**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 estimates are based on methods that show large variation, an attempt is made to identify the most likely estimate with consideration of the possible biases in available data.*

**DATA SOURCES.**

**ADMINISTRATIVE coverage:** Reported by national authorities and based on aggregated administrative reports from health service providers on the number of vaccinations administered during a given period (numerator data) and reported target population data (denominator data). May be biased by inaccurate numerator and/or denominator data.

**OFFICIAL coverage:** Estimated coverage reported by national authorities that reflects their assessment of the most likely coverage based on any combination of administrative coverage, survey-based estimates or other data sources or adjustments. Approaches to determine OFFICIAL coverage may differ across countries.

**SURVEY coverage:** Based on estimated coverage from population-based household surveys among children aged 12-23 months or 24-35 months following a review of survey methods and results. Information is based on the combination of vaccination history from documented evidence or caregiver recall. Survey results are considered for the appropriate birth cohort based on the period of data collection.

**ABBREVIATIONS**

**BCG:** percentage of births who received one dose of Bacillus Calmette Guerin vaccine.

**DTP1 / DTP3:** percentage of surviving infants who received the 1st / 3rd dose, respectively, of diphtheria and tetanus toxoid with pertussis containing vaccine.

**Pol3:** percentage of surviving infants who received the 3rd dose of polio containing vaccine. May be either oral or inactivated polio vaccine.

**IPV1:** percentage of surviving infants who received at least one dose of inactivated polio vaccine. In countries utilizing an immunization schedule recommending either (i) a primary series of three doses of oral polio vaccine (OPV) plus at least one dose of IPV where OPV is included in routine immunization and/or campaign or (ii) a sequential schedule of IPV followed by OPV, WHO and UNICEF estimates for IPV1 reflect coverage with at least one routine dose of IPV among infants <1 year of age among countries. For countries utilizing IPV containing vaccine use only, i.e., no recommended dose of OPV, the WHO and UNICEF estimate for IPV1 corresponds to coverage for the 1st dose of IPV.

Production of IPV coverage estimates, which begins in 2015, results in no change of the estimated coverage levels for the 3rd dose of polio (Pol3). For countries recommending routine immunization with a primary series of three doses of IPV alone, WHO and UNICEF estimated Pol3 coverage is equivalent to estimated coverage with three doses of IPV. For countries with a sequential schedule, estimated Pol3 coverage is based on that for the 3rd dose of polio vaccine regardless of vaccine type.

**MCV1:** percentage of surviving infants who received the 1st dose of measles containing vaccine. In countries where the national schedule recommends the 1st dose of MCV at 12 months or later based on the epidemiology of disease in the country, coverage estimates reflect the percentage of children who received the 1st dose of MCV as recommended.

**MCV2:** percentage of children who received the 2nd dose of measles containing vaccine according to the nationally recommended schedule.

**RCV1:** percentage of surviving infants who received the 1st dose of rubella containing vaccine. Coverage estimates are based on WHO and UNICEF estimates of coverage for the dose of measles containing vaccine that corresponds to the first measles-rubella combination vaccine. Nationally reported coverage of RCV is not taken into consideration nor are the data represented in the accompanying graph and data table.

**HepBB:** percentage of births which received a dose of hepatitis B vaccine within 24 hours of delivery. Estimates of hepatitis B birth dose coverage are produced only for countries with a universal birth dose policy. Estimates are not produced for countries that recommend a birth dose to infants born to HepB virus-infected mothers only or where there is insufficient information to determine whether vaccination is within 24 hours of birth.

**HepB3:** percentage of surviving infants who received the 3rd dose of hepatitis B containing vaccine following the birth dose.

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

**MCA:** 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.

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

Estimate is supported by reported data [R+], coverage recalculated with an independent denominator from the World Population Prospects: 2022 revision from the UN Population Division (D+), and at least one supporting survey within 2 years [S+]. While well supported, the estimate still carries a risk of being wrong.

Estimate is supported by at least one data source; [R+], [S+], or [D+]; and no data source, [R-], [D-], or [S-], challenges the estimate.

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

In all cases these estimates should be used with caution and should be assessed in light of the objective for which they are being used.
calibrated to the level of the 2005 survey. Reported data excluded because 102 percent
greater than 100 percent. Estimate challenged by: D-R-
2010: Reported data calibrated to 2005 and 2011 levels. Estimate challenged by: R-
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.

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

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

Description:

2021: Reported data calibrated to 2005 levels. Survey results for the 2019 birth cohort suggest estimated coverage levels may be underestimated. Estimate challenged by: D-R-

2020: Reported data calibrated to 2005 levels. Reporting from some districts is incomplete. The denominator used for administrative coverage has been estimated from the coverage of the polio campaigns of 2017 in addition to vaccinated children per health facility. The last population census was conducted in 2004. The target population is estimated and likely inaccurate due to the constant movement outside and inside the country. Estimate challenged by: D-R-

2019: Reported data calibrated to 2005 levels. Vaccination and Equity Coverage Survey among Syrian children under two years and women in reproductive age, 2020 results ignored by working group. Following review of the 2020 survey report and results, concerns remain regarding the analysis. WHO and UNICEF will work with the programme to further explore. Estimate challenged by: D-R-

2018: Reported data calibrated to 2005 levels. Low levels of coverage, associated with the interruption of health services during a period of civil unrest, continue. Estimate challenged by: D-R-

2017: Reported data calibrated to 2005 levels. Low levels of coverage, associated with the interruption of health services during a period of civil unrest, continue. Estimate challenged by: D-R-

2016: Reported data calibrated to 2005 levels. Low levels of coverage, associated with the interruption of health services during a period of civil unrest, continue. Estimate challenged by: D-R-

2015: Reported data calibrated to 2005 levels. Low levels of coverage continue associated with the interruption of health services during period of civil unrest. Reported target population estimates have exceptionally remained largely unchanged during the period of civil unrest between 2014 and 2015. Estimate challenged by: D-R-

2014: Reported data calibrated to 2005 levels. Low levels of coverage continue associated with the interruption of health services during period of civil unrest. Estimate challenged by: D-R-

2013: Reported data calibrated to 2005 levels. Programme reports a one month stock-out at the national level. Estimate challenged by: D-R-

2012: Reported data calibrated to 2005 levels. Low levels of coverage associated with the interruption of health services during period of civil unrest. Estimate follows official government estimate. Estimate challenged by: D-R-

2011: Reported data calibrated to 2005 levels. Estimate challenged by: R-

2010: Reported data calibrated to 2005 levels. Estimate challenged by: D-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: 2022 revision from the UN Population Division (D+), and at least one supporting survey within 2 years [S+]. While well supported, the estimate still carries a risk of being wrong.
- Estimate is supported by at least one data source; [R+], [S+], or [D+]; and no data source, [R-], [D-], or [S-], challenges the estimate.
- There are no directly supporting data; or data from at least one source; [R-], [D-], [S-]; challenge the estimate.

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

**Description:**

2021: Reported data calibrated to 2005 levels. Survey results for the 2019 birth cohort suggest estimated coverage levels may be underestimated. Estimate challenged by: D-R-

2020: Reported data calibrated to 2005 levels. Reporting from some districts is incomplete. The denominator used for administrative coverage has been estimated from the coverage of the polio campaigns of 2017 in addition to vaccinated children per health facility. The last population census was conducted in 2004. The target population is estimated and likely inaccurate due to the constant movement outside and inside the country. Estimate challenged by: D-R-

2019: Reported data calibrated to 2005 levels. Vaccination and Equity Coverage Survey among Syrian children under two years and women in reproductive age, 2020 results ignored by working group. Following review of the 2020 survey report and results, concerns remain regarding the analysis. WHO and UNICEF will work with the programme to further explore. Estimate challenged by: D-R-

2018: Reported data calibrated to 2005 levels. Low levels of coverage, associated with the interruption of health services during a period of civil unrest, continue. Estimate challenged by: D-R-

2017: Reported data calibrated to 2005 levels. Low levels of coverage, associated with the interruption of health services during a period of civil unrest, continue. Estimate challenged by: D-R-

2016: Reported data calibrated to 2005 levels. Low levels of coverage, associated with the interruption of health services during a period of civil unrest, continue. Programme reports a 1 month stock-out at the national level. Estimate challenged by: D-R-

2015: Reported data calibrated to 2005 levels. Low levels of coverage continue associated with the interruption of health services during period of civil unrest. Reported target population estimates have exceptionally remained largely unchanged during the period of civil unrest between 2014 and 2015. Estimate challenged by: D-R-

2014: Reported data calibrated to 2005 levels. Low levels of coverage continue associated with the interruption of health services during period of civil unrest. Estimate challenged by: D-R-

2013: Reported data calibrated to 2005 levels. Programme reports a one month stock-out at national level and in 30 districts. Low levels of coverage associated with the interruption of health services during period of civil unrest. Estimate challenged by: D-R-

2012: Reported data calibrated to 2005 levels. Low levels of coverage associated with the interruption of health services during period of civil unrest. Estimate challenged by: D-R-

2011: Reported data calibrated to 2005 levels. Estimate challenged by: D-R-

2010: Reported data calibrated to 2005 levels. Estimate challenged by: D-R-

July 8, 2022; page 6  WHO and UNICEF estimates of national immunization coverage - next revision available July 15, 2023 data received as of July 7, 2022
The WHO and UNICEF estimates of national immunization coverage (wuenic) are based on data and information that are of varying, and, in some instances, unknown quality. Beginning with the 2011 revision we describe the grade of confidence (GoC) we have in these estimates. As there is no underlying probability model upon which the estimates are based, we are unable to present classical measures of uncertainty, e.g., confidence intervals. Moreover, we have chosen not to make subjective estimates of plausibility/certainty ranges around the coverage. The GoC reflects the degree of empirical support upon which the estimates are based. It is not a judgment of the quality of data reported by national authorities.

Estimate is supported by reported data [R+], coverage recalculated with an independent denominator from the World Population Prospects: 2022 revision from the UN Population Division (D+) and at least one supporting survey within 2 years [S+]. While well supported, the estimate still carries a risk of being wrong.

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

**Syrian Arab Republic - Pol3**

Description:

2021: Reported data calibrated to 2005 levels. Survey results for the 2019 birth cohort suggest estimated coverage levels may be underestimated. Estimate challenged by: D-R-

2020: Reported data calibrated to 2005 levels. Reporting from some districts is incomplete. The denominator used for administrative coverage has been estimated from the coverage of the polio campaigns of 2017 in addition to vaccinated children per health facility. The last population census was conducted in 2004. The target population is estimated and likely inaccurate due to the constant movement outside and inside the country. Estimate challenged by: D-R-

2019: Reported data calibrated to 2005 levels. Vaccination and Equity Coverage Survey among Syrian children under two years and women in reproductive age, 2020 results ignored by working group. Following review of the 2020 survey report and results, concerns remain regarding the analysis. WHO and UNICEF will work with the programme to further explore. Estimate challenged by: D-R-

2018: Reported data calibrated to 2005 levels. Low levels of coverage, associated with the interruption of health services during a period of civil unrest, continue. Estimate challenged by: D-R-

2017: Reported data calibrated to 2005 levels. Low levels of coverage, associated with the interruption of health services during a period of civil unrest, continue. Estimate challenged by: D-R-

2016: Reported data calibrated to 2005 levels. Low levels of coverage, associated with the interruption of health services during a period of civil unrest, continue. Estimate challenged by: D-R-

2015: Reported data calibrated to 2005 levels. Low levels of coverage continue associated with the interruption of health services during period of civil unrest. Reported target population estimates have exceptionally remained largely unchanged during the period of civil unrest between 2014 and 2015. Estimate challenged by: D-R-

2014: Reported data calibrated to 2005 levels. Low levels of coverage continue associated with the interruption of health services during period of civil unrest. Higher estimated coverage levels versus those for the third dose of DTP containing vaccine may suggest inclusion of campaign doses. Estimate challenged by: D-R-

2013: Reported data calibrated to 2005 levels. Reported data excluded. Reported coverage levels may reflect doses delivered during campaign. Higher estimated coverage levels versus those for the third dose of DTP containing vaccine may suggest inclusion of campaign doses. Low levels of coverage associated with the interruption of health services during period of civil unrest. Estimate challenged by: D-R-

2012: Reported data calibrated to 2005 levels. Higher estimated coverage levels versus those for the third dose of DTP containing vaccine may suggest inclusion of campaign doses. Low levels of coverage associated with the interruption of health services during period of civil unrest. Estimate challenged by: D-R-

2011: Reported data calibrated to 2005 levels. Estimate challenged by: D-R-

2010: Reported data calibrated to 2005 levels. Estimate challenged by: D-R-

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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.

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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: 2022 revision from the UN Population Division (D+), and at least one supporting survey within 2 years [S+]. While well supported, the estimate still carries a risk of being wrong.
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- There are no directly supporting data; or data from at least one source; [R-], [D-], [S-]; challenge the estimate.

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

### Syrian Arab Republic - IPV1

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**Description:**

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

2021: Estimate based on reported IPV1 coverage adjusted for the difference between reported and estimated DTP1 coverage. Survey results for the 2019 birth cohort suggest estimated coverage levels may be underestimated. Estimate challenged by: D-R-

2020: Estimate based on reported IPV1 coverage adjusted for the difference between reported and estimated DTP1 coverage. Reporting from some districts is incomplete. The denominator used for administrative coverage has been estimated from the coverage of the polio campaigns of 2017 in addition to vaccinated children per health facility. The last population census was conducted in 2004. The target population is estimated and likely inaccurate due to the constant movement outside and inside the country. Estimate challenged by: D-R-

2019: Estimate based on reported IPV1 coverage adjusted for the difference between reported and estimated DTP1 coverage. Vaccination and Equity Coverage Survey among Syrian children under two years and women in reproductive age, 2020 results ignored by working group. Following review of the 2020 survey report and results, concerns remain regarding the analysis. WHO and UNICEF will work with the programme to further explore. Estimate challenged by: D-R-

2018: Estimate based on reported IPV1 coverage adjusted for the difference between reported and estimated DTP1 coverage. Low levels of coverage, associated with the interruption of health services during a period of civil unrest, continue. Reported data reflect coverage for the second full dose of IPV. Estimate challenged by: D-R-

2017: Estimate based on reported IPV1 coverage adjusted for the difference between reported and estimated DTP1 coverage. Low levels of coverage, associated with the interruption of health services during a period of civil unrest, continue. Estimate challenged by: D-R-

2016: Inactivated polio vaccine in 2008 as part of a sequential schedule. Low levels of coverage, associated with the interruption of health services during a period of civil unrest, continue. Programme reports a 3 month stock-out at the national level. Estimate challenged by: D-R-

2015: Low levels of coverage continue associated with the interruption of health services during period of civil unrest. Reported target population estimates have exceptionally remained largely unchanged during the period of civil unrest between 2014 and 2015. Estimate challenged by: D-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: 2022 revision from the UN Population Division (D+), and at least one supporting survey within 2 years [S+]. While well supported, the estimate still carries a risk of being wrong.**

- **Estimate is supported by at least one data source; [R+], [S+], or [D+]; and no data source, [R-], [D-], or [S-], challenges the estimate.**

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

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

### Description:

2021: Reported data calibrated to 2005 levels. Survey results for the 2019 birth cohort suggest estimated coverage levels may be underestimated. Estimate challenged by: D-R-

2020: Reported data calibrated to 2005 levels. Reporting from some districts is incomplete. The denominator used for administrative coverage has been estimated from the coverage of the polio campaigns of 2017 in addition to vaccinated children per health facility. The last population census was conducted in 2004. The target population is estimated and likely inaccurate due to the constant movement outside and inside the country. Estimate challenged by: D-R-

2019: Reported data calibrated to 2005 levels. Vaccination and Equity Coverage Survey among Syrian children under two years and women in reproductive age, 2020 results ignored by working group. Following review of the 2020 survey report and results, concerns remain regarding the analysis. WHO and UNICEF will work with the programme to further explore. Estimate of 65 percent changed from previous revision value of 59 percent. Estimate challenged by: D-R-

2018: Reported data calibrated to 2005 levels. Low levels of coverage, associated with the interruption of health services during a period of civil unrest, continue. Estimate challenged by: D-R-

2017: Reported data calibrated to 2005 levels. Low levels of coverage, associated with the interruption of health services during a period of civil unrest, continue. Estimate challenged by: D-R-

2016: Reported data calibrated to 2005 levels. Low levels of coverage, associated with the interruption of health services during a period of civil unrest, continue. Estimate challenged by: D-R-

2015: Reported data calibrated to 2005 levels. Low levels of coverage continue associated with the interruption of health services during period of civil unrest. Reported target population estimates have exceptionally remained largely unchanged during the period of civil unrest between 2014 and 2015. Estimate challenged by: D-R-

2014: Reported data calibrated to 2005 levels. Low levels of coverage continue associated with the interruption of health services during period of civil unrest. Estimate challenged by: D-R-

2013: Reported data calibrated to 2005 levels. Reported data excluded. Reported coverage levels may reflect doses delivered during campaign. Programme reports a 4 month stock-out at the national level and in 60 districts. Low levels of coverage associated with the interruption of health services during period of civil unrest. Estimate challenged by: D-R-

2012: Reported data calibrated to 2005 levels. Low levels of coverage associated with the interruption of health services during period of civil unrest. Estimate challenged by: D-R-

2011: Reported data calibrated to 2005 levels. Estimate challenged by: D-R-

2010: Reported data calibrated to 2005 levels. Estimate challenged by: D-R-

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July 8, 2022; page 9 WHO and UNICEF estimates of national immunization coverage - next revision available July 15, 2023 data received as of July 7, 2022
The WHO and UNICEF estimates of national immunization coverage (wuenic) are based on data and information that are of varying, and, in some instances, unknown quality. Beginning with the 2011 revision we describe the grade of confidence (GoC) we have in these estimates. As there is no underlying probability model upon which the estimates are based, we are unable to present classical measures of uncertainty, e.g., confidence intervals. Moreover, we have chosen not to make subjective estimates of plausibility/certainty ranges around the coverage. The GoC reflects the degree of empirical support upon which the estimates are based. It is not a judgment of the quality of data reported by national authorities.

- Estimate is supported by reported data [R+], coverage recalculated with an independent denominator from the World Population Prospects: 2022 revision from the UN Population Division (D+), and at least one supporting survey within 2 years [S+]. While well supported, the estimate still carries a risk of being wrong.
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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.

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Description:

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

2021: Reported data calibrated to 2012 levels. Survey results for the 2019 birth cohort suggest estimated coverage levels may be underestimated. Estimate challenged by: D-R-

2020: Reported data calibrated to 2012 levels. Reporting from some districts is incomplete. The denominator used for administrative coverage has been estimated from the coverage of the polio campaigns of 2017 in addition to vaccinated children per health facility. The last population census was conducted in 2004. The target population is estimated and likely inaccurate due to the constant movement outside and inside the country. Estimate challenged by: D-R-

2019: Reported data calibrated to 2012 levels. Vaccination and Equity Coverage Survey among Syrian children under two years and women in reproductive age, 2020 results ignored by working group. Following review of the 2020 survey report and results, concerns remain regarding the analysis. WHO and UNICEF will work with the programme to further explore. Estimate challenged by: D-R-

2018: Reported data calibrated to 2012 levels. Low levels of coverage, associated with the interruption of health services during a period of civil unrest, continue. Estimate challenged by: D-R-

2017: Reported data calibrated to 2012 levels. Low levels of coverage, associated with the interruption of health services during a period of civil unrest, continue. Estimate challenged by: D-R-

2016: Reported data calibrated to 2012 levels. Low levels of coverage, associated with the interruption of health services during a period of civil unrest, continue. Estimate challenged by: D-R-

2015: Reported data calibrated to 2012 levels. Low levels of coverage continue associated with the interruption of health services during period of civil unrest. Reported target population estimates have exceptionally remained largely unchanged during the period of civil unrest between 2014 and 2015. Estimate challenged by: D-R-

2014: Reported data calibrated to 2012 levels. Low levels of coverage continue associated with the interruption of health services during period of civil unrest. Estimate challenged by: D-R-

2013: Reported data calibrated to 2012 levels. Reported data excluded. Reported coverage levels may reflect doses delivered during campaign. Low levels of coverage associated with the interruption of health services during period of civil unrest. Estimate challenged by: D-R-

2012: Estimate of 53 percent assigned by working group. Coverage level follows coverage for MCV first dose with adjustment based on the difference between estimated coverage and official government estimate for MCV. Low levels of coverage associated with the interruption of health services during period of civil unrest. Estimate challenged by: D-R-
2011: Estimate of 71 percent assigned by working group. Coverage level follows coverage for MCV first dose with adjustment based on the difference between estimated coverage and official government estimate for MCV. Estimate challenged by: D-R-

2010: Estimate of 82 percent assigned by working group. Coverage level follows coverage for MCV first dose with adjustment based on the difference between estimated coverage and official government estimate for MCV. Estimate challenged by: D-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: 2022 revision from the UN Population Division (D+), and at least one supporting survey within 2 years [S+]. While well supported, the estimate still carries a risk of being wrong.
- Estimate is supported by at least one data source; [R+], [S+], or [D+]; and no data source, [R-], [D-], or [S-]; challenges the estimate.
- There are no directly supporting data; or data from at least one source; [R-], [D-], [S-]; challenge the estimate.

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

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.

2021: Estimate based on estimated MCV1. Survey results for the 2019 birth cohort suggest estimated coverage levels may be underestimated. Estimate challenged by: D-R-

2020: Estimate based on estimated MCV1. Reporting from some districts is incomplete. The denominator used for administrative coverage has been estimated from the coverage of the polio campaigns of 2017 in addition to vaccinated children per health facility. The last population census was conducted in 2004. The target population is estimated and likely inaccurate due to the constant movement outside and inside the country. Estimate challenged by: D-R-

2019: Estimate based on estimated MCV1. Vaccination and Equity Coverage Survey among Syrian children under two years and women in reproductive age, 2020 results ignored by working group. Following review of the 2020 survey report and results, concerns remain regarding the analysis. WHO and UNICEF will work with the programme to further explore. Estimate of 65 percent changed from previous revision value of 59 percent. Estimate challenged by: D-R-

2018: Estimate based on estimated MCV1. Low levels of coverage, associated with the interruption of health services during a period of civil unrest, continue. Estimate challenged by: D-R-

2017: Estimate based on estimated MCV1. Low levels of coverage, associated with the interruption of health services during a period of civil unrest, continue. Estimate challenged by: D-R-

2016: Estimate based on estimated MCV1. Low levels of coverage, associated with the interruption of health services during a period of civil unrest, continue. Estimate challenged by: D-R-

2015: Estimate based on estimated MCV1. Low levels of coverage continue associated with the interruption of health services during period of civil unrest. Reported target population estimates have exceptionally remained largely unchanged during the period of civil unrest between 2014 and 2015. Estimate challenged by: D-R-

2014: Estimate based on estimated MCV1. Low levels of coverage continue associated with the interruption of health services during period of civil unrest. Estimate challenged by: D-R-

2013: Estimate based on estimated MCV1. Low levels of coverage associated with the interruption of health services during period of civil unrest. Estimate challenged by: D-R-

2012: Estimate based on estimated MCV1. Low levels of coverage associated with the interruption of health services during period of civil unrest. Estimate challenged by: D-R-

2011: Estimate based on estimated MCV1. Estimate challenged by: D-R-

2010: Estimate based on estimated MCV1. Estimate challenged by: D-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: 2022 revision from the UN Population Division (D+), and at least one supporting survey within 2 years [S+]. While well supported, the estimate still carries a risk of being wrong.

- Estimate is supported by at least one data source; [R+], [S+], or [D+]; and no data source, [R-], [D-], or [S-], challenges the estimate.

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

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

- **2021:** Estimate based on estimated DTP3 coverage. Survey results for the 2019 birth cohort suggest estimated coverage levels may be underestimated. Estimate challenged by: D-R-
- **2020:** Estimate based on estimated DTP3 coverage. Reporting from some districts is incomplete. The denominator used for administrative coverage has been estimated from the coverage of the polio campaigns of 2017 in addition to vaccinated children per health facility. The last population census was conducted in 2004. The target population is estimated and likely inaccurate due to the constant movement outside and inside the country. Estimate challenged by: D-R-
- **2019:** Estimate based on estimated DTP3 coverage. Vaccination and Equity Coverage Survey among Syrian children under two years and women in reproductive age, 2020 results ignored by working group. Following review of the 2020 survey report and results, concerns remain regarding the analysis. WHO and UNICEF will work with the programme to further explore. Estimate challenged by: D-R-
- **2018:** Estimate based on estimated DTP3 coverage. Low levels of coverage, associated with the interruption of health services during a period of civil unrest, continue. Estimate challenged by: D-R-
- **2017:** Estimate is based on estimated DTP3 coverage. Low levels of coverage, associated with the interruption of health services during a period of civil unrest, continue. Estimate challenged by: D-R-
- **2016:** Estimate based on estimated DTP3 coverage. Low levels of coverage, associated with the interruption of health services during period of civil unrest. Estimate challenged by: D-R-
- **2015:** Reported data calibrated to 2005 levels. Low levels of coverage continue associated with the interruption of health services during period of civil unrest. Reported target population estimates have exceptionally remained largely unchanged during the period of civil unrest between 2014 and 2015. Estimate challenged by: D-R-
- **2014:** Reported data calibrated to 2005 levels. Low levels of coverage continue associated with the interruption of health services during period of civil unrest. GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.
- **2013:** Reported data calibrated to 2005 levels. Higher levels of HepB3 due in part to use of monovalent HepB vaccine. Low levels of coverage associated with the interruption of health services during period of civil unrest. Estimate challenged by: D-R-
- **2012:** Reported data calibrated to 2005 levels. First dose of HepB was given at birth and third dose delivered with DTP2. Low levels of coverage associated with the interruption of health services during period of civil unrest. Estimate challenged by: D-R-
- **2011:** Reported data calibrated to 2005 levels. Decline in coverage attributed to civil unrest in the country. Estimate challenged by: D-R-
- **2010:** Reported data calibrated to 2005 levels. Estimate challenged by: D-R-

### Data

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July 8, 2022; page 14 WHO and UNICEF estimates of national immunization coverage - next revision available July 15, 2023 data received as of July 7, 2022
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2019: Reported data calibrated to 2005 levels. Estimate challenged by: D-R-

2018: Estimate based on estimated DTP3 coverage. Low levels of coverage, associated with the interruption of health services during a period of civil unrest, continue. Estimate challenged by: R-

2017: Reported data calibrated to 2005 levels. Low levels of coverage, associated with the interruption of health services during a period of civil unrest, continue. Estimate challenged by: D-R-

2016: Reported data calibrated to 2005 levels. Low levels of coverage, associated with the interruption of health services during a period of civil unrest, continue. Programme reports a 1 month stock-out at the national level. Estimate challenged by: D-R-

2015: Reported data calibrated to 2005 levels. Low levels of coverage continue associated with the interruption of health services during period of civil unrest. Reported target population estimates have exceptionally remained largely unchanged during the period of civil unrest between 2014 and 2015. Estimate challenged by: D-R-

2014: Reported data calibrated to 2005 levels. Low levels of coverage continue associated with the interruption of health services during period of civil unrest. GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.

2013: Reported data calibrated to 2005 levels. Low levels of coverage associated with the interruption of health services during period of civil unrest. Estimate challenged by: D-R-

2012: Reported data calibrated to 2005 levels. Low levels of coverage associated with the interruption of health services during period of civil unrest. Estimate challenged by: D-R-

2011: Reported data calibrated to 2005 levels. Estimate challenged by: D-R-

2010: Reported data calibrated to 2005 levels. Estimate challenged by: R-
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### Syrian Arab Republic - survey details

**2019 Vaccination and Equity Coverage Survey among Syrian children under two years and women in reproductive age, 2020**

<table>
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<th>Vaccine</th>
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<th>Sample</th>
<th>Cards seen</th>
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**2008 Syria 2009 Household Survey (PAPFAM)**

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<th>Coverage</th>
<th>Age cohort</th>
<th>Sample</th>
<th>Cards seen</th>
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**2005 Syrian Arab Republic Multiple Indicator Cluster Survey 2006**

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Further information and estimates for previous years are available at:

- [https://immunizationdata.who.int/listing.html](https://immunizationdata.who.int/listing.html)