

**BACKGROUND NOTE:** Each year WHO and UNICEF jointly review reports submitted by Member States regarding national immunization coverage, finalized survey reports as well as data from the published and grey literature. Based on these data, with due consideration to potential biases and the views of local experts, WHO and UNICEF attempt to distinguish between situations where the available empirical data accurately reflect immunization system performance and those where the data are likely to be compromised and present a misleading view of immunization coverage while jointly estimating the most likely coverage levels for each country.

WHO and UNICEF estimates are country-specific; that is to say, each country's data are reviewed individually, and data are not borrowed from other countries in the absence of data. Estimates are not based on ad hoc adjustments to reported data; in some instances empirical data are available from a single source, usually the nationally reported coverage data. In cases where no data are available for a given country/vaccine/year combination, data are considered from earlier and later years and interpolated to estimate coverage for the missing year(s). In cases where data sources are mixed and show large variation, an attempt is made to identify the most likely estimate with consideration of the possible biases in available data. For methods see:

\*Burton et al. 2009. WHO and UNICEF estimates of national infant immunization coverage: methods and processes.

\*Burton et al. 2012. A formal representation of the WHO and UNICEF estimates of national immunization coverage: a computational logic approach.

\*Brown et al. 2013. An introduction to the grade of confidence used to characterize uncertainty around the WHO and UNICEF estimates of national immunization coverage.

## DATA SOURCES.

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

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

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

## ABBREVIATIONS

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

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

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

**IPV1:** percentage of surviving infants who received at least one dose of inactivated polio vaccine. In countries utilizing an immunization schedule recommending either (i) a primary series of three doses of oral polio vaccine (OPV) plus at least one dose of IPV where OPV is included in routine

immunization and/or campaign or (ii) a sequential schedule of IPV followed by OPV, WHO and UNICEF estimates for IPV1 reflect coverage with at least one routine dose of IPV among infants <1 year of age among countries. For countries utilizing IPV containing vaccine use only, i.e., no recommended dose of OPV, the WHO and UNICEF estimate for IPV1 corresponds to coverage for the 1st dose of IPV.

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

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

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

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

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

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

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

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

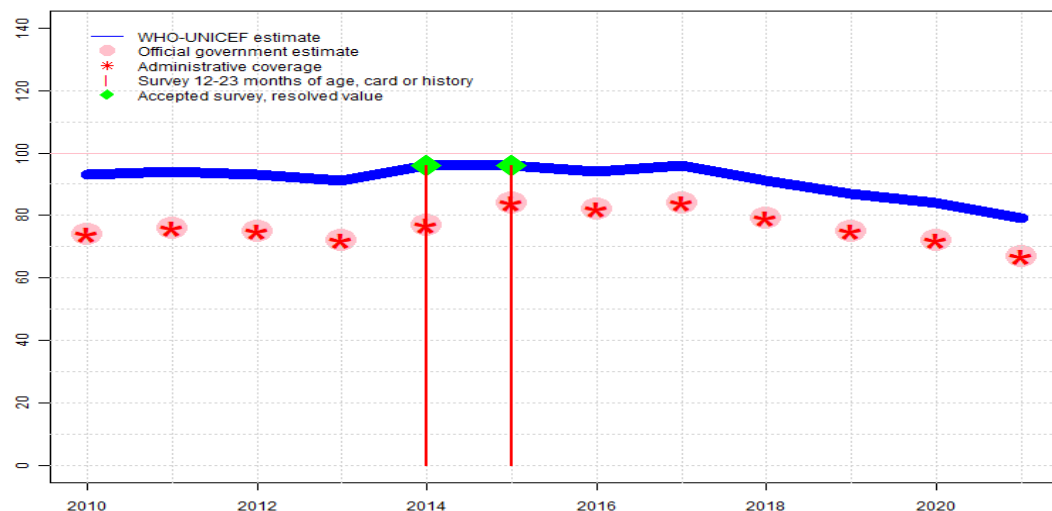
**PcV3:** percentage of surviving infants who received the 3rd dose of pneumococcal conjugate vaccine. In countries where the national schedule recommends two doses during infancy and a booster dose at 12 months or later based on the epidemiology of disease in the country, coverage estimates may reflect the percentage of surviving infants who received two doses of PcV prior to the 1st birthday.

**YFV:** percentage of surviving infants who received one dose of yellow fever vaccine in countries where YFV is part of the national immunization schedule for children or is recommended in at risk areas; coverage estimates are annualized for the entire cohort of surviving infants.

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# Paraguay - BCG

PRY - BCG



## Description:

- 2021: Reported data calibrated to 2015 levels. No nationally representative household survey within the last 5 years. WHO and UNICEF recommend a high-quality survey to confirm reported levels of coverage. Estimate challenged by: R-
- 2020: Reported data calibrated to 2015 levels. Estimate challenged by: R-
- 2019: Reported data calibrated to 2015 levels. Beginning in late 2018, the programme notes transition to use of an online electronic nominal immunization registry. Information is not available on the percentage of health facilities with the system up and fully operational. Thus, it is possible that administrative data do not capture all facility level reports. Estimate challenged by: D-R-
- 2018: Reported data calibrated to 2015 levels. Estimate challenged by: D-R-
- 2017: Reported data calibrated to 2015 levels. Estimate challenged by: D-R-
- 2016: Reported data calibrated to 2015 levels. Estimate challenged by: D-R-
- 2015: Survey evidence does not support reported data. Estimate based on survey results. Survey evidence of 96 percent based on 1 survey(s). Estimate challenged by: D-R-
- 2014: Survey evidence does not support reported data. Estimate based on survey results. Survey evidence of 96 percent based on 1 survey(s). Estimate challenged by: D-R-
- 2013: Reported data calibrated to 2008 and 2014 levels. Estimate challenged by: D-R-
- 2012: Reported data calibrated to 2008 and 2014 levels. Estimate challenged by: R-
- 2011: Reported data calibrated to 2008 and 2014 levels. Estimate challenged by: R-
- 2010: Reported data calibrated to 2008 and 2014 levels. National coverage survey of children 12-35 years of age supports reported data. See the survey page for details. Estimate challenged by: R-

|                | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|----------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Estimate       | 93   | 94   | 93   | 91   | 96   | 96   | 94   | 96   | 91   | 87   | 84   | 79   |
| Estimate GoC   | •    | •    | •    | •    | •    | •    | •    | •    | •    | •    | •    | •    |
| Official       | 74   | 76   | 75   | 72   | 77   | 84   | 82   | 84   | 79   | 75   | 72   | 67   |
| Administrative | 74   | 76   | 75   | 72   | 77   | 84   | 82   | 84   | 79   | 75   | 72   | 67   |
| Survey         | NA   | NA   | NA   | NA   | 96   | 96   | NA   | NA   | NA   | NA   | NA   | NA   |

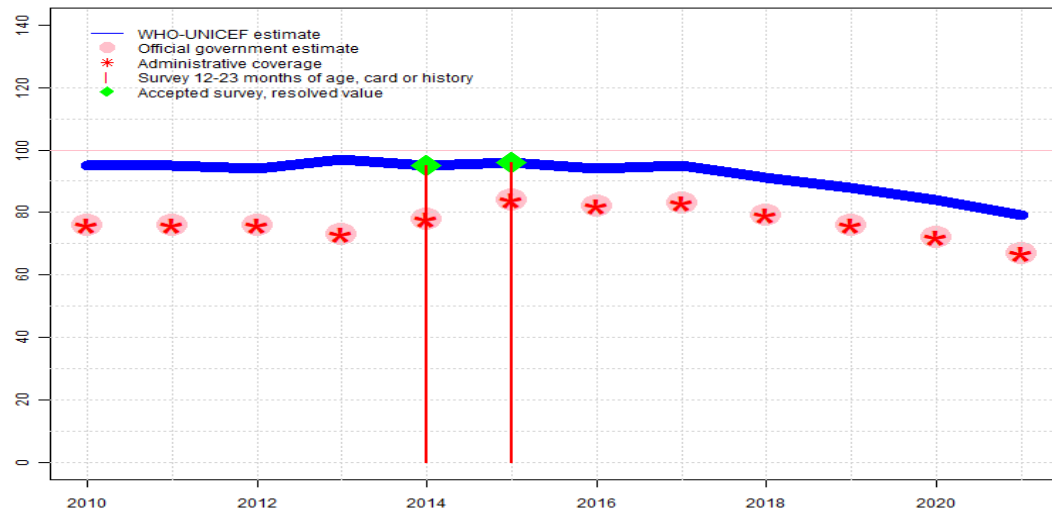
The WHO and UNICEF estimates of national immunization coverage (wuenic) are based on data and information that are of varying, and, in some instances, unknown quality. Beginning with the 2011 revision we describe the grade of confidence (GoC) we have in these estimates. As there is no underlying probability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

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

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

# Paraguay - DTP1

PRY - DTP1



## Description:

- 2021: Reported data calibrated to 2015 levels. No nationally representative household survey within the last 5 years. WHO and UNICEF recommend a high-quality survey to confirm reported levels of coverage. Estimate challenged by: R-
- 2020: Reported data calibrated to 2015 levels. Programme reports a one month vaccine stock-out at national and subnational levels. Estimate challenged by: R-
- 2019: Reported data calibrated to 2015 levels. Beginning in late 2018, the programme notes transition to use of an online electronic nominal immunization registry. Information is not available on the percentage of health facilities with the system up and fully operational. Thus, it is possible that administrative data do not capture all facility level reports. Estimate challenged by: R-
- 2018: Reported data calibrated to 2015 levels. Estimate challenged by: R-
- 2017: Reported data calibrated to 2015 levels. Estimate challenged by: R-
- 2016: Reported data calibrated to 2015 levels. Estimate challenged by: R-
- 2015: Survey evidence does not support reported data. Estimate based on survey results. Survey evidence of 96 percent based on 1 survey(s). Programme reports one month national level stock-out of DTP containing vaccine. Estimate challenged by: R-
- 2014: Survey evidence does not support reported data. Estimate based on survey results. Survey evidence of 95 percent based on 1 survey(s). Estimate challenged by: R-
- 2013: DTP1 coverage estimated based on DTP3 coverage of 91. Estimate challenged by: D-R-
- 2012: Reported data calibrated to 2008 and 2014 levels. Estimate challenged by: R-
- 2011: Reported data calibrated to 2008 and 2014 levels. Estimate challenged by: R-
- 2010: Reported data calibrated to 2008 and 2014 levels. National coverage survey of children 12-35 years of age supports reported data. See the survey page for details. Estimate challenged by: R-

|                | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|----------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Estimate       | 95   | 95   | 94   | 97   | 95   | 96   | 94   | 95   | 91   | 88   | 84   | 79   |
| Estimate GoC   | •    | •    | •    | •    | •    | •    | •    | •    | •    | •    | •    | •    |
| Official       | 76   | 76   | 76   | 73   | 78   | 84   | 82   | 83   | 79   | 76   | 72   | 67   |
| Administrative | 76   | 76   | 76   | 73   | 78   | 84   | 82   | 83   | 79   | 76   | 72   | 67   |
| Survey         | NA   | NA   | NA   | NA   | 95   | 96   | NA   | NA   | NA   | NA   | NA   | NA   |

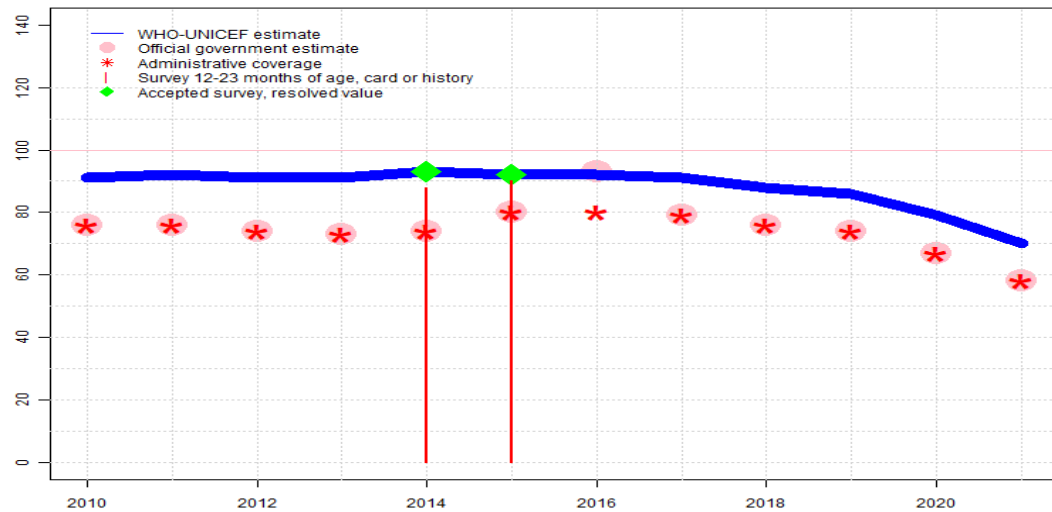
The WHO and UNICEF estimates of national immunization coverage (wuenic) are based on data and information that are of varying, and, in some instances, unknown quality. Beginning with the 2011 revision we describe the grade of confidence (GoC) we have in these estimates. As there is no underlying probability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

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

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

# Paraguay - DTP3

PRY - DTP3



|                | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|----------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Estimate       | 91   | 92   | 91   | 91   | 93   | 92   | 92   | 91   | 88   | 86   | 79   | 70   |
| Estimate GoC   | •    | •    | •    | •    | •    | •    | •    | •    | •    | •    | •    | •    |
| Official       | 76   | 76   | 74   | 73   | 74   | 80   | 93   | 79   | 76   | 74   | 67   | 58   |
| Administrative | 76   | 76   | 74   | 73   | 74   | 80   | 80   | 79   | 76   | 74   | 67   | 58   |
| Survey         | NA   | NA   | NA   | NA   | 88   | 90   | NA   | NA   | NA   | NA   | NA   | NA   |

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

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

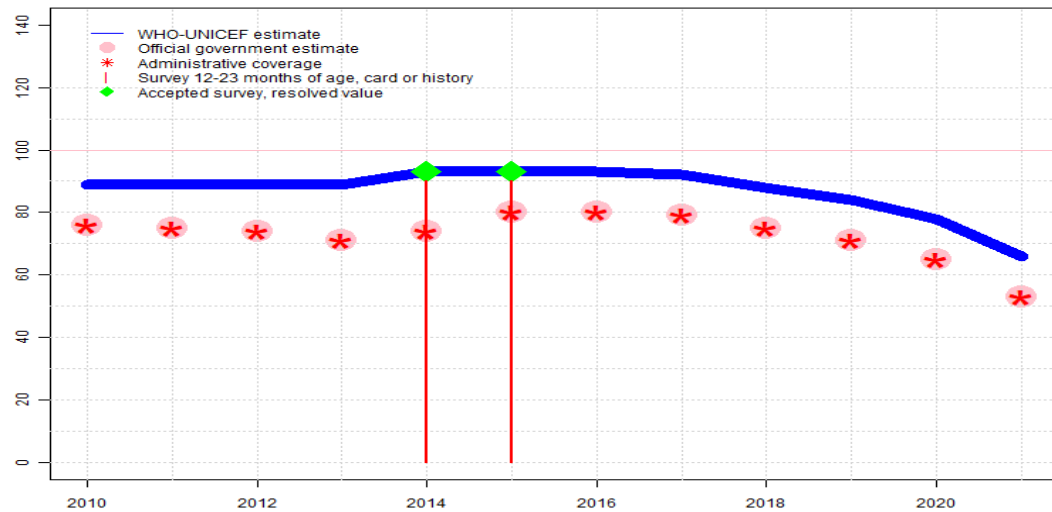
In all cases these estimates should be used with caution and should be assessed in light of the objective for which they are being used.

## Description:

- 2021: Reported data calibrated to 2015 levels. No nationally representative household survey within the last 5 years. WHO and UNICEF recommend a high-quality survey to confirm reported levels of coverage. Estimate challenged by: R-
- 2020: Reported data calibrated to 2015 levels. Programme reports a one month vaccine stock-out at national and subnational levels. Estimate challenged by: R-
- 2019: Reported data calibrated to 2015 levels. Beginning in late 2018, the programme notes transition to use of an online electronic nominal immunization registry. Information is not available on the percentage of health facilities with the system up and fully operational. Thus, it is possible that administrative data do not capture all facility level reports. Estimate challenged by: R-
- 2018: Reported data calibrated to 2015 levels. Estimate challenged by: R-
- 2017: Reported data calibrated to 2015 levels. Estimate challenged by: R-
- 2016: Reported data calibrated to 2015 levels. Reported data excluded due to an increase from 80 percent to 93 percent with decrease 79 percent. Estimate challenged by: R-
- 2015: Survey evidence does not support reported data. Estimate based on survey results. Survey evidence of 92 percent based on 1 survey(s). Paraguay Multiple Indicator Cluster Survey 2016 card or history results of 90 percent modified for recall bias to 92 percent based on 1st dose card or history coverage of 96 percent, 1st dose card only coverage of 89 percent and 3rd dose card only coverage of 85 percent. Programme reports one month national level stock-out of DTP containing vaccine. Estimate challenged by: R-
- 2014: Survey evidence does not support reported data. Estimate based on survey results. Survey evidence of 93 percent based on 1 survey(s). Paraguay Multiple Indicator Cluster Survey 2016 card or history results of 88 percent modified for recall bias to 93 percent based on 1st dose card or history coverage of 95 percent, 1st dose card only coverage of 83 percent and 3rd dose card only coverage of 81 percent. Estimate challenged by: D-R-
- 2013: Reported data calibrated to 2008 and 2014 levels. Estimate challenged by: R-
- 2012: Reported data calibrated to 2008 and 2014 levels. Estimate challenged by: R-
- 2011: Reported data calibrated to 2008 and 2014 levels. Estimate challenged by: R-
- 2010: Reported data calibrated to 2008 and 2014 levels. National coverage survey of children 12-35 years of age supports reported data. See the survey page for details. Estimate challenged by: R-

# Paraguay - Pol3

PRY - Pol3



|                | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|----------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Estimate       | 89   | 89   | 89   | 89   | 93   | 93   | 93   | 92   | 88   | 84   | 78   | 66   |
| Estimate GoC   | ●    | ●    | ●    | ●    | ●    | ●    | ●    | ●    | ●    | ●    | ●    | ●    |
| Official       | 76   | 75   | 74   | 71   | 74   | 80   | 80   | 79   | 75   | 71   | 65   | 53   |
| Administrative | 76   | 75   | 74   | 71   | 74   | 80   | 80   | 79   | 75   | 71   | 65   | 53   |
| Survey         | NA   | NA   | NA   | NA   | 90   | 90   | NA   | NA   | NA   | NA   | NA   | NA   |

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

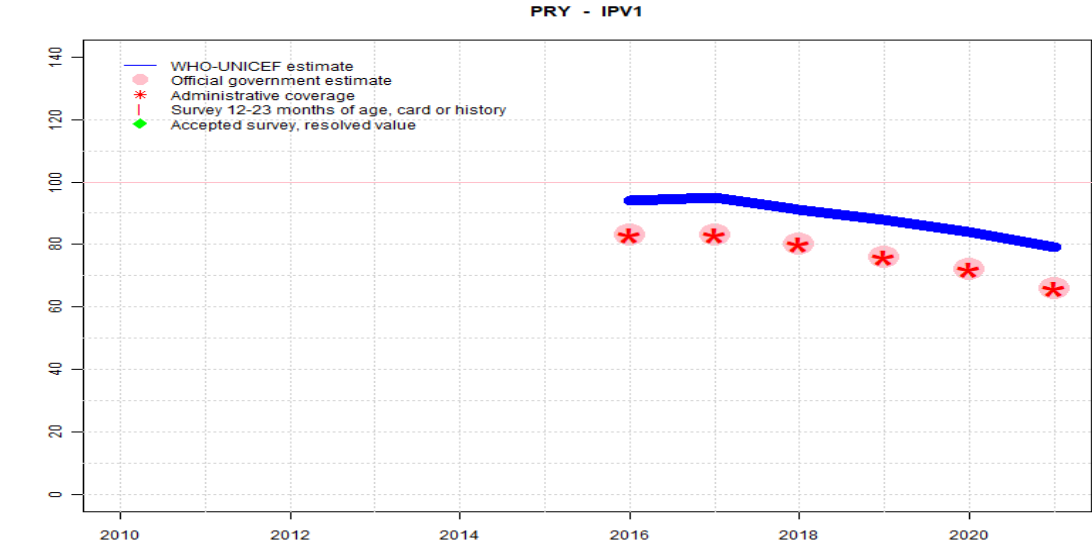
- Estimate is supported by reported data [R+], coverage recalculated with an independent denominator from the World Population Prospects: 2022 revision from the UN Population Division (D+), and at least one supporting survey within 2 years [S+]. While well supported, the estimate still carries a risk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

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

## Description:

- 2021: Reported data calibrated to 2015 levels. No nationally representative household survey within the last 5 years. WHO and UNICEF recommend a high-quality survey to confirm reported levels of coverage. While the decline in reported coverage, which reflects a greater than a 10 percentage point change from the prior year, is unexplained, estimated coverage reflects the trend in reported data. Estimate challenged by: D-R-
- 2020: Reported data calibrated to 2015 levels. Programme reports a one month vaccine stock-out at national and subnational levels. Estimate challenged by: D-R-
- 2019: Reported data calibrated to 2015 levels. Beginning in late 2018, the programme notes transition to use of an online electronic nominal immunization registry. Information is not available on the percentage of health facilities with the system up and fully operational. Thus, it is possible that administrative data do not capture all facility level reports. Programme reports a two month national level vaccine stock-out. Estimate challenged by: D-R-
- 2018: Reported data calibrated to 2015 levels. Estimate challenged by: D-R-
- 2017: Reported data calibrated to 2015 levels. Estimate challenged by: D-R-
- 2016: Reported data calibrated to 2015 levels. Estimate challenged by: D-R-
- 2015: Survey evidence does not support reported data. Estimate based on survey results. Survey evidence of 93 percent based on 1 survey(s). Paraguay Multiple Indicator Cluster Survey 2016 card or history results of 90 percent modified for recall bias to 93 percent based on 1st dose card or history coverage of 97 percent, 1st dose card only coverage of 89 percent and 3rd dose card only coverage of 85 percent. Estimate challenged by: D-R-
- 2014: Survey evidence does not support reported data. Estimate based on survey results. Survey evidence of 93 percent based on 1 survey(s). Paraguay Multiple Indicator Cluster Survey 2016 card or history results of 90 percent modified for recall bias to 93 percent based on 1st dose card or history coverage of 95 percent, 1st dose card only coverage of 84 percent and 3rd dose card only coverage of 82 percent. Estimate challenged by: D-R-
- 2013: Reported data calibrated to 2008 and 2014 levels. Estimate challenged by: R-
- 2012: Reported data calibrated to 2008 and 2014 levels. Estimate challenged by: R-
- 2011: Reported data calibrated to 2008 and 2014 levels. Estimate challenged by: R-
- 2010: Reported data calibrated to 2008 and 2014 levels. National coverage survey of children 12-35 years of age supports reported data. See the survey page for details. Estimate challenged by: R-

# Paraguay - IPV1



|                | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|----------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Estimate       | NA   | NA   | NA   | NA   | NA   | NA   | 94   | 95   | 91   | 88   | 84   | 79   |
| Estimate GoC   | NA   | NA   | NA   | NA   | NA   | NA   | ●    | ●    | ●    | ●    | ●    | ●    |
| Official       | NA   | NA   | NA   | NA   | NA   | NA   | 83   | 83   | 80   | 76   | 72   | 66   |
| Administrative | NA   | NA   | NA   | NA   | NA   | NA   | 83   | 83   | 80   | 76   | 72   | 66   |
| Survey         | NA   | NA   | NA   | NA   | NA   | NA   | NA   | NA   | NA   | NA   | NA   | NA   |

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

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

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

## Description:

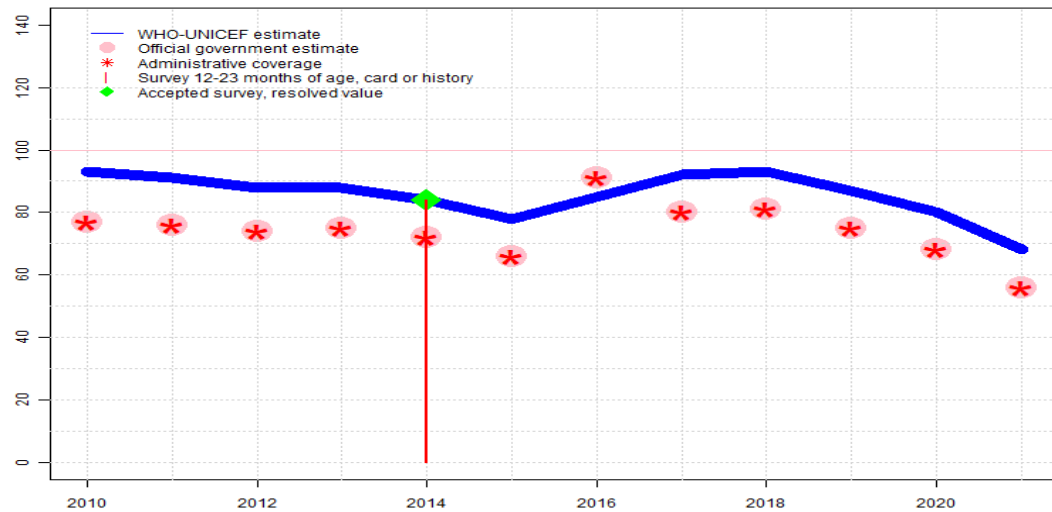
Estimates for a dose of inactivated polio vaccine (IPV) begin in 2015 following the Global Polio Eradication Initiative’s Polio Eradication and Endgame Strategic Plan: 2013-2018 which recommended at least one full dose or two fractional doses of IPV into routine immunization schedules as a strategy to 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 is based on estimated DTP1 coverage. No nationally representative household survey within the last 5 years. WHO and UNICEF recommend a high-quality survey to confirm reported levels of coverage. Estimate challenged by: D-R-
- 2020: Estimate based on DTP1 estimated coverage. Programme reports a one month vaccine stock-out at national and subnational levels. Estimate challenged by: R-
- 2019: Estimate based on estimated DTP1 coverage. Beginning in late 2018, the programme notes transition to use of an online electronic nominal immunization registry. Information is not available on the percentage of health facilities with the system up and fully operational. Thus, it is possible that administrative data do not capture all facility level reports. Estimate challenged by: R-
- 2018: Estimate based on estimated DTP1 coverage. Estimate challenged by: R-
- 2017: Estimate based on DTP1. Estimate challenged by: R-
- 2016: Inactivated polio vaccine introduced during 2015. Reporting began in 2016. Estimate based on DTP1. Estimate challenged by: R-



# Paraguay - MCV1

PRY - MCV1



## Description:

- 2021: Reported data calibrated to 2014 levels. No nationally representative household survey within the last 5 years. WHO and UNICEF recommend a high-quality survey to confirm reported levels of coverage. While the decline in reported coverage, which reflects a greater than a 10 percentage point change from the prior year, is unexplained, estimated coverage reflects the trend in reported data. Estimate challenged by: R-
- 2020: Reported data calibrated to 2014 levels. Programme reports a one month vaccine stock-out at national and subnational levels. Estimate challenged by: R-
- 2019: Reported data calibrated to 2014 levels. Beginning in late 2018, the programme notes transition to use of an online electronic nominal immunization registry. Information is not available on the percentage of health facilities with the system up and fully operational. Thus, it is possible that administrative data do not capture all facility level reports. Estimate challenged by: D-R-
- 2018: Reported data calibrated to 2014 levels. Vaccine used is measles-mumps-rubella. Estimate challenged by: D-R-
- 2017: Reported data calibrated to 2014 levels. . Estimate challenged by: R-
- 2016: Reported data calibrated to 2014 levels. Reported data excluded. Reported increase in coverage likely reflects recovery following stock-out; however, reported coverage level represents highest level to date. Reported data excluded due to an increase from 66 percent to 91 percent with decrease 80 percent. Estimate challenged by: R-
- 2015: Reported data calibrated to 2014 levels. Programme reports three month national level stock-out. Estimate challenged by: D-R-
- 2014: Survey evidence does not support reported data. Estimate based on survey results. Survey evidence of 84 percent based on 1 survey(s). Estimate challenged by: R-
- 2013: Reported data calibrated to 2009 and 2014 levels. Estimate challenged by: R-
- 2012: Reported data calibrated to 2009 and 2014 levels. Estimate challenged by: R-
- 2011: Reported data calibrated to 2009 and 2014 levels. Estimate challenged by: R-
- 2010: Reported data calibrated to 2009 and 2014 levels. National coverage survey of children 12-35 years of age supports reported data. See the survey page for details. Estimate challenged by: R-

|                | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|----------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Estimate       | 93   | 91   | 88   | 88   | 84   | 78   | 85   | 92   | 93   | 87   | 80   | 68   |
| Estimate GoC   | •    | •    | •    | •    | •    | •    | •    | •    | •    | •    | •    | •    |
| Official       | 77   | 76   | 74   | 75   | 72   | 66   | 91   | 80   | 81   | 75   | 68   | 56   |
| Administrative | 77   | 76   | 74   | 75   | 72   | 66   | 91   | 80   | 81   | 75   | 68   | 56   |
| Survey         | NA   | NA   | NA   | NA   | 84   | NA   | NA   | NA   | NA   | NA   | NA   | NA   |

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

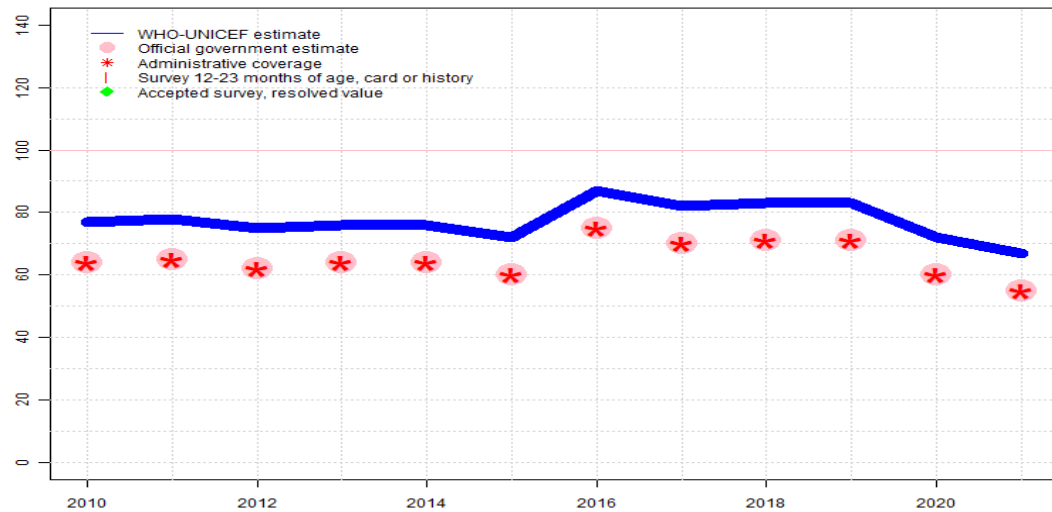
- Estimate is supported by reported data [R+], coverage recalculated with an independent denominator from the World Population Prospects: 2022 revision from the UN Population Division (D+), and at least one supporting survey within 2 years [S+]. While well supported, the estimate still carries a risk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

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



# Paraguay - MCV2

PRY - MCV2



|                | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|----------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Estimate       | 77   | 78   | 75   | 76   | 76   | 72   | 87   | 82   | 83   | 83   | 72   | 67   |
| Estimate GoC   | •    | •    | •    | •    | •    | •    | •    | •    | •    | •    | •    | •    |
| Official       | 64   | 65   | 62   | 64   | 64   | 60   | 75   | 70   | 71   | 71   | 60   | 55   |
| Administrative | 64   | 65   | 62   | 64   | 64   | 60   | 75   | 70   | 71   | 71   | 60   | 55   |
| Survey         | NA   | NA   | NA   | NA   | NA   | NA   | NA   | NA   | NA   | NA   | NA   | NA   |

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

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

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

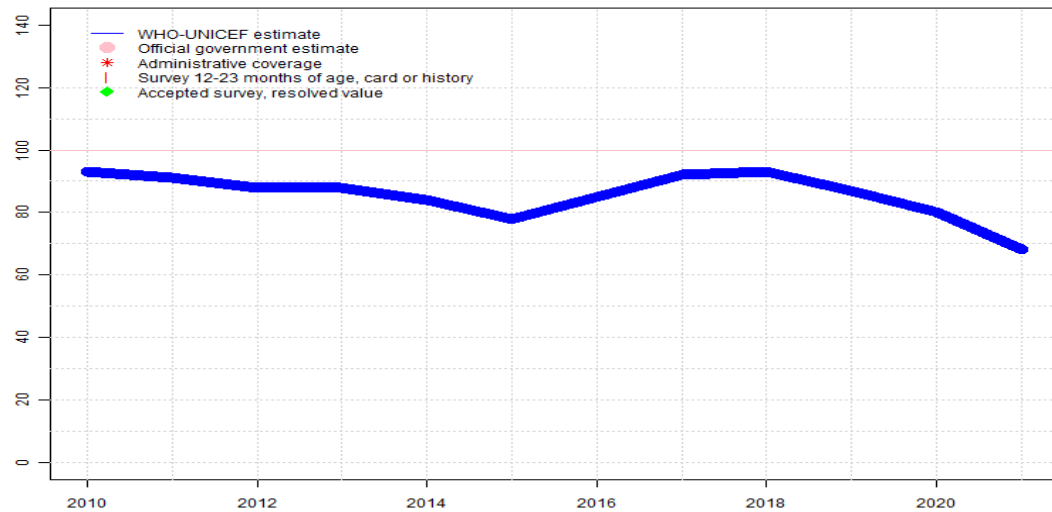
## Description:

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

- 2021: Reported data calibrated to 2014 levels. No nationally representative household survey within the last 5 years. WHO and UNICEF recommend a high-quality survey to confirm reported levels of coverage. Estimate challenged by: D-R-
- 2020: Reported data calibrated to 2014 levels. Programme reports a one month vaccine stock-out at national and subnational levels. Estimate challenged by: D-R-
- 2019: Reported data calibrated to 2014 levels. Beginning in late 2018, the programme notes transition to use of an online electronic nominal immunization registry. Information is not available on the percentage of health facilities with the system up and fully operational. Thus, it is possible that administrative data do not capture all facility level reports. Estimate challenged by: D-R-
- 2018: Reported data calibrated to 2014 levels. Vaccine used is measles-mumps-rubella. Estimate challenged by: D-R-
- 2017: Reported data calibrated to 2014 levels. Estimate challenged by: D-R-
- 2016: Reported data calibrated to 2014 levels. Increase in coverage reflects recovery following stock-out. Estimate challenged by: D-R-
- 2015: Reported data calibrated to 2014 levels. Programme reports three month national level stock-out. Estimate challenged by: R-
- 2014: Estimate of 76 percent assigned by working group. Based on relationship between reported and survey results for MCV1. Estimate challenged by: R-
- 2013: Reported data calibrated to 2008 and 2014 levels. Estimate challenged by: R-
- 2012: Reported data calibrated to 2008 and 2014 levels. Estimate challenged by: R-
- 2011: Reported data calibrated to 2008 and 2014 levels. Estimate challenged by: R-
- 2010: Reported data calibrated to 2008 and 2014 levels. National coverage survey of children 12-35 years of age supports reported data. See the survey page for details. Estimate challenged by: R-

# Paraguay - RCV1

PRY - RCV1



|                | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|----------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Estimate       | 93   | 91   | 88   | 88   | 84   | 78   | 85   | 92   | 93   | 87   | 80   | 68   |
| Estimate GoC   | •    | •    | •    | •    | •    | •    | •    | •    | •    | •    | •    | •    |
| Official       | NA   | NA   | NA   | NA   | NA   | NA   | NA   | NA   | NA   | NA   | NA   | NA   |
| Administrative | NA   | NA   | NA   | NA   | NA   | NA   | NA   | NA   | NA   | NA   | NA   | NA   |
| Survey         | NA   | NA   | NA   | NA   | NA   | NA   | NA   | NA   | NA   | NA   | NA   | NA   |

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

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

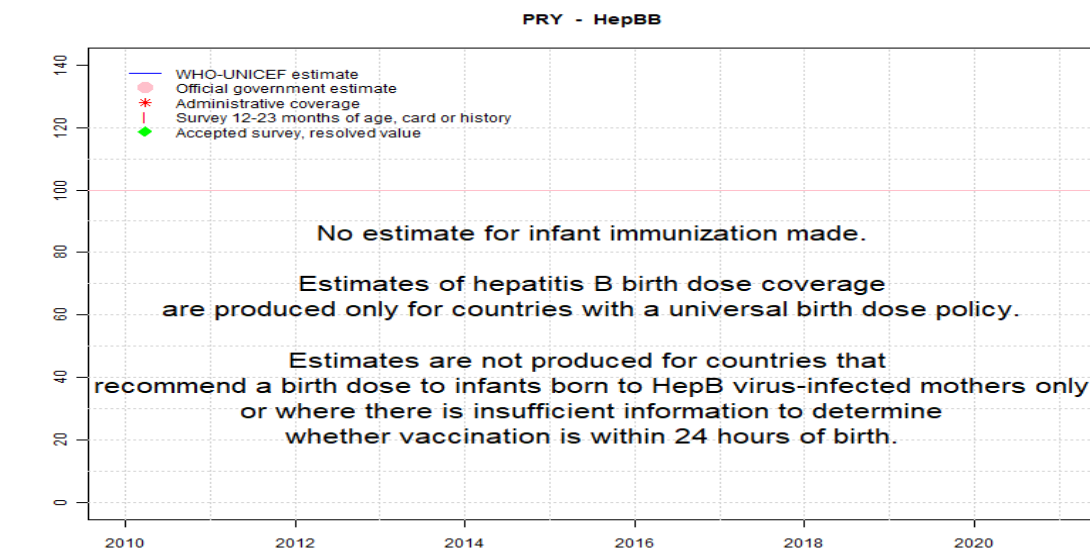
In all cases these estimates should be used with caution and should be assessed in light of the objective for which they are being used.

## 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.

- 2021: Estimate based on estimated MCV1. No nationally representative household survey within the last 5 years. WHO and UNICEF recommend a high-quality survey to confirm reported levels of coverage. Estimate challenged by: R-
- 2020: Estimate based on estimated MCV1. Estimate challenged by: R-
- 2019: Estimate based on estimated MCV1. Beginning in late 2018, the programme notes transition to use of an online electronic nominal immunization registry. Information is not available on the percentage of health facilities with the system up and fully operational. Thus, it is possible that administrative data do not capture all facility level reports. Estimate challenged by: D-R-
- 2018: Estimate based on estimated MCV1. Vaccine used is measles-mumps-rubella. Estimate challenged by: D-R-
- 2017: Estimate based on estimated MCV1. Estimate challenged by: R-
- 2016: Estimate based on estimated MCV1. Estimate challenged by: R-
- 2015: Estimate based on estimated MCV1. Programme reports three month national level stock-out. Estimate challenged by: D-R-
- 2014: Estimate based on estimated MCV1. Estimate challenged by: R-
- 2013: Estimate based on estimated MCV1. Estimate challenged by: R-
- 2012: Estimate based on estimated MCV1. Estimate challenged by: R-
- 2011: Estimate based on estimated MCV1. Estimate challenged by: R-
- 2010: Estimate based on estimated MCV1. National coverage survey of children 12-35 years of age supports reported data. See the survey page for details. Estimate challenged by: R-

# Paraguay - HepBB



|                | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|----------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Estimate       | NA   | NA   | NA   | NA   | NA   | NA   | NA   | NA   | NA   | NA   | NA   | NA   |
| Estimate GoC   | NA   | NA   | NA   | NA   | NA   | NA   | NA   | NA   | NA   | NA   | NA   | NA   |
| Official       | NA   | NA   | NA   | NA   | NA   | NA   | NA   | NA   | NA   | NA   | NA   | NA   |
| Administrative | NA   | NA   | NA   | NA   | NA   | NA   | NA   | NA   | NA   | NA   | NA   | NA   |
| Survey         | NA   | NA   | NA   | NA   | NA   | NA   | NA   | NA   | NA   | NA   | NA   | NA   |

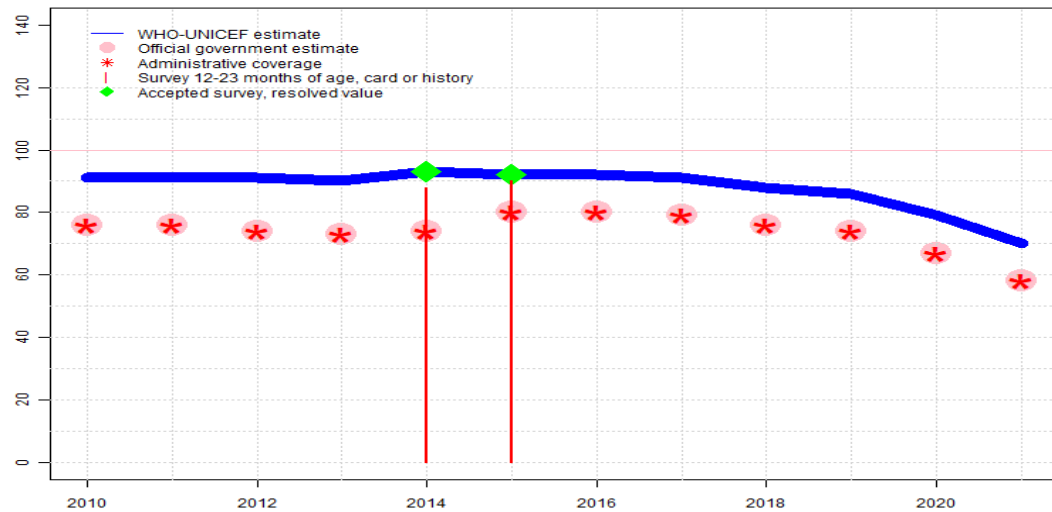
The WHO and UNICEF estimates of national immunization coverage (wuenic) are based on data and information that are of varying, and, in some instances, unknown quality. Beginning with the 2011 revision we describe the grade of confidence (GoC) we have in these estimates. As there is no underlying probability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

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

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

# Paraguay - HepB3

PRY - HepB3



|                | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|----------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Estimate       | 91   | 91   | 91   | 90   | 93   | 92   | 92   | 91   | 88   | 86   | 79   | 70   |
| Estimate GoC   | •    | •    | •    | •    | •    | •    | •    | •    | •    | •    | •    | •    |
| Official       | 76   | 76   | 74   | 73   | 74   | 80   | 80   | 79   | 76   | 74   | 67   | 58   |
| Administrative | 76   | 76   | 74   | 73   | 74   | 80   | 80   | 79   | 76   | 74   | 67   | 58   |
| Survey         | NA   | NA   | NA   | NA   | 88   | 90   | NA   | NA   | NA   | NA   | NA   | NA   |

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

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

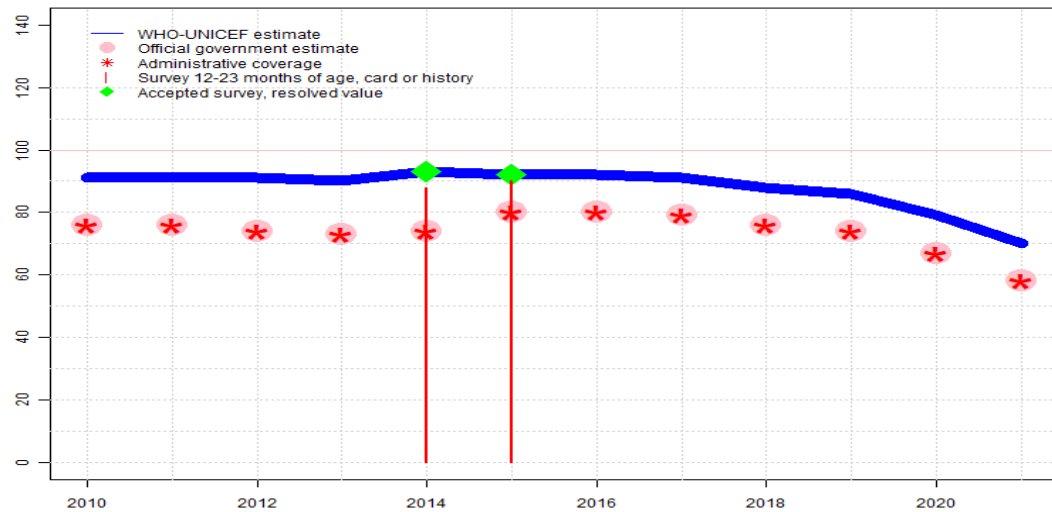
In all cases these estimates should be used with caution and should be assessed in light of the objective for which they are being used.

## Description:

- 2021: Reported data calibrated to 2015 levels. No nationally representative household survey within the last 5 years. WHO and UNICEF recommend a high-quality survey to confirm reported levels of coverage. Estimate challenged by: R-
- 2020: Reported data calibrated to 2015 levels. Programme reports a one month vaccine stock-out at national and subnational levels. Estimate challenged by: R-
- 2019: Reported data calibrated to 2015 levels. Beginning in late 2018, the programme notes transition to use of an online electronic nominal immunization registry. Information is not available on the percentage of health facilities with the system up and fully operational. Thus, it is possible that administrative data do not capture all facility level reports. Estimate challenged by: R-
- 2018: Reported data calibrated to 2015 levels. Estimate challenged by: R-
- 2017: Reported data calibrated to 2015 levels. Estimate challenged by: R-
- 2016: Reported data calibrated to 2015 levels. Estimate challenged by: R-
- 2015: Survey evidence does not support reported data. Estimate based on survey results. Survey evidence of 92 percent based on 1 survey(s). Paraguay Multiple Indicator Cluster Survey 2016 card or history results of 90 percent modified for recall bias to 92 percent based on 1st dose card or history coverage of 96 percent, 1st dose card only coverage of 89 percent and 3rd dose card only coverage of 85 percent. Programme reports one month national level stock-out of DTP containing vaccine. Estimate challenged by: R-
- 2014: Survey evidence does not support reported data. Estimate based on survey results. Survey evidence of 93 percent based on 1 survey(s). Paraguay Multiple Indicator Cluster Survey 2016 card or history results of 88 percent modified for recall bias to 93 percent based on 1st dose card or history coverage of 95 percent, 1st dose card only coverage of 83 percent and 3rd dose card only coverage of 81 percent. Estimate challenged by: D-R-
- 2013: Reported data calibrated to 2009 and 2014 levels. Estimate challenged by: R-
- 2012: Reported data calibrated to 2009 and 2014 levels. Estimate challenged by: R-
- 2011: Reported data calibrated to 2009 and 2014 levels. Estimate challenged by: R-
- 2010: Reported data calibrated to 2009 and 2014 levels. National coverage survey of children 12-35 years of age supports reported data. See the survey page for details. Estimate challenged by: R-

# Paraguay - Hib3

PRY - Hib3



|                | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|----------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Estimate       | 91   | 91   | 91   | 90   | 93   | 92   | 92   | 91   | 88   | 86   | 79   | 70   |
| Estimate GoC   | •    | •    | •    | •    | •    | •    | •    | •    | •    | •    | •    | •    |
| Official       | 76   | 76   | 74   | 73   | 74   | 80   | 80   | 79   | 76   | 74   | 67   | 58   |
| Administrative | 76   | 76   | 74   | 73   | 74   | 80   | 80   | 79   | 76   | 74   | 67   | 58   |
| Survey         | NA   | NA   | NA   | NA   | 88   | 90   | NA   | NA   | NA   | NA   | NA   | NA   |

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

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

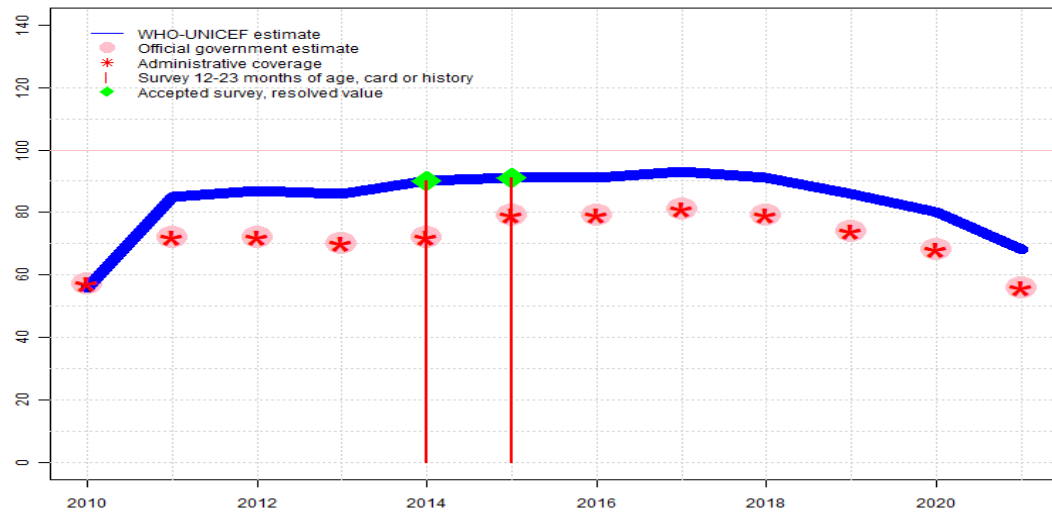
In all cases these estimates should be used with caution and should be assessed in light of the objective for which they are being used.

## Description:

- 2021: Reported data calibrated to 2015 levels. No nationally representative household survey within the last 5 years. WHO and UNICEF recommend a high-quality survey to confirm reported levels of coverage. Estimate challenged by: R-
- 2020: Reported data calibrated to 2015 levels. Programme reports a one month vaccine stock-out at national and subnational levels. Estimate challenged by: R-
- 2019: Reported data calibrated to 2015 levels. Beginning in late 2018, the programme notes transition to use of an online electronic nominal immunization registry. Information is not available on the percentage of health facilities with the system up and fully operational. Thus, it is possible that administrative data do not capture all facility level reports. Estimate challenged by: R-
- 2018: Reported data calibrated to 2015 levels. Estimate challenged by: R-
- 2017: Reported data calibrated to 2015 levels. Estimate challenged by: R-
- 2016: Reported data calibrated to 2015 levels. Estimate challenged by: R-
- 2015: Survey evidence does not support reported data. Estimate based on survey results. Survey evidence of 92 percent based on 1 survey(s). Paraguay Multiple Indicator Cluster Survey 2016 card or history results of 90 percent modified for recall bias to 92 percent based on 1st dose card or history coverage of 96 percent, 1st dose card only coverage of 89 percent and 3rd dose card only coverage of 85 percent. Programme reports one month national level stock-out of DTP containing vaccine. Estimate challenged by: R-
- 2014: Survey evidence does not support reported data. Estimate based on survey results. Survey evidence of 93 percent based on 1 survey(s). Paraguay Multiple Indicator Cluster Survey 2016 card or history results of 88 percent modified for recall bias to 93 percent based on 1st dose card or history coverage of 95 percent, 1st dose card only coverage of 83 percent and 3rd dose card only coverage of 81 percent. Estimate challenged by: D-R-
- 2013: Reported data calibrated to 2009 and 2014 levels. Estimate challenged by: R-
- 2012: Reported data calibrated to 2009 and 2014 levels. Estimate challenged by: R-
- 2011: Reported data calibrated to 2009 and 2014 levels. Estimate challenged by: R-
- 2010: Reported data calibrated to 2009 and 2014 levels. National coverage survey of children 12-35 years of age supports reported data. See the survey page for details. Estimate challenged by: R-

# Paraguay - RotaC

PRY - RotaC



|                | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|----------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Estimate       | 56   | 85   | 87   | 86   | 90   | 91   | 91   | 93   | 91   | 86   | 80   | 68   |
| Estimate GoC   | •    | •    | •    | •    | •    | •    | •    | •    | •    | •    | •    | •    |
| Official       | 57   | 72   | 72   | 70   | 72   | 79   | 79   | 81   | 79   | 74   | 68   | 56   |
| Administrative | 57   | 72   | 72   | 70   | 72   | 79   | 79   | 81   | 79   | 74   | 68   | 56   |
| Survey         | NA   | NA   | NA   | NA   | 90   | 91   | NA   | NA   | NA   | NA   | NA   | NA   |

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

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

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

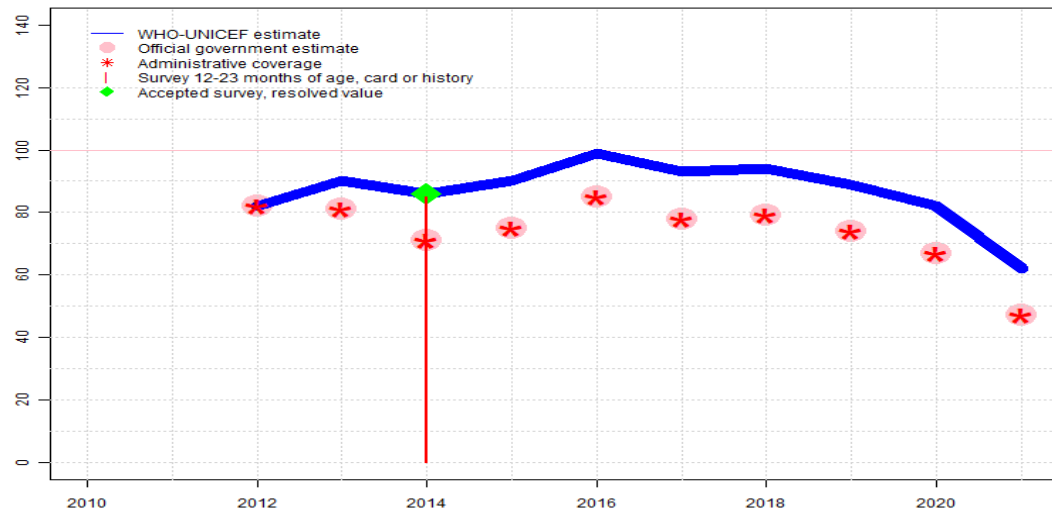
## Description:

- 2021: Reported data calibrated to 2015 levels. No nationally representative household survey within the last 5 years. WHO and UNICEF recommend a high-quality survey to confirm reported levels of coverage. While the decline in reported coverage, which reflects a greater than a 10 percentage point change from the prior year, is unexplained, estimated coverage reflects the trend in reported data. Estimate challenged by: R-
- 2020: Reported data calibrated to 2015 levels. Estimate challenged by: R-
- 2019: Reported data calibrated to 2015 levels. Beginning in late 2018, the programme notes transition to use of an online electronic nominal immunization registry. Information is not available on the percentage of health facilities with the system up and fully operational. Thus, it is possible that administrative data do not capture all facility level reports. Estimate challenged by: R-
- 2018: Reported data calibrated to 2015 levels. Estimate challenged by: R-
- 2017: Reported data calibrated to 2015 levels. Estimate challenged by: R-
- 2016: Reported data calibrated to 2015 levels. Estimate challenged by: R-
- 2015: Survey evidence does not support reported data. Estimate based on survey results. Survey evidence of 91 percent based on 1 survey(s). Estimate challenged by: R-
- 2014: Survey evidence does not support reported data. Estimate based on survey results. Survey evidence of 90 percent based on 1 survey(s). Estimate challenged by: D-R-
- 2013: Reported data calibrated to 2011 and 2014 levels. Estimate challenged by: R-
- 2012: Reported data calibrated to 2011 and 2014 levels. Estimate challenged by: R-
- 2011: Estimate of 85 percent assigned by working group. An in-depth assessment of data quality suggested higher coverage than reported. Estimate of births are under review by the National Statistical Office. Estimate is based on an adjustment derived from the difference between estimated third dose of DTP containing vaccine and official government coverage. Estimate challenged by: R-
- 2010: Estimate of 56 percent assigned by working group. Estimate is based on reported data. National coverage survey of children 12-35 years of age supports reported data. See the survey page for details. Rotavirus vaccine introduced in 2010. Estimate challenged by: R-



# Paraguay - PcV3

PRY - PcV3



|                | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|----------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Estimate       | NA   | NA   | 82   | 90   | 86   | 90   | 99   | 93   | 94   | 89   | 82   | 62   |
| Estimate GoC   | NA   | NA   | •    | •    | •    | •    | •    | •    | •    | •    | •    | •    |
| Official       | NA   | NA   | 82   | 81   | 71   | 75   | 85   | 78   | 79   | 74   | 67   | 47   |
| Administrative | NA   | NA   | 82   | 81   | 71   | 75   | 85   | 78   | 79   | 74   | 67   | 47   |
| Survey         | NA   | NA   | NA   | NA   | 85   | NA   | NA   | NA   | NA   | NA   | NA   | NA   |

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

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

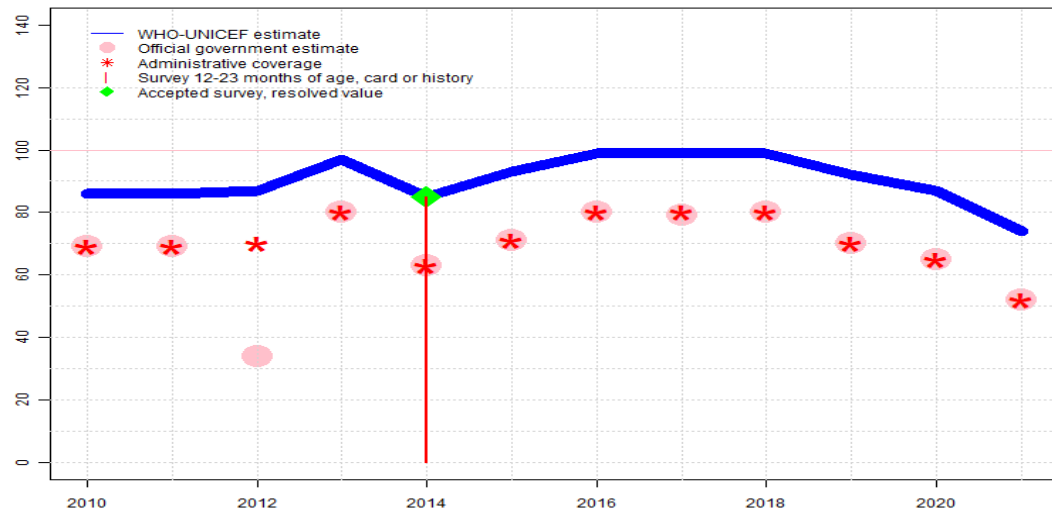
In all cases these estimates should be used with caution and should be assessed in light of the objective for which they are being used.

## Description:

- 2021: Reported data calibrated to 2014 levels. No nationally representative household survey within the last 5 years. WHO and UNICEF recommend a high-quality survey to confirm reported levels of coverage. While the decline in reported coverage, which reflects a greater than a 10 percentage point change from the prior year, is unexplained, estimated coverage reflects the trend in reported data. Estimate challenged by: D-R-
- 2020: Reported data calibrated to 2014 levels. Programme reports a two month vaccine stock-out at national and subnational levels. Estimate challenged by: D-R-
- 2019: Reported data calibrated to 2014 levels. Beginning in late 2018, the programme notes transition to use of an online electronic nominal immunization registry. Information is not available on the percentage of health facilities with the system up and fully operational. Thus, it is possible that administrative data do not capture all facility level reports. Estimate challenged by: D-R-
- 2018: Reported data calibrated to 2014 levels. Estimate challenged by: D-R-
- 2017: Reported data calibrated to 2014 levels. Estimate challenged by: D-R-
- 2016: Reported data calibrated to 2014 levels. Estimate challenged by: D-R-S-
- 2015: Reported data calibrated to 2014 levels. Programme reports one month national level stock-out. Estimate challenged by: D-R-
- 2014: Survey evidence does not support reported data. Estimate based on survey results. Survey evidence of 86 percent based on 1 survey(s). Paraguay Multiple Indicator Cluster Survey 2016 card or history results of 85 percent modified for recall bias to 86 percent based on 1st dose card or history coverage of 93 percent, 1st dose card only coverage of 84 percent and 3rd dose card only coverage of 78 percent. Estimate challenged by: R-
- 2013: Estimate of 90 percent assigned by working group. Estimate is based on an adjustment applied to the official government estimate based on the difference between the estimated MCV1 and official government estimate for MCV1. Estimate challenged by: R-
- 2012: Estimate is based on reported data during introduction year. Pneumococcal vaccine introduced in 2012. GoC=Assigned by working group. .

# Paraguay - YFV

PRY - YFV



|                | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|----------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Estimate       | 86   | 86   | 87   | 97   | 85   | 93   | 99   | 99   | 99   | 92   | 87   | 74   |
| Estimate GoC   | •    | •    | •    | •    | •    | •    | •    | •    | •    | •    | •    | •    |
| Official       | 69   | 69   | 34   | 80   | 63   | 71   | 80   | 79   | 80   | 70   | 65   | 52   |
| Administrative | 69   | 69   | 70   | 80   | 63   | 71   | 80   | 80   | 80   | 70   | 65   | 52   |
| Survey         | NA   | NA   | NA   | NA   | 85   | NA   | NA   | NA   | NA   | NA   | NA   | NA   |

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

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

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

## Description:

- 2021: Reported data calibrated to 2014 levels. No nationally representative household survey within the last 5 years. WHO and UNICEF recommend a high-quality survey to confirm reported levels of coverage. While the decline in reported coverage, which reflects a greater than a 10 percentage point change from the prior year, is unexplained, estimated coverage reflects the trend in reported data. Estimate challenged by: D-R-
- 2020: Reported data calibrated to 2014 levels. Programme reports a two month vaccine stock-out at national and subnational levels. Estimate challenged by: D-R-
- 2019: Reported data calibrated to 2014 levels. Beginning in late 2018, the programme notes transition to use of an online electronic nominal immunization registry. Information is not available on the percentage of health facilities with the system up and fully operational. Thus, it is possible that administrative data do not capture all facility level reports. Programme reports a one month national level vaccine stock-out. Estimate challenged by: D-R-
- 2018: Reported data calibrated to 2014 levels. Estimate challenged by: D-R-
- 2017: Reported data calibrated to 2014 levels. Estimate challenged by: D-R-
- 2016: Reported data calibrated to 2014 levels. Estimate challenged by: D-R-S-
- 2015: Reported data calibrated to 2014 levels. Estimate challenged by: D-R-
- 2014: Survey evidence does not support reported data. Estimate based on survey results. Survey evidence of 85 percent based on 1 survey(s). Unexplained decline in coverage. Estimate challenged by: D-R-
- 2013: Estimate of 97 percent assigned by working group. Coverage level follows official government estimated with adjustment based on difference between estimated coverage and official government estimate for MCV1. Reported data excluded due to an increase from 34 percent to 80 percent with decrease 63 percent. Estimate challenged by: R-S-
- 2012: Estimate of 87 percent assigned by working group. Coverage level follows official government estimated with adjustment based on difference between estimated coverage and official government estimate for MCV1. Reported data excluded due to decline in reported coverage from 69 percent to 34 percent with increase to 80 percent. Estimate challenged by: D-R-
- 2011: Estimate of 86 percent assigned by working group. Coverage level follows official government estimated with adjustment based on difference between estimated coverage and official government estimate for MCV1. Estimate challenged by: D-R-
- 2010: Estimate of 86 percent assigned by working group. Coverage level follows official government estimated with adjustment based on difference between estimated coverage and official government estimate for MCV1. National coverage survey of children 12-35 years of age supports reported data. See the survey page for details. Estimate challenged by: D-R-

# Paraguay - survey details

## 2015 Paraguay Multiple Indicator Cluster Survey 2016

| Vaccine | Confirmation method | Coverage | Age cohort | Sample | Cards seen |
|---------|---------------------|----------|------------|--------|------------|
| BCG     | C or H <12 months   | 96       | 12-23 m    | 993    | 89         |
| BCG     | Card                | 87.7     | 12-23 m    | 993    | 89         |
| BCG     | Card or History     | 96.1     | 12-23 m    | 993    | 89         |
| BCG     | History             | 8.4      | 12-23 m    | 993    | 89         |
| DTP1    | C or H <12 months   | 96.1     | 12-23 m    | 993    | 89         |
| DTP1    | Card                | 89.3     | 12-23 m    | 993    | 89         |
| DTP1    | Card or History     | 96.2     | 12-23 m    | 993    | 89         |
| DTP1    | History             | 6.9      | 12-23 m    | 993    | 89         |
| DTP3    | C or H <12 months   | 87.3     | 12-23 m    | 993    | 89         |
| DTP3    | Card                | 85.3     | 12-23 m    | 993    | 89         |
| DTP3    | Card or History     | 90.2     | 12-23 m    | 993    | 89         |
| DTP3    | History             | 5        | 12-23 m    | 993    | 89         |
| HepB1   | C or H <12 months   | 96.1     | 12-23 m    | 993    | 89         |
| HepB1   | Card                | 89.3     | 12-23 m    | 993    | 89         |
| HepB1   | Card or History     | 96.2     | 12-23 m    | 993    | 89         |
| HepB1   | History             | 6.9      | 12-23 m    | 993    | 89         |
| HepB3   | C or H <12 months   | 87.3     | 12-23 m    | 993    | 89         |
| HepB3   | Card                | 85.3     | 12-23 m    | 993    | 89         |
| HepB3   | Card or History     | 90.2     | 12-23 m    | 993    | 89         |
| HepB3   | History             | 5        | 12-23 m    | 993    | 89         |
| Hib1    | C or H <12 months   | 96.1     | 12-23 m    | 993    | 89         |
| Hib1    | Card                | 89.3     | 12-23 m    | 993    | 89         |
| Hib1    | Card or History     | 96.2     | 12-23 m    | 993    | 89         |
| Hib1    | History             | 6.9      | 12-23 m    | 993    | 89         |
| Hib3    | C or H <12 months   | 87.3     | 12-23 m    | 993    | 89         |
| Hib3    | Card                | 85.3     | 12-23 m    | 993    | 89         |
| Hib3    | Card or History     | 90.2     | 12-23 m    | 993    | 89         |
| Hib3    | History             | 5        | 12-23 m    | 993    | 89         |
| PCV1    | C or H <12 months   | 94.9     | 12-23 m    | 993    | 89         |
| PCV1    | Card                | 88.3     | 12-23 m    | 993    | 89         |
| PCV1    | Card or History     | 95.2     | 12-23 m    | 993    | 89         |
| PCV1    | History             | 7        | 12-23 m    | 993    | 89         |
| Pol1    | C or H <12 months   | 96.5     | 12-23 m    | 993    | 89         |
| Pol1    | Card                | 89.3     | 12-23 m    | 993    | 89         |
| Pol1    | Card or History     | 96.7     | 12-23 m    | 993    | 89         |
| Pol1    | History             | 7.5      | 12-23 m    | 993    | 89         |
| Pol3    | C or H <12 months   | 87.6     | 12-23 m    | 993    | 89         |

|       |                   |      |         |     |    |
|-------|-------------------|------|---------|-----|----|
| Pol3  | Card              | 85.2 | 12-23 m | 993 | 89 |
| Pol3  | Card or History   | 90.5 | 12-23 m | 993 | 89 |
| Pol3  | History           | 5.3  | 12-23 m | 993 | 89 |
| RotaC | C or H <12 months | 90.5 | 12-23 m | 993 | 89 |
| RotaC | Card              | 84.3 | 12-23 m | 993 | 89 |
| RotaC | Card or History   | 91.3 | 12-23 m | 993 | 89 |
| RotaC | History           | 7    | 12-23 m | 993 | 89 |

## 2014 Paraguay Multiple Indicator Cluster Survey 2016

| Vaccine | Confirmation method | Coverage | Age cohort | Sample | Cards seen |
|---------|---------------------|----------|------------|--------|------------|
| BCG     | C or H <12 months   | 95.2     | 24-35 m    | 929    | 89         |
| BCG     | Card                | 83.4     | 24-35 m    | 929    | 89         |
| BCG     | Card or History     | 95.5     | 24-35 m    | 929    | 89         |
| BCG     | History             | 12.2     | 24-35 m    | 929    | 89         |
| DTP1    | C or H <12 months   | 94.7     | 24-35 m    | 929    | 89         |
| DTP1    | Card                | 83.4     | 24-35 m    | 929    | 89         |
| DTP1    | Card or History     | 94.8     | 24-35 m    | 929    | 89         |
| DTP1    | History             | 11.4     | 24-35 m    | 929    | 89         |
| DTP3    | C or H <12 months   | 82.6     | 24-35 m    | 929    | 89         |
| DTP3    | Card                | 81.4     | 24-35 m    | 929    | 89         |
| DTP3    | Card or History     | 87.7     | 24-35 m    | 929    | 89         |
| DTP3    | History             | 6.3      | 24-35 m    | 929    | 89         |
| HepB1   | C or H <12 months   | 94.7     | 24-35 m    | 929    | 89         |
| HepB1   | Card                | 83.4     | 24-35 m    | 929    | 89         |
| HepB1   | Card or History     | 94.8     | 24-35 m    | 929    | 89         |
| HepB1   | History             | 11.4     | 24-35 m    | 929    | 89         |
| HepB3   | C or H <12 months   | 82.6     | 24-35 m    | 929    | 89         |
| HepB3   | Card                | 81.4     | 24-35 m    | 929    | 89         |
| HepB3   | Card or History     | 87.7     | 24-35 m    | 929    | 89         |
| HepB3   | History             | 6.3      | 24-35 m    | 929    | 89         |
| Hib1    | C or H <12 months   | 94.7     | 24-35 m    | 929    | 89         |
| Hib1    | Card                | 83.4     | 24-35 m    | 929    | 89         |
| Hib1    | Card or History     | 94.8     | 24-35 m    | 929    | 89         |
| Hib1    | History             | 11.4     | 24-35 m    | 929    | 89         |
| Hib3    | C or H <12 months   | 82.6     | 24-35 m    | 929    | 89         |
| Hib3    | Card                | 81.4     | 24-35 m    | 929    | 89         |
| Hib3    | Card or History     | 87.7     | 24-35 m    | 929    | 89         |
| Hib3    | History             | 6.3      | 24-35 m    | 929    | 89         |

# Paraguay - survey details

|       |                   |      |         |     |    |
|-------|-------------------|------|---------|-----|----|
| MCV1  | C or H <12 months | 83.1 | 24-35 m | 929 | 89 |
| MCV1  | Card              | 71.9 | 24-35 m | 929 | 89 |
| MCV1  | Card or History   | 83.8 | 24-35 m | 929 | 89 |
| MCV1  | History           | 12   | 24-35 m | 929 | 89 |
| PCV1  | C or H <12 months | 92.7 | 24-35 m | 929 | 89 |
| PCV1  | Card              | 83.6 | 24-35 m | 929 | 89 |
| PCV1  | Card or History   | 93   | 24-35 m | 929 | 89 |
| PCV1  | History           | 9.4  | 24-35 m | 929 | 89 |
| PCV3  | C or H <12 months | 84.3 | 24-35 m | 929 | 89 |
| PCV3  | Card              | 78   | 24-35 m | 929 | 89 |
| PCV3  | Card or History   | 85   | 24-35 m | 929 | 89 |
| PCV3  | History           | 7    | 24-35 m | 929 | 89 |
| Pol1  | C or H <12 months | 94.4 | 24-35 m | 929 | 89 |
| Pol1  | Card              | 84.1 | 24-35 m | 929 | 89 |
| Pol1  | Card or History   | 95   | 24-35 m | 929 | 89 |
| Pol1  | History           | 10.9 | 24-35 m | 929 | 89 |
| Pol3  | C or H <12 months | 85   | 24-35 m | 929 | 89 |
| Pol3  | Card              | 82.5 | 24-35 m | 929 | 89 |
| Pol3  | Card or History   | 89.6 | 24-35 m | 929 | 89 |
| Pol3  | History           | 7.1  | 24-35 m | 929 | 89 |
| RotaC | C or H <12 months | 88.7 | 24-35 m | 929 | 89 |
| RotaC | Card              | 79.5 | 24-35 m | 929 | 89 |
| RotaC | Card or History   | 89.5 | 24-35 m | 929 | 89 |
| RotaC | History           | 10   | 24-35 m | 929 | 89 |
| YFV   | C or H <12 months | 80.8 | 24-35 m | 929 | 89 |
| YFV   | Card              | 74.6 | 24-35 m | 929 | 89 |
| YFV   | Card or History   | 85   | 24-35 m | 929 | 89 |
| YFV   | History           | 10.3 | 24-35 m | 929 | 89 |

2010 Encuesta Nacional sobre Coberturas de Vacunación en niños de 12 a 35 meses de edad, Paraguay, 2011

| Vaccine | Confirmation method | Coverage | Age cohort | Sample | Cards seen |
|---------|---------------------|----------|------------|--------|------------|
| BCG     | Card or History     | 95       | 12-35 m    | 3189   | -          |
| DTP1    | Card or History     | 94       | 12-35 m    | 3189   | -          |
| DTP3    | Card or History     | 93       | 12-35 m    | 3189   | -          |
| HepB1   | Card or History     | 94       | 12-35 m    | 3189   | -          |
| HepB3   | Card or History     | 93       | 12-35 m    | 3189   | -          |
| Hib1    | Card or History     | 94       | 12-35 m    | 3189   | -          |

|      |                 |    |         |      |   |
|------|-----------------|----|---------|------|---|
| Hib3 | Card or History | 93 | 12-35 m | 3189 | - |
| MCV1 | Card or History | 91 | 12-35 m | 3189 | - |
| Pol3 | Card or History | 93 | 12-35 m | 3189 | - |
| YFV  | Card or History | 88 | 12-35 m | 3189 | - |

2008 Encuesta Demográfica y de Salud Familiar-ENDES Continua, 2009

| Vaccine | Confirmation method | Coverage | Age cohort | Sample | Cards seen |
|---------|---------------------|----------|------------|--------|------------|
| BCG     | C or H <12 months   | 93.5     | 18-29 m    | 1639   | 66         |
| BCG     | Card                | 61.3     | 18-29 m    | 1639   | 66         |
| BCG     | Card or History     | 93.7     | 18-29 m    | 1639   | 66         |
| BCG     | History             | 32.3     | 18-29 m    | 1639   | 66         |
| DTP1    | C or H <12 months   | 95.1     | 18-29 m    | 1639   | 66         |
| DTP1    | Card                | 64.9     | 18-29 m    | 1639   | 66         |
| DTP1    | Card or History     | 95.7     | 18-29 m    | 1639   | 66         |
| DTP1    | History             | 30.8     | 18-29 m    | 1639   | 66         |
| DTP3    | C or H <12 months   | 71       | 18-29 m    | 1639   | 66         |
| DTP3    | Card                | 59.6     | 18-29 m    | 1639   | 66         |
| DTP3    | Card or History     | 72.9     | 18-29 m    | 1639   | 66         |
| DTP3    | History             | 13.3     | 18-29 m    | 1639   | 66         |
| MCV1    | C or H <12 months   | 70.5     | 18-29 m    | 1639   | 66         |
| MCV1    | Card                | 53       | 18-29 m    | 1639   | 66         |
| MCV1    | Card or History     | 76.1     | 18-29 m    | 1639   | 66         |
| MCV1    | History             | 23.1     | 18-29 m    | 1639   | 66         |
| Pol1    | C or H <12 months   | 91.8     | 18-29 m    | 1639   | 66         |
| Pol1    | Card                | 63.3     | 18-29 m    | 1639   | 66         |
| Pol1    | Card or History     | 92.3     | 18-29 m    | 1639   | 66         |
| Pol1    | History             | 29.1     | 18-29 m    | 1639   | 66         |
| Pol3    | C or H <12 months   | 66.6     | 18-29 m    | 1639   | 66         |
| Pol3    | Card                | 57.8     | 18-29 m    | 1639   | 66         |
| Pol3    | Card or History     | 67.9     | 18-29 m    | 1639   | 66         |
| Pol3    | History             | 10.1     | 18-29 m    | 1639   | 66         |

2007 Encuesta Nacional de Demografía y Salud Sexual y Reproductiva (ENDSSR-2004)

| Vaccine | Confirmation method | Coverage | Age cohort | Sample | Cards seen |
|---------|---------------------|----------|------------|--------|------------|
| BCG     | Card                | 70.8     | 12-23 m    | 427    | 71         |

# Paraguay - survey details

|      |                 |      |         |     |    |
|------|-----------------|------|---------|-----|----|
| BCG  | Card or History | 98.4 | 12-23 m | 427 | 71 |
| DTP1 | Card            | 70.8 | 12-23 m | 427 | 71 |
| DTP1 | Card or History | 98.6 | 12-23 m | 427 | 71 |
| DTP3 | Card            | 68.4 | 12-23 m | 427 | 71 |
| DTP3 | Card or History | 93.5 | 12-23 m | 427 | 71 |
| MCV1 | Card            | 59.3 | 12-23 m | 427 | 71 |
| MCV1 | Card or History | 84.2 | 12-23 m | 427 | 71 |
| Pol1 | Card            | 67.5 | 12-23 m | 427 | 71 |
| Pol1 | Card or History | 95.8 | 12-23 m | 427 | 71 |
| Pol3 | Card            | 66.9 | 12-23 m | 427 | 71 |
| Pol3 | Card or History | 90.1 | 12-23 m | 427 | 71 |

2003 Encuesta Nacional de Demografia y Salud Sexual y Reproductiva 2004  
(ENDSSR-2004)

| Vaccine | Confirmation method | Coverage | Age cohort | Sample | Cards seen |
|---------|---------------------|----------|------------|--------|------------|
| BCG     | Card or History     | 91.6     | 12-23 m    | 898    | 69         |
| DTP1    | Card or History     | 94.9     | 12-23 m    | 898    | 69         |
| DTP3    | Card or History     | 82.8     | 12-23 m    | 898    | 69         |
| MCV1    | Card or History     | 75.2     | 12-23 m    | 898    | 69         |
| Pol1    | Card or History     | 93.8     | 12-23 m    | 898    | 69         |
| Pol3    | Card or History     | 82.2     | 12-23 m    | 898    | 69         |

Further information and estimates for previous years are available at:  
<https://data.unicef.org/topic/child-health/immunization/>  
<https://immunizationdata.who.int/listing.html>