last 5 years. WHO and UNICEF recommend a high-quality survey to confirm reported levels of coverage. GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.

2016: Estimate based on coverage reported by national government. GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.

2015: Estimate based on coverage reported by national government. Recent trends in reported data on target population and number of children vaccinated, along with exceptionally high reported coverage, appear to suggest that the reported data are not reflective of all areas of the country (i.e., partial reporting). GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.

2014: Estimate based on coverage reported by national government. Recent trends in reported data on target population and number of children vaccinated, along with exceptionally high reported coverage, appear to suggest that the reported data are not reflective of all areas of the country (i.e., partial reporting). GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.

2013: Estimate based on reported administrative estimate. Recent trends in reported data on target population and number of children vaccinated, along with exceptionally high reported coverage, appear to suggest that the reported data are not reflective of all areas of the country (i.e., partial reporting). GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.

2012: Estimate based on coverage reported by national government. Recent trends in reported data on target population and number of children vaccinated, along with exceptionally high reported coverage, appear to suggest that the reported data are not reflective of all areas of the country (i.e., partial reporting). GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.

2011: Estimate based on interpolation between reported values. GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.

2010: Estimate based on coverage reported by national government. GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.

2009: Estimate based on interpolation between reported values. GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.

2008: Estimate based on coverage reported by national government. GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.

2007: Estimate based on interpolation between reported values. GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.

2006: Estimate based on interpolation between reported values. GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.
In all cases these estimates should be used with caution and should be assessed in light of
which the estimates are based. It is not a judgment of the quality of data reported by national authorities.

The WHO and UNICEF estimates of national immunization coverage (wanic) 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
assigned to maintain consistency across vaccines.

Estimate GoC


Estimate 92 92 92 92 94 94 95 96 96 98 98 98

GoC

Official

92 92 92 92 NA 94 NA 109 NA 146 100 100 98

Administrative

92 92 NA NA NA NA NA NA NA NA NA NA

Survey

NA NA NA NA NA NA NA NA NA NA NA

Description:

2017: Estimate based on coverage reported by national government. Programme reports an
unexplained increase in the target population size from 2015 to 2016 while coverage re-
mained similar. No nationally representative household survey within the last 5 years.
WHO and UNICEF recommend a high-quality survey to confirm reported levels of cov-
2016: Estimate based on coverage reported by national government. GoC=Assigned by working
2015: Estimate based on coverage reported by national government. Recent trends in reported
data on target population and number of children vaccinated, along with exceptionally
high reported coverage, appear to suggest that the reported data are not reflective of
2014: Estimate based on interpolation between data reported by national government. Reported
data excluded because 136 percent greater than 100 percent. Reported data excluded due
2013: Estimate based on interpolation between data reported by national government. Reported
data excluded because 119 percent greater than 100 percent. Recent trends in reported
data on target population and number of children vaccinated, along with exceptionally
high reported coverage, appear to suggest that the reported data are not reflective of
2012: Estimate based on interpolation between data reported by national government. Reported
data excluded because 109 percent greater than 100 percent. Recent trends in reported
data on target population and number of children vaccinated, along with exceptionally
high reported coverage, appear to suggest that the reported data are not reflective of
2011: Estimate based on interpolation between data reported by national government. GoC=Assigned by working
2010: Estimate based on coverage reported by national government. GoC=Assigned by working
2009: Estimate based on interpolation between data reported by national government. GoC=Assigned by working

WHO and UNICEF estimates of national immunization coverage - next revision available July 15, 2019
data received as of July 4, 2018
United Arab Emirates - HepB3

2008: Estimate based on coverage reported by national government. GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.

2007: Estimate based on coverage reported by national government. GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.

2006: Estimate based on coverage reported by national government. GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.
**United Arab Emirates - Hib3**

**Description:**

2017: Estimate based on coverage reported by national government. Programme reports an unexplained increase in the target population size from 2015 to 2016 while coverage remained similar. No nationally representative household survey within the last 5 years. WHO and UNICEF recommend a high-quality survey to confirm reported levels of coverage. GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.

2016: Estimate based on coverage reported by national government. GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.

2015: Estimate based on coverage reported by national government. Recent trends in reported data on target population and number of children vaccinated, along with exceptionally high reported coverage, appear to suggest that the reported data are not reflective of all areas of the country (i.e., partial reporting). GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.

2014: Estimate based on interpolation between reported values. Reported data excluded because 148 percent greater than 100 percent. Reported data excluded due to an increase from 126 percent to 148 percent with decrease 100 percent. Recent trends in reported data on target population and number of children vaccinated, along with exceptionally high reported coverage, appear to suggest that the reported data are not reflective of all areas of the country (i.e., partial reporting). GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.

2013: Estimate based on interpolation between reported values. Reported data excluded because 126 percent greater than 100 percent. Recent trends in reported data on target population and number of children vaccinated, along with exceptionally high reported coverage, appear to suggest that the reported data are not reflective of all areas of the country (i.e., partial reporting). GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.

2012: Estimate based on interpolation between reported values. Reported data excluded because 120 percent greater than 100 percent. Recent trends in reported data on target population and number of children vaccinated, along with exceptionally high reported coverage, appear to suggest that the reported data are not reflective of all areas of the country (i.e., partial reporting). GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.

2011: Estimate based on interpolation between reported values. GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.

2010: Estimate based on coverage reported by national government. GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.

2009: Estimate based on interpolation between reported values. GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.

2008: Estimate based on coverage reported by national government. GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.

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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.

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*July 7, 2018* | *July 15, 2019* | *July 4, 2018*
United Arab Emirates - Hib3

2007: Estimate based on coverage reported by national government. GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.

2006: Estimate based on coverage reported by national government. GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.
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.

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2017: Estimate based on coverage reported by national government. Programme reports an unexplained increase in the target population size from 2015 to 2016 while coverage remained similar. No nationally representative household survey within the last 5 years. WHO and UNICEF recommend a high-quality survey to confirm reported levels of coverage. GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.

2016: Estimate based on coverage reported by national government. GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.

2015: Programme reports 100 percent coverage in 87 percent of the national target population. Estimate is based on annualized coverage among national birth cohort. Recent trends in reported data on target population and number of children vaccinated, along with exceptionally high reported coverage, appear to suggest that the reported data are not reflective of all areas of the country (i.e., partial reporting). GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.

2014: Rotavirus vaccine introduced during 2014. Reported coverage of 82 percent achieved in 52 percent of national target population. Estimate is based on annualized coverage among national birth cohort. Recent trends in reported data on target population and number of children vaccinated, along with exceptionally high reported coverage, appear to suggest that the reported data are not reflective of all areas of the country (i.e., partial reporting). GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.

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.

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data received as of July 4, 2018
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.

### Description:

**2017:** Estimate based on coverage reported by national government. Programme reports an unexplained increase in the target population size from 2015 to 2016 while coverage remained similar. No nationally representative household survey within the last 5 years. WHO and UNICEF recommend a high-quality survey to confirm reported levels of coverage. GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.

**2016:** Estimate based on coverage reported by national government. GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.

**2015:** Estimate based on coverage reported by national government. Recent trends in reported data on target population and number of children vaccinated, along with exceptionally high reported coverage, appear to suggest that the reported data are not reflective of all areas of the country (i.e., partial reporting). GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.

**2014:** Estimate based on interpolation between reported values. Reported data excluded because 148 percent greater than 100 percent. Reported data excluded due to an increase from 127 percent to 148 percent with decrease 100 percent. Recent trends in reported data on target population and number of children vaccinated, along with exceptionally high reported coverage, appear to suggest that the reported data are not reflective of all areas of the country (i.e., partial reporting). GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.

**2013:** Estimate based on interpolation between reported values. Reported data excluded because 127 percent greater than 100 percent. Recent trends in reported data on target population and number of children vaccinated, along with exceptionally high reported coverage, appear to suggest that the reported data are not reflective of all areas of the country (i.e., partial reporting). GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.

**2012:** Estimate based on interpolation between reported values. Reported data excluded because 121 percent greater than 100 percent. Recent trends in reported data on target population and number of children vaccinated, along with exceptionally high reported coverage, appear to suggest that the reported data are not reflective of all areas of the country (i.e., partial reporting). Rise in reported coverage above 100 percent is attributed to the inclusion of foreign-born children in the numerator. GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.

**2011:** Estimate based on interpolation between reported values. GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.

**2010:** Estimate based on reported administrative estimate. Pneumococcal conjugate vaccine introduced in 2007. Reporting started in 2010. GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.

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**Table:**

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