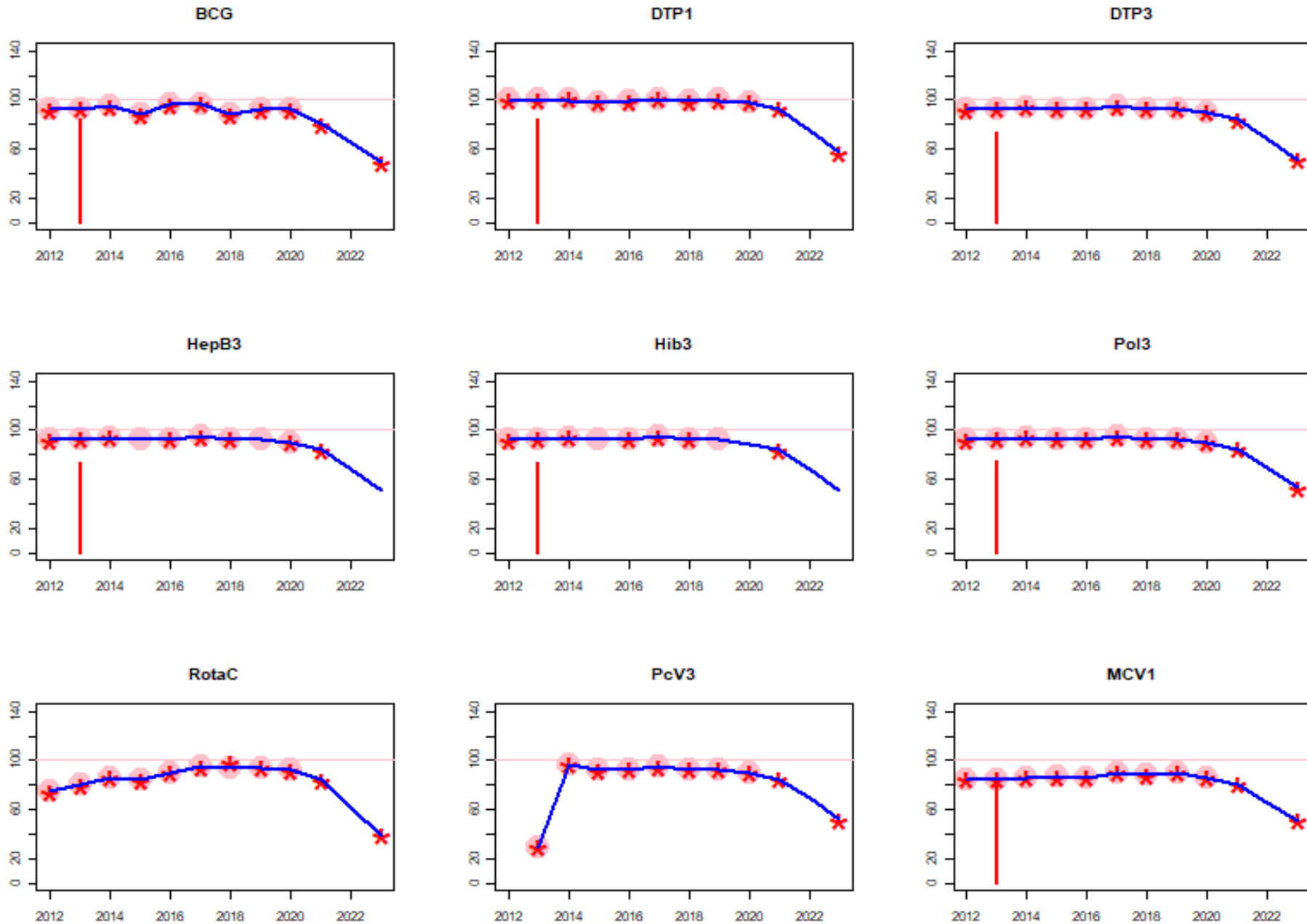


Sudan: WHO and UNICEF estimates of immunization coverage: 2023 revision



Sudan: WHO and UNICEF estimates of immunization coverage: 2023 revision

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 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 available empirical data accurately reflect immunization system performance and those where the data are likely compromised and present a misleading view of coverage.

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. Bull World Health Organ.

*Burton et al. 2012. PLoS One.

*Danovaro-Holliday et al. 2021. Gates Open Res.

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 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 data collection period.

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. For countries utilizing IPV containing vaccine only, i.e., no recommended dose of OPV, 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.

IPV2: percentage of surviving infants who received a 2nd dose of inactivated polio vaccine. IPV2 coverage estimates produced for OPV using countries.

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.

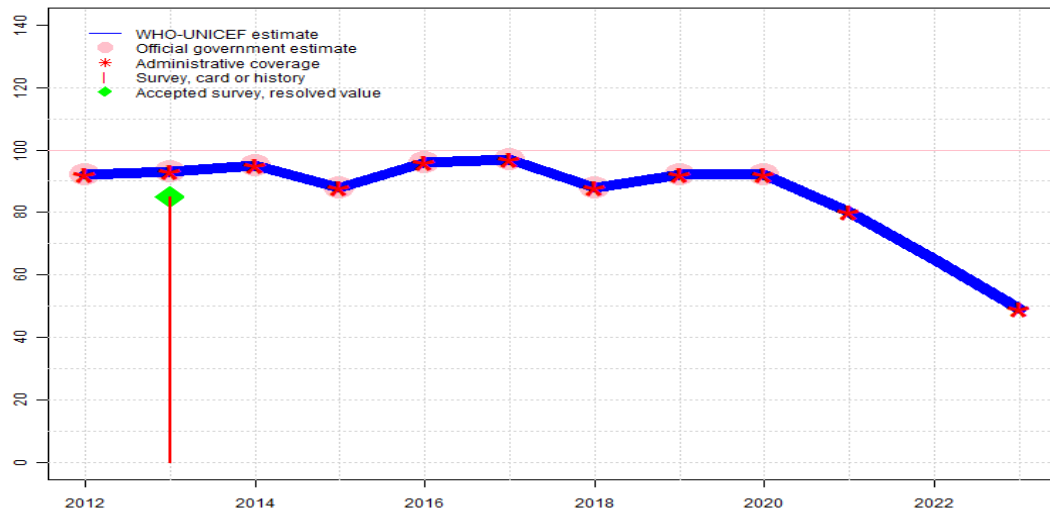
YFV: percentage of surviving infants who received one dose of yellow fever vaccine in countries where YFV is part of the national immunization schedule for children or is recommended in at risk areas; coverage estimates are annualized for the entire cohort of surviving infants.

MengA: percentage of children who received one dose of meningococcal A conjugate vaccine. MengA coverage estimates produced for countries in the meningitis belt of sub-Saharan Africa.

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Sudan - BCG

SDN - BCG



Description:

- 2023: Estimate informed by reported administrative data. Declines in coverage consistent with civil unrest in 2023. No nationally representative household survey for the most recent 5 annual birth cohorts. WHO and UNICEF recommend a high quality survey to verify reported levels of coverage, when the situation permits. Estimate challenged by: D-
- 2022: Estimate informed by interpolation between reported data. Estimate of 65 percent changed from previous revision value of 80 percent. GoC=No accepted empirical data
- 2021: Estimate informed by reported administrative data. . Estimate challenged by: D-
- 2020: Estimate informed by reported data. Programme reports vaccine stockout at subnational level. Estimate challenged by: D-
- 2019: Estimate informed by reported data. Estimate challenged by: D-
- 2018: Estimate informed by reported data. Estimate challenged by: D-
- 2017: Estimate informed by reported data. Estimate challenged by: D-
- 2016: Estimate informed by reported data. Estimate challenged by: D-
- 2015: Estimate informed by reported data. GoC=R+ S+ D+
- 2014: Estimate informed by reported data. GoC=R+ S+ D+
- 2013: Estimate informed by reported data supported by survey. Survey evidence of 85 percent based on 1 survey(s). GoC=R+ S+ D+
- 2012: Estimate informed by reported data. GoC=R+ S+ D+

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Estimate	92	93	95	88	96	97	88	92	92	80	65	49
Estimate GoC	●●●	●●●	●●●	●●●	●	●	●	●	●	●	●	●
Official	92	93	95	88	96	97	88	92	92	NA	NA	NA
Administrative	92	93	95	88	96	97	88	92	92	80	NA	49
Survey	NA	85	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

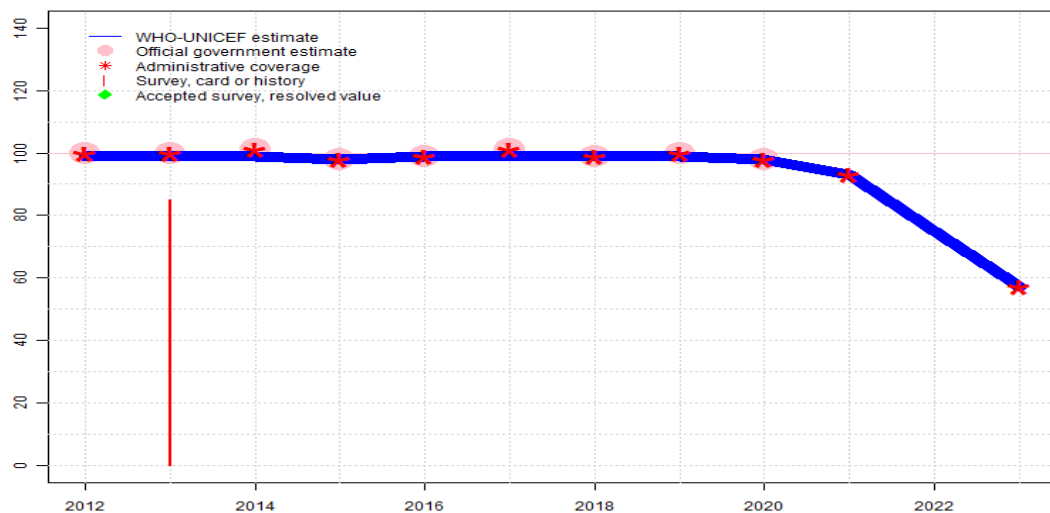
The WHO and UNICEF estimates of national immunization coverage (wuenic) are based on data and information that are of varying, and, in some instances, unknown quality. Beginning with the 2011 revision we describe the grade of confidence (GoC) we have in these estimates. As there is no underlying probability 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.

Sudan - DTP1

SDN - DTP1



	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Estimate	99	99	99	98	99	99	99	99	98	93	75	57
Estimate GoC	●●	●●	●●	●●	●●	●●	●●	●●	●●	●	●	●●
Official	100	100	101	98	99	101	99	100	98	NA	NA	NA
Administrative	100	100	101	98	99	101	99	100	98	93	NA	57
Survey	NA	85	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.

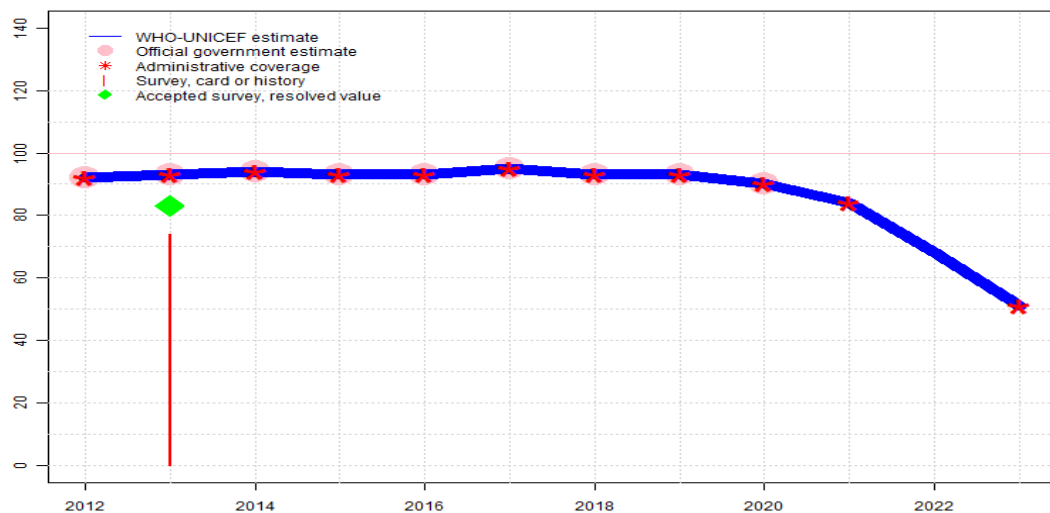
In all cases these estimates should be used with caution and should be assessed in light of the objective for which they are being used.

Description:

- 2023: Estimate informed by reported administrative data. Declines in coverage consistent with civil unrest in 2023. No nationally representative household survey for the most recent 5 annual birth cohorts. WHO and UNICEF recommend a high quality survey to verify reported levels of coverage, when the situation permits. GoC=R+ D+
- 2022: Estimate informed by interpolation between reported data. Estimate of 75 percent changed from previous revision value of 94 percent. GoC=No accepted empirical data
- 2021: Estimate informed by reported administrative data. Estimate of 93 percent changed from previous revision value of 94 percent. Estimate challenged by: D-
- 2020: Estimate informed by reported data. Programme reports vaccine stockout at subnational level. Estimate of 98 percent changed from previous revision value of 96 percent. GoC=R+ D+
- 2019: Estimate informed by reported data. Estimate of 99 percent changed from previous revision value of 97 percent. GoC=R+ D+
- 2018: Estimate informed by reported data. Estimate of 99 percent changed from previous revision value of 97 percent. GoC=R+ D+
- 2017: Estimate informed by interpolation between reported data. Reported data excluded because 101 percent greater than 100 percent. Estimate of 99 percent changed from previous revision value of 98 percent. GoC=R+ D+
- 2016: Estimate informed by reported data. Estimate of 99 percent changed from previous revision value of 97 percent. GoC=R+ D+
- 2015: Estimate informed by reported data. Estimate of 98 percent changed from previous revision value of 97 percent. GoC=R+ D+
- 2014: Estimate informed by interpolation between reported data. Reported data excluded because 101 percent greater than 100 percent. Estimate of 99 percent changed from previous revision value of 98 percent. GoC=R+ D+
- 2013: Estimate informed by reported data. Sudan Multiple Indicator Cluster Survey 2014 results ignored by working group. Survey supports for third DTP dose, but not for first dose. Estimate of 99 percent changed from previous revision value of 97 percent. GoC=R+ D+
- 2012: Estimate informed by reported data. Estimate of 99 percent changed from previous revision value of 97 percent. GoC=R+ D+

Sudan - DTP3

SDN - DTP3



Description:

- 2023: Estimate informed by reported administrative data. Declines in coverage consistent with civil unrest in 2023. No nationally representative household survey for the most recent 5 annual birth cohorts. WHO and UNICEF recommend a high quality survey to verify reported levels of coverage, when the situation permits. GoC=R+ D+
- 2022: Estimate informed by interpolation between reported data. Estimate of 68 percent changed from previous revision value of 84 percent. GoC=No accepted empirical data
- 2021: Estimate informed by reported administrative data. GoC=R+ D+
- 2020: Estimate informed by reported data. Programme reports vaccine stockout at subnational level. GoC=R+ D+
- 2019: Estimate informed by reported data. GoC=R+ D+
- 2018: Estimate informed by reported data. GoC=R+ D+
- 2017: Estimate informed by reported data. GoC=R+ D+
- 2016: Estimate informed by reported data. GoC=R+ D+
- 2015: Estimate informed by reported data. GoC=R+ S+ D+
- 2014: Estimate informed by reported data. Estimate challenged by: S-
- 2013: Estimate informed by reported data supported by survey. Survey evidence of 83 percent based on 1 survey(s). Sudan Multiple Indicator Cluster Survey 2014 card or history results of 74 percent modified for recall bias to 83 percent based on 1st dose card or history coverage of 85 percent, 1st dose card only coverage of 44 percent and 3rd dose card only coverage of 43 percent. GoC=Assigned by working group. In spite of the observed support to reported coverage levels provided by the results of the 2014 Multiple Indicator Cluster Survey, there is concern that less than half of the survey results are derived from documented evidence.
- 2012: Estimate informed by reported data. GoC=Assigned by working group. In spite of the observed support to reported coverage levels provided by the results of the 2014 Multiple Indicator Cluster Survey, there is concern that less than half of the survey results are derived from documented evidence.

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Estimate	92	93	94	93	93	95	93	93	90	84	68	51
Estimate GoC	••	••	•	•••	••	••	••	••	••	••	•	••
Official	92	93	94	93	93	95	93	93	90	NA	NA	NA
Administrative	92	93	94	93	93	95	93	93	90	84	NA	51
Survey	NA	74	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

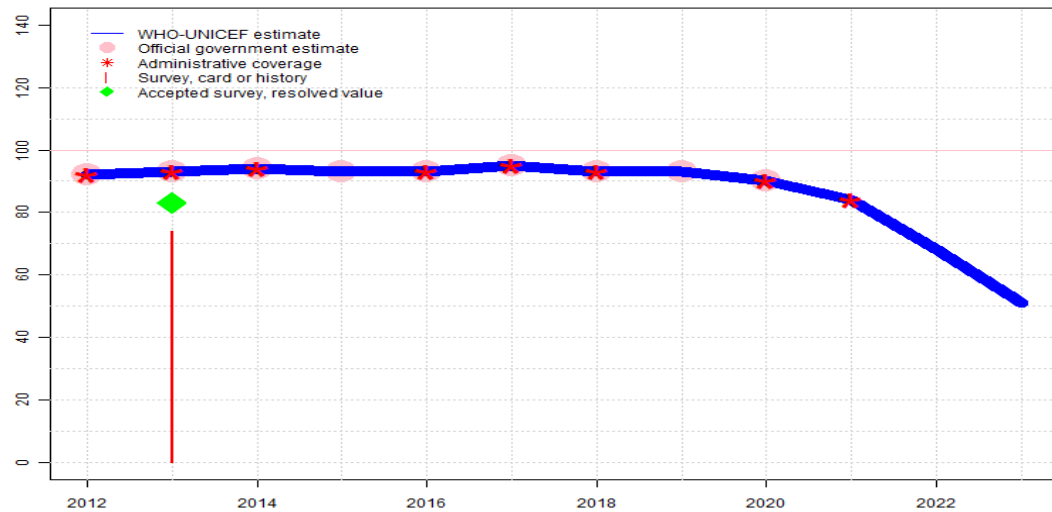
The WHO and UNICEF estimates of national immunization coverage (wuenic) are based on data and information that are of varying, and, in some instances, unknown quality. Beginning with the 2011 revision we describe the grade of confidence (GoC) we have in these estimates. As there is no underlying probability 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.

Sudan - HepB3

SDN - HepB3



	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Estimate	92	93	94	93	93	95	93	93	90	84	68	51
Estimate GoC	●●	●●	●	●●	●●	●●	●●	●●	●●	●●	●	●
Official	92	93	94	93	93	95	93	93	90	NA	NA	NA
Administrative	92	93	94	NA	93	95	93	NA	90	84	NA	NA
Survey	NA	74	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.

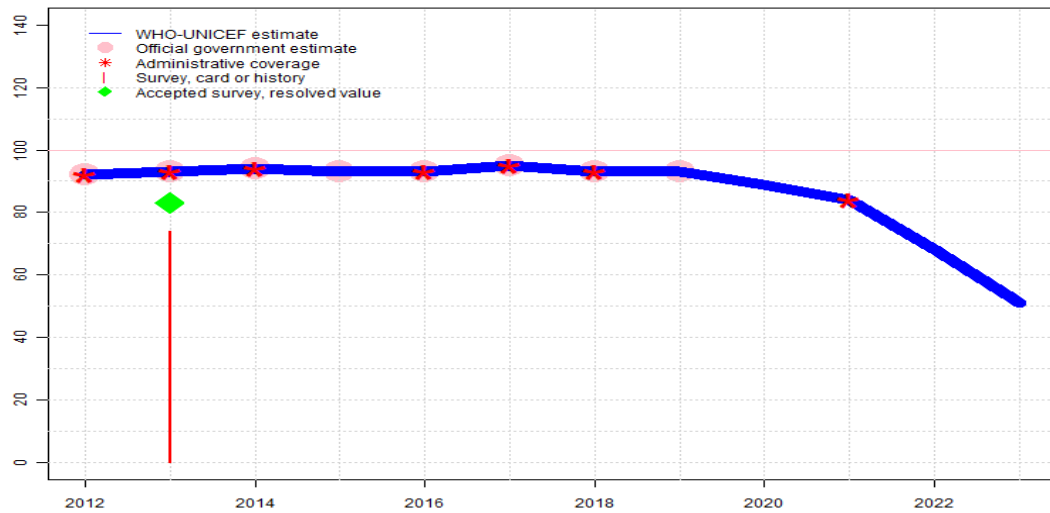
In all cases these estimates should be used with caution and should be assessed in light of the objective for which they are being used.

Description:

- 2023: Estimate of 51 percent assigned by working group. Estimate informed by DTP3 estimate. Declines in coverage consistent with civil unrest in 2023. No nationally representative household survey for the most recent 5 annual birth cohorts. WHO and UNICEF recommend a high quality survey to verify reported levels of coverage, when the situation permits. GoC=No accepted empirical data
- 2022: Reported data calibrated to 2021 and 2023 levels. Estimate of 68 percent changed from previous revision value of 84 percent. GoC=No accepted empirical data
- 2021: Estimate informed by estimated coverage for DTP3. GoC=R+ D+
- 2020: Estimate informed by reported data. Programme reports vaccine stockout at subnational level. GoC=R+ D+
- 2019: Estimate informed by reported data. GoC=R+
- 2018: Estimate informed by reported data. GoC=R+ D+
- 2017: Estimate informed by reported data. GoC=R+ D+
- 2016: Estimate informed by reported data. GoC=R+ D+
- 2015: Estimate informed by reported data. GoC=R+ S+
- 2014: Estimate informed by reported data. Estimate challenged by: S-
- 2013: Estimate informed by reported data supported by survey. Survey evidence of 83 percent based on 1 survey(s). Sudan Multiple Indicator Cluster Survey 2014 card or history results of 74 percent modified for recall bias to 83 percent based on 1st dose card or history coverage of 85 percent, 1st dose card only coverage of 44 percent and 3rd dose card only coverage of 43 percent. GoC=Assigned by working group. In spite of the observed support to reported coverage levels provided by the results of the 2014 Multiple Indicator Cluster Survey, there is concern that less than half of the survey results are derived from documented evidence.
- 2012: Estimate informed by reported data. GoC=Assigned by working group. In spite of the observed support to reported coverage levels provided by the results of the 2014 Multiple Indicator Cluster Survey, there is concern that less than half of the survey results are derived from documented evidence.

Sudan - Hib3

SDN - Hib3



Description:

- 2023: Estimate of 51 percent assigned by working group. Estimate informed by DTP3 estimate. Declines in coverage consistent with civil unrest in 2023. No nationally representative household survey for the most recent 5 annual birth cohorts. WHO and UNICEF recommend a high quality survey to verify reported levels of coverage, when the situation permits. GoC=No accepted empirical data
- 2022: Reported data calibrated to 2021 and 2023 levels. Estimate of 68 percent changed from previous revision value of 84 percent. GoC=No accepted empirical data
- 2021: Estimate informed by estimated coverage for DTP3. GoC=R+ D+
- 2020: Estimate informed by interpolation between reported data. Programme reports vaccine stockout at subnational level. Estimate of 89 percent changed from previous revision value of 90 percent. GoC=No accepted empirical data
- 2019: Estimate informed by reported data. GoC=R+
- 2018: Estimate informed by reported data. GoC=R+ D+
- 2017: Estimate informed by reported data. GoC=R+ D+
- 2016: Estimate informed by reported data. GoC=R+ D+
- 2015: Estimate informed by reported data. GoC=R+ S+
- 2014: Estimate informed by reported data. Estimate challenged by: S-
- 2013: Estimate informed by reported data supported by survey. Survey evidence of 83 percent based on 1 survey(s). Sudan Multiple Indicator Cluster Survey 2014 card or history results of 74 percent modified for recall bias to 83 percent based on 1st dose card or history coverage of 85 percent, 1st dose card only coverage of 44 percent and 3rd dose card only coverage of 43 percent. GoC=Assigned by working group. In spite of the observed support to reported coverage levels provided by the results of the 2014 Multiple Indicator Cluster Survey, there is concern that less than half of the survey results are derived from documented evidence.
- 2012: Estimate informed by reported data. GoC=Assigned by working group. In spite of the observed support to reported coverage levels provided by the results of the 2014 Multiple Indicator Cluster Survey, there is concern that less than half of the survey results are derived from documented evidence.

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Estimate	92	93	94	93	93	95	93	93	89	84	68	51
Estimate GoC	●●	●●	●	●●	●●	●●	●●	●●	●	●●	●	●
Official	92	93	94	93	93	95	93	93	NA	NA	NA	NA
Administrative	92	93	94	NA	93	95	93	NA	NA	84	NA	NA
Survey	NA	74	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

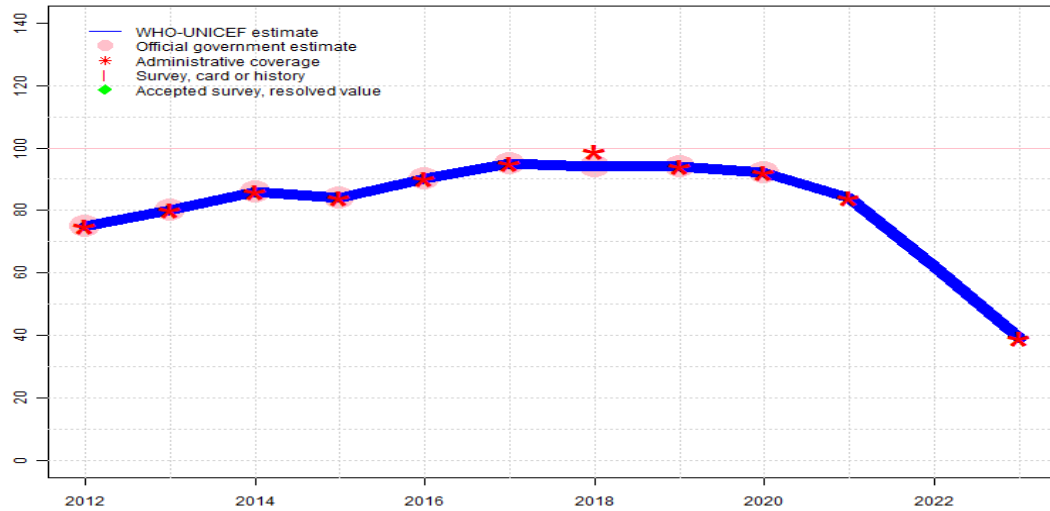
The WHO and UNICEF estimates of national immunization coverage (wuenic) are based on data and information that are of varying, and, in some instances, unknown quality. Beginning with the 2011 revision we describe the grade of confidence (GoC) we have in these estimates. As there is no underlying probability 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.

Sudan - RotaC

SDN - RotaC



Description:

- 2023: Estimate informed by reported administrative data. Declines in coverage consistent with civil unrest in 2023. No nationally representative household survey for the most recent 5 annual birth cohorts. WHO and UNICEF recommend a high quality survey to verify reported levels of coverage, when the situation permits. GoC=R+ D+
- 2022: Estimate informed by interpolation between reported data. Estimate of 62 percent changed from previous revision value of 84 percent. GoC=No accepted empirical data
- 2021: Estimate informed by reported administrative data. GoC=R+ D+
- 2020: Estimate informed by reported data. GoC=R+ D+
- 2019: Estimate informed by reported data. GoC=R+ D+
- 2018: Estimate informed by reported data. Estimate challenged by: D-
- 2017: Estimate informed by reported data. GoC=R+ D+
- 2016: Estimate informed by reported data. GoC=R+ D+
- 2015: Estimate informed by reported data. GoC=R+ D+
- 2014: Estimate informed by reported data. GoC=R+ D+
- 2013: Estimate informed by reported data. GoC=R+ D+
- 2012: Estimate informed by reported data. GoC=R+ D+

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Estimate	75	80	86	84	90	95	94	94	92	84	62	39
Estimate GoC	●●	●●	●●	●●	●●	●●	●	●●	●●	●●	●	●●
Official	75	80	86	84	90	95	94	94	92	NA	NA	NA
Administrative	75	80	86	84	90	95	99	94	92	84	NA	39
Survey	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

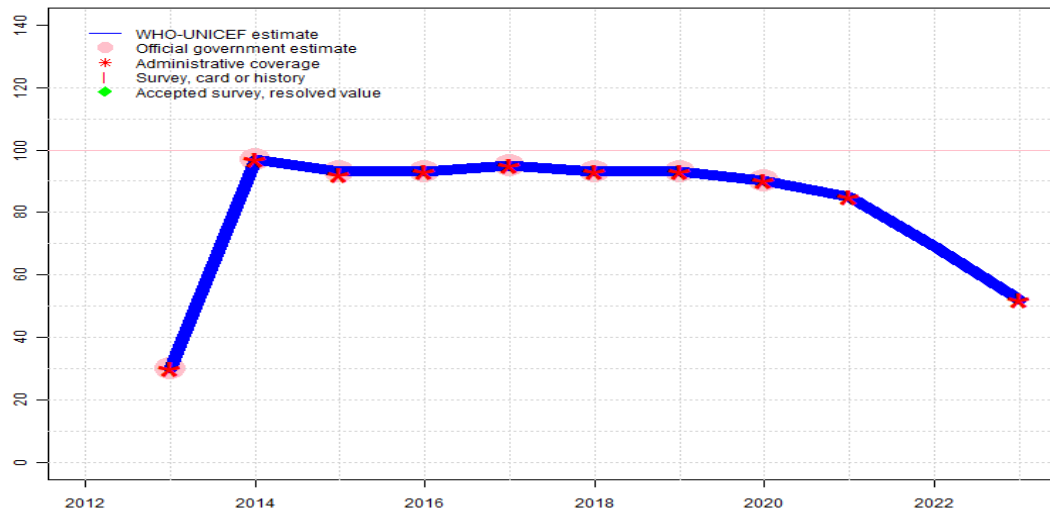
The WHO and UNICEF estimates of national immunization coverage (wuenic) are based on data and information that are of varying, and, in some instances, unknown quality. Beginning with the 2011 revision we describe the grade of confidence (GoC) we have in these estimates. As there is no underlying probability 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.

Sudan - PcV3

SDN - PcV3



Description:

- 2023: Estimate informed by reported administrative data. Declines in coverage consistent with civil unrest in 2023. No nationally representative household survey for the most recent 5 annual birth cohorts. WHO and UNICEF recommend a high quality survey to verify reported levels of coverage, when the situation permits. GoC=R+ D+
- 2022: Estimate informed by interpolation between reported data. Estimate of 69 percent changed from previous revision value of 85 percent. GoC=No accepted empirical data
- 2021: Estimate informed by reported administrative data. GoC=R+ D+
- 2020: Estimate informed by reported data. Programme reports vaccine stockout at subnational level. GoC=R+ D+
- 2019: Estimate informed by reported data. GoC=R+ D+
- 2018: Estimate informed by reported data. GoC=R+ D+
- 2017: Estimate informed by reported data. GoC=R+ D+
- 2016: Estimate informed by reported data. GoC=R+ D+
- 2015: Estimate informed by reported data. GoC=R+ D+
- 2014: Estimate informed by reported data. GoC=R+ D+
- 2013: Estimate informed by reported data. Pneumococcal conjugate vaccine introduced in August 2013. GoC=R+ D+

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Estimate	NA	30	97	93	93	95	93	93	90	85	69	52
Estimate GoC	NA	●●	●●	●●	●●	●●	●●	●●	●●	●●	●	●●
Official	NA	30	97	93	93	95	93	93	90	NA	NA	NA
Administrative	NA	30	97	92	93	95	93	93	90	85	NA	52
Survey	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

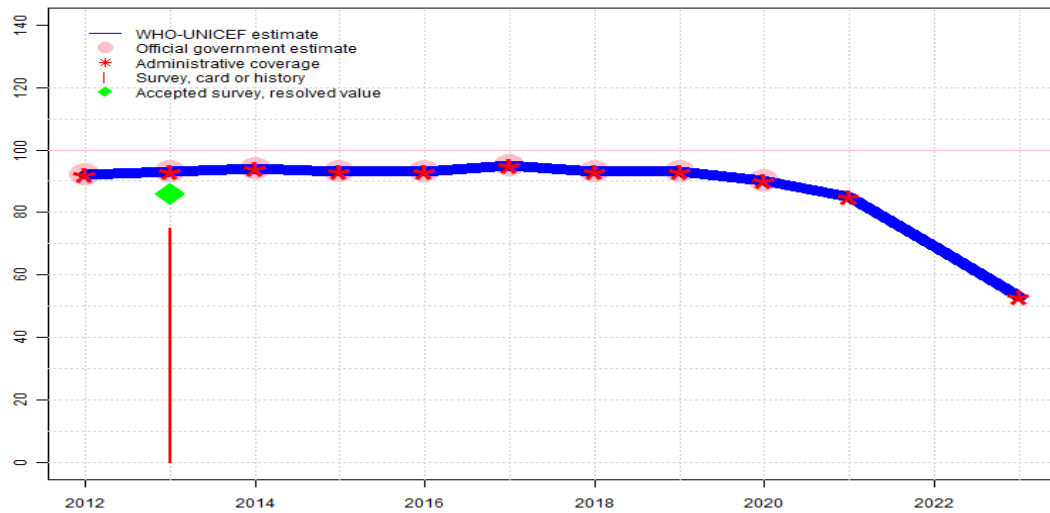
The WHO and UNICEF estimates of national immunization coverage (wuenic) are based on data and information that are of varying, and, in some instances, unknown quality. Beginning with the 2011 revision we describe the grade of confidence (GoC) we have in these estimates. As there is no underlying probability 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.

Sudan - Pol3

SDN - Pol3



	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Estimate	92	93	94	93	93	95	93	93	90	85	69	53
Estimate GoC	●●	●●	●	●●●	●●	●●	●●	●●	●●	●●	●	●●
Official	92	93	94	93	93	95	93	93	90	NA	NA	NA
Administrative	92	93	94	93	93	95	93	93	90	85	NA	53
Survey	NA	75	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.

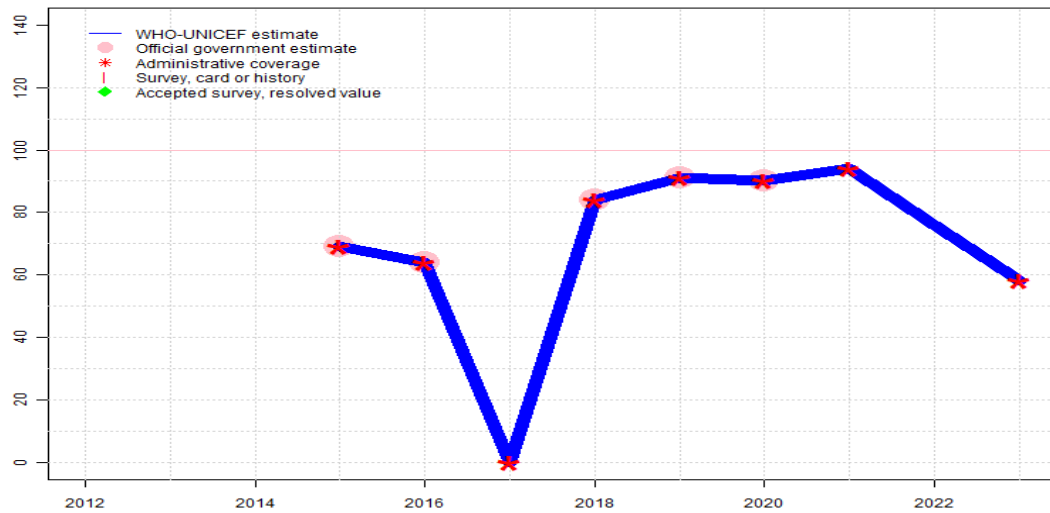
In all cases these estimates should be used with caution and should be assessed in light of the objective for which they are being used.

Description:

- 2023: Estimate informed by reported administrative data. Declines in coverage consistent with civil unrest in 2023. No nationally representative household survey for the most recent 5 annual birth cohorts. WHO and UNICEF recommend a high quality survey to verify reported levels of coverage, when the situation permits. GoC=R+ D+
- 2022: Estimate informed by interpolation between reported data. Estimate of 69 percent changed from previous revision value of 85 percent. GoC=No accepted empirical data
- 2021: Estimate informed by reported administrative data. GoC=R+ D+
- 2020: Estimate informed by reported data. Programme reports vaccine stockout at subnational level. GoC=R+ D+
- 2019: Estimate informed by reported data. GoC=R+ D+
- 2018: Estimate informed by reported data. GoC=R+ D+
- 2017: Estimate informed by reported data. GoC=R+ D+
- 2016: Estimate informed by reported data. GoC=R+ D+
- 2015: Estimate informed by reported data. GoC=R+ S+ D+
- 2014: Estimate informed by reported data. GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.
- 2013: Estimate informed by reported data supported by survey. Survey evidence of 86 percent based on 1 survey(s). Sudan Multiple Indicator Cluster Survey 2014 card or history results of 75 percent modified for recall bias to 86 percent based on 1st dose card or history coverage of 88 percent, 1st dose card only coverage of 44 percent and 3rd dose card only coverage of 43 percent. GoC=Assigned by working group. In spite of the observed support to reported coverage levels provided by the results of the 2014 Multiple Indicator Cluster Survey, there is concern that less than half of the survey results are derived from documented evidence.
- 2012: Estimate informed by reported data. GoC=Assigned by working group. In spite of the observed support to reported coverage levels provided by the results of the 2014 Multiple Indicator Cluster Survey, there is concern that less than half of the survey results are derived from documented evidence.

Sudan - IPV1

SDN - IPV1



	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Estimate	NA	NA	NA	69	64	0	84	91	90	94	76	58
Estimate GoC	NA	NA	NA	●●	●●	●●	●●	●●	●●	●	●	●●
Official	NA	NA	NA	69	64	NA	84	91	90	NA	NA	NA
Administrative	NA	NA	NA	69	64	0	84	91	90	94	NA	58
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).

2023: Estimate informed by reported administrative data. Declines in coverage consistent with civil unrest in 2023. No nationally representative household survey for the most recent 5 annual birth cohorts. WHO and UNICEF recommend a high quality survey to verify reported levels of coverage, when the situation permits. GoC=R+ D+

2022: Estimate informed by interpolation between reported data. Estimate of 76 percent changed from previous revision value of 94 percent. GoC=No accepted empirical data

2021: Estimate informed by reported administrative data. Estimate challenged by: D-

2020: Estimate informed by reported data. GoC=R+ D+

2019: Estimate informed by reported data. GoC=R+ D+

2018: Estimate informed by reported data. Evidence suggests programme recovered from previous year 12 month vaccine stockout. GoC=R+ D+

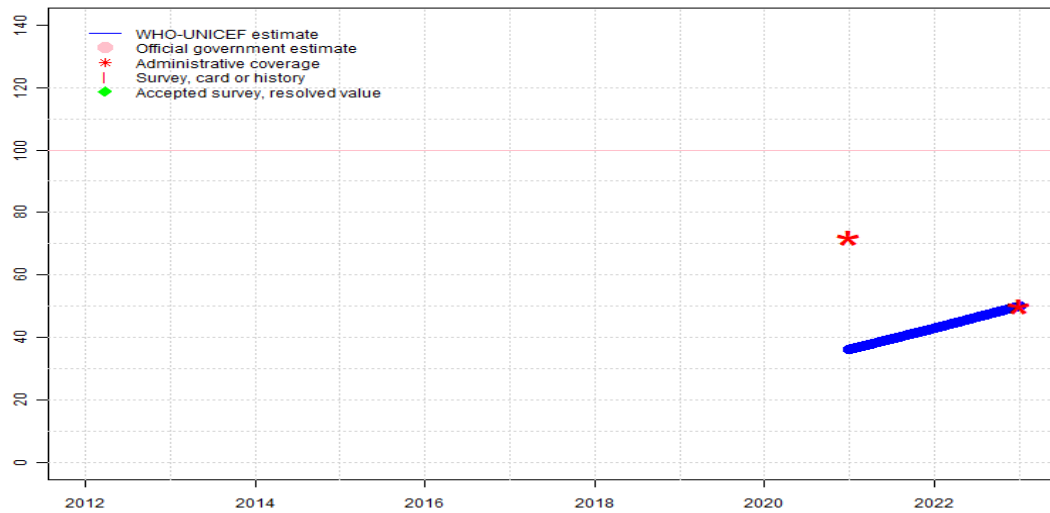
2017: Estimate informed by reported administrative data. Programme reports 12 months vaccine stockout. GoC=R+ D+

2016: Estimate informed by reported data. Programme reports vaccine supply disruption of unknown duration. GoC=R+ D+

2015: Estimate informed by reported data. Inactivated polio vaccine during June 2015. GoC=R+ D+

Sudan - IPV2

SDN - IPV2



Description:

Estimates for a second dose of inactivated polio vaccine (IPV) begin in 2021 following a Strategic Advisory Group of Experts on Immunization (SAGE) recommendation in October 2020 that a second IPV dose increases protection against all polioviruses, including protection against paralysis caused by vaccine derived polio virus (type 2) (VDPV2). The addition of IPV2 is the next step towards complete OPV withdrawal. IPV2 coverage estimates produced for OPV using countries.

2023: Estimate informed by reported coverage. Declines in coverage consistent with civil unrest in 2023. No nationally representative household survey for the most recent 5 annual birth cohorts. WHO and UNICEF recommend a high quality survey to verify reported levels of coverage, when the situation permits. GoC=R+ D+

2022: Reported data calibrated to 2021 and 2023 levels. GoC=No accepted empirical data

2021: Estimate of 36 percent assigned by working group. Reported coverage reflects that achieved in 50 percent of the national target population. Estimates reflects coverage for the annual national birth cohort. Second dose of inactivated polio vaccine introduced during 2021. Estimate challenged by: R-

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Estimate	NA	NA	NA	NA	NA	NA	NA	NA	NA	36	43	50
Estimate GoC	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	72	NA	50
Survey	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

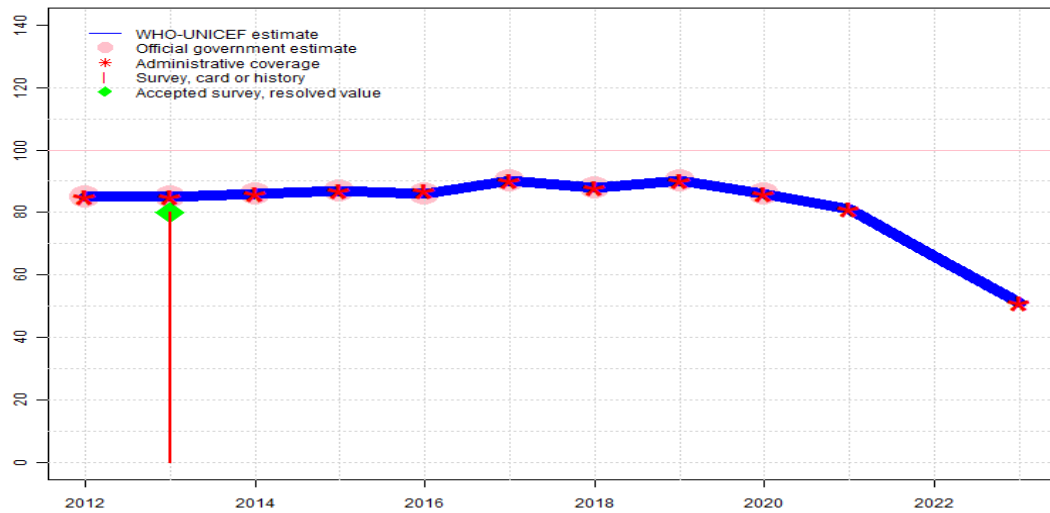
The WHO and UNICEF estimates of national immunization coverage (wuenic) are based on data and information that are of varying, and, in some instances, unknown quality. Beginning with the 2011 revision we describe the grade of confidence (GoC) we have in these estimates. As there is no underlying probability 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.

Sudan - MCV1

SDN - MCV1



Description:

- 2023: Estimate informed by reported administrative data. Declines in coverage consistent with civil unrest in 2023. No nationally representative household survey for the most recent 5 annual birth cohorts. WHO and UNICEF recommend a high quality survey to verify reported levels of coverage, when the situation permits. GoC=R+ D+
- 2022: Estimate informed by interpolation between reported data. Estimate of 66 percent changed from previous revision value of 81 percent. GoC=No accepted empirical data
- 2021: Estimate informed by reported administrative data. GoC=R+ D+
- 2020: Estimate informed by reported data. Programme reports vaccine stockout at subnational level. GoC=R+ D+
- 2019: Estimate informed by reported data. GoC=R+ D+
- 2018: Estimate informed by reported data. GoC=R+ D+
- 2017: Estimate informed by reported data. GoC=R+ D+
- 2016: Estimate informed by reported data. GoC=R+ D+
- 2015: Estimate informed by reported data. GoC=R+ S+ D+
- 2014: Estimate informed by reported data. GoC=R+ S+ D+
- 2013: Estimate informed by reported data supported by survey. Survey evidence of 80 percent based on 1 survey(s). GoC=Assigned by working group. In spite of the observed support to reported coverage levels provided by the results of the 2014 Multiple Indicator Cluster Survey, there is concern that less than half of the survey results are derived from documented evidence.
- 2012: Estimate informed by reported data. GoC=Assigned by working group. In spite of the observed support to reported coverage levels provided by the results of the 2014 Multiple Indicator Cluster Survey, there is concern that less than half of the survey results are derived from documented evidence.

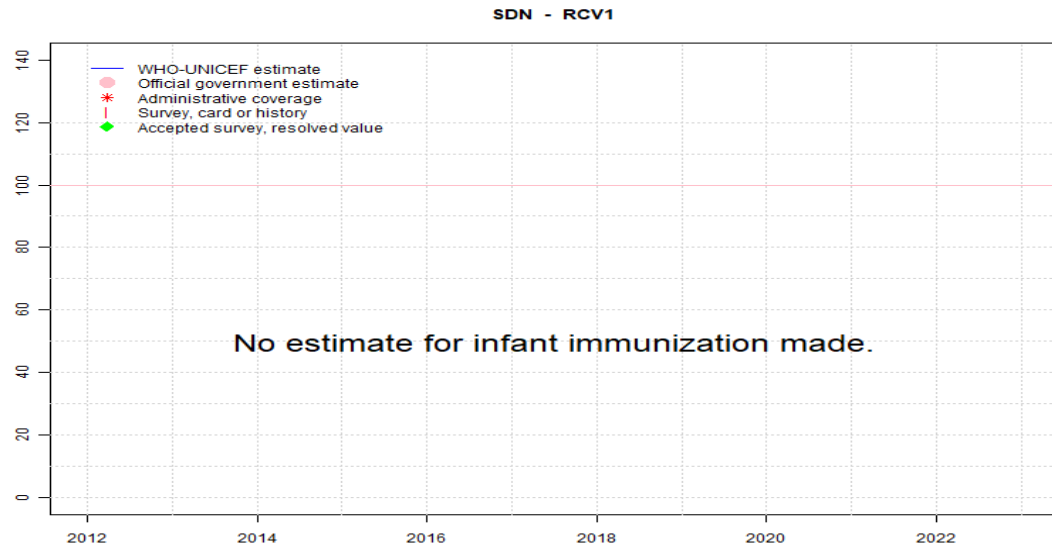
	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Estimate	85	85	86	87	86	90	88	90	86	81	66	51
Estimate GoC	●●	●●	●●●	●●●	●●	●●	●●	●●	●●	●●	●	●●
Official	85	85	86	87	86	90	88	90	86	NA	NA	NA
Administrative	85	85	86	87	87	90	88	90	86	81	NA	51
Survey	NA	80	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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.

Sudan - RCV1



	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
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

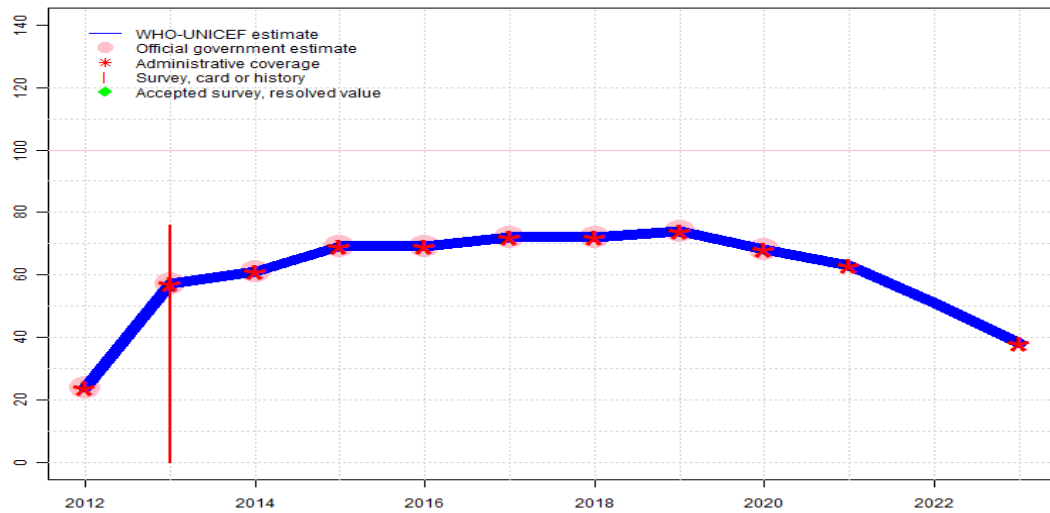
The WHO and UNICEF estimates of national immunization coverage (wuenic) are based on data and information that are of varying, and, in some instances, unknown quality. Beginning with the 2011 revision we describe the grade of confidence (GoC) we have in these estimates. As there is no underlying probability 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.

Sudan - MCV2

SDN - MCV2



	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Estimate	24	57	61	69	69	72	72	74	68	63	51	38
Estimate GoC	•	••	••	••	••	••	••	••	••	••	•	••
Official	24	57	61	69	69	72	72	74	68	NA	NA	NA
Administrative	24	57	61	69	69	72	72	74	68	63	NA	38
Survey	NA	76	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.

2023: Estimate informed by reported administrative data. Declines in coverage consistent with civil unrest in 2023. No nationally representative household survey for the most recent 5 annual birth cohorts. WHO and UNICEF recommend a high quality survey to verify reported levels of coverage, when the situation permits. GoC=R+ D+

2022: Estimate informed by interpolation between reported data. Estimate of 51 percent changed from previous revision value of 63 percent. GoC=No accepted empirical data

2021: Estimate informed by reported administrative data. GoC=R+ D+

2020: Estimate informed by reported data. Programme reports vaccine stockout at subnational level. GoC=R+ D+

2019: Estimate informed by reported data. GoC=R+ D+

2018: Estimate informed by reported data. GoC=R+ D+

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

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

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

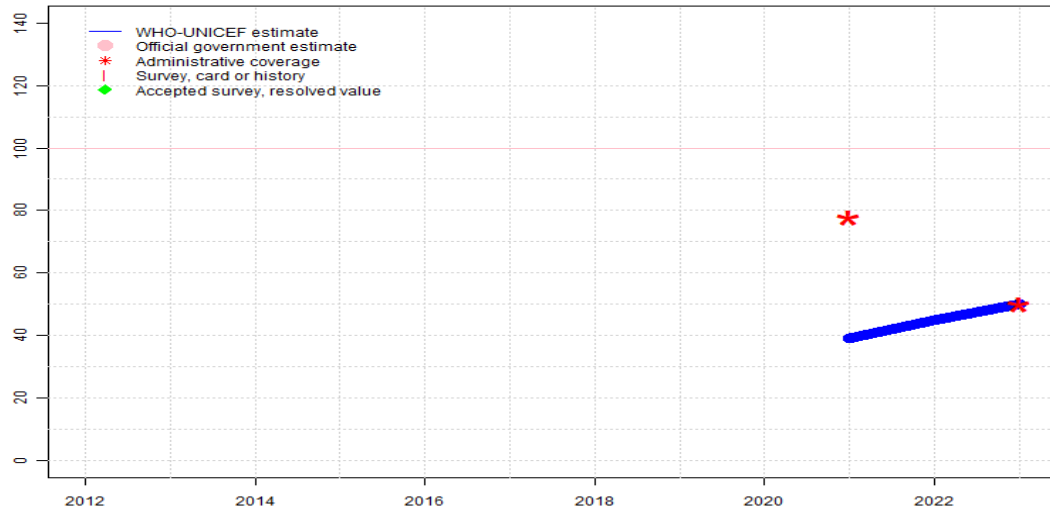
2014: Estimate informed by reported data. GoC=R+ D+

2013: Estimate informed by reported data. Sudan Multiple Indicator Cluster Survey 2014 results ignored by working group. Survey results likely reflect doses administered in campaigns.. GoC=R+ D+

2012: Estimate informed by reported data. Measles second dose introduced in 2012 and recommended for administration at 18 months of age. Estimate challenged by: D-

Sudan - YFV

SDN - YFV



Description:

2023: Estimate informed by reported administrative data. Declines in coverage consistent with civil unrest in 2023. No nationally representative household survey for the most recent 5 annual birth cohorts. WHO and UNICEF recommend a high quality survey to verify reported levels of coverage, when the situation permits. GoC=R+ D+

2022: Estimate based on interpolation. GoC=No accepted empirical data

2021: Yellow fever vaccine introduced in 2021. Reported coverage reflects that achieved in 50 percent of the national target population. Estimated coverage based on annualized coverage for the national target population. Estimate challenged by: R-

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Estimate	NA	NA	NA	NA	NA	NA	NA	NA	NA	39	45	50
Estimate GoC	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	78	NA	50
Survey	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

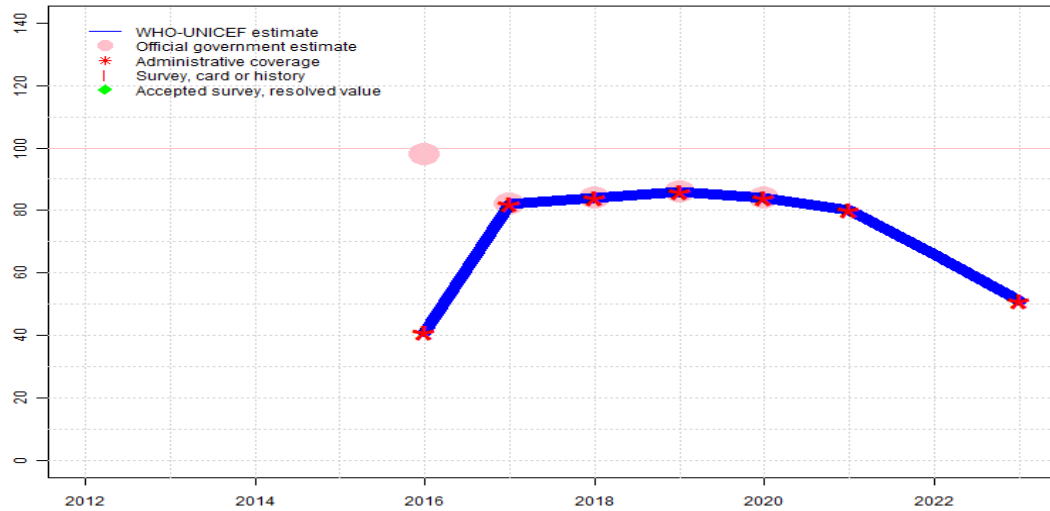
The WHO and UNICEF estimates of national immunization coverage (wuenic) are based on data and information that are of varying, and, in some instances, unknown quality. Beginning with the 2011 revision we describe the grade of confidence (GoC) we have in these estimates. As there is no underlying probability 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.

Sudan - MengA

SDN - MengA



Description:

Estimates for one dose of meningococcal A conjugate (MengA) vaccine begin with the year that the vaccine was first delivered through routine immunization services and data were reported among countries in the meningitis belt of sub-Saharan Africa.

2023: Estimate informed by reported administrative data. Declines in coverage consistent with civil unrest in 2023. No nationally representative household survey for the most recent 5 annual birth cohorts. WHO and UNICEF recommend a high quality survey to verify reported levels of coverage, when the situation permits. GoC=R+ D+

2022: Estimate informed by interpolation between reported data. GoC=No accepted empirical data

2021: Estimate informed by reported administrative data. GoC=R+ D+

2020: Estimate informed by reported data. GoC=R+ D+

2019: Estimate informed by reported data. GoC=R+ D+

2018: Estimate informed by reported data. GoC=R+ D+

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

2016: Estimate informed by reported administrative data. Meningitis A vaccine introduced during 2016. Estimate is exceptionally based on reported administrative coverage during introduction. GoC=R+ D+

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Estimate	NA	NA	NA	NA	41	82	84	86	84	80	66	51
Estimate GoC	NA	NA	NA	NA	••	••	••	••	••	••	•	••
Official	NA	NA	NA	NA	98	82	84	86	84	NA	NA	NA
Administrative	NA	NA	NA	NA	41	82	84	86	84	80	NA	51
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.

Sudan - survey details

NOTE: A survey to measure vaccination coverage for infants (i.e., children aged 0-11 months) will sample children aged 12-23 months at the time of survey to capture the youngest annual cohort of children who should have completed the vaccination schedule. Because WUENIC are for infant vaccinations, survey data in this report are presented to reflect the birth year of the youngest survey cohort. For example, results for a survey conducted during December 2020 among children aged 12-23 months at the time of the survey reflect the immunization experience of children born in 2019. Depending on the timing of survey field work, results may reflect the immunization experience of children born and vaccinated 1 or 2 years prior to the survey field work.

2013 Sudan Multiple Indicator Cluster Survey 2014

Vaccine	Confirmation method	Coverage	Age cohort	Sample	Cards seen
BCG	C or H <12 months	78.5	12-23 m	-	44
BCG	Card	43.7	12-23 m	2672	44
BCG	Card or History	85.3	12-23 m	2672	44
BCG	History	41.6	12-23 m	2672	44
DTP1	C or H <12 months	81.1	12-23 m	-	44
DTP1	Card	44.2	12-23 m	2672	44
DTP1	Card or History	84.6	12-23 m	2672	44
DTP1	History	40.4	12-23 m	2672	44
DTP3	C or H <12 months	63.9	12-23 m	-	44
DTP3	Card	43.4	12-23 m	2672	44
DTP3	Card or History	73.9	12-23 m	2672	44
DTP3	History	30.5	12-23 m	2672	44
HepB1	C or H <12 months	81.1	12-23 m	-	44
HepB1	Card	44.2	12-23 m	2672	44
HepB1	Card or History	84.6	12-23 m	2672	44
HepB1	History	40.4	12-23 m	2672	44
HepB3	C or H <12 months	63.9	12-23 m	-	44
HepB3	Card	43.4	12-23 m	2672	44
HepB3	Card or History	73.9	12-23 m	2672	44
HepB3	History	30.5	12-23 m	2672	44
Hib1	C or H <12 months	81.1	12-23 m	-	44
Hib1	Card	44.2	12-23 m	2672	44
Hib1	Card or History	84.6	12-23 m	2672	44
Hib1	History	40.4	12-23 m	2672	44

Hib3	C or H <12 months	63.9	12-23 m	-	44
Hib3	Card	43.4	12-23 m	2672	44
Hib3	Card or History	73.9	12-23 m	2672	44
Hib3	History	30.5	12-23 m	2672	44
MCV1	C or H <12 months	60.9	12-23 m	-	44
MCV1	Card	41.7	12-23 m	2672	44
MCV1	Card or History	79.9	12-23 m	2672	44
MCV1	History	38.2	12-23 m	2672	44
MCV2	C or H <12 months	8.8	12-23 m	-	44
MCV2	Card	36.6	12-23 m	2672	44
MCV2	Card or History	75.6	12-23 m	2672	44
MCV2	History	39	12-23 m	2672	44
Pol1	C or H <12 months	83.7	12-23 m	-	44
Pol1	Card	43.8	12-23 m	2672	44
Pol1	Card or History	87.5	12-23 m	2672	44
Pol1	History	43.7	12-23 m	2672	44
Pol3	C or H <12 months	65.3	12-23 m	-	44
Pol3	Card	42.9	12-23 m	2672	44
Pol3	Card or History	75.1	12-23 m	2672	44
Pol3	History	32.2	12-23 m	2672	44

2009 Sudan Household Health Survey - Second Round SHHS2 2010

Vaccine	Confirmation method	Coverage	Age cohort	Sample	Cards seen
BCG	C or H <12 months	74.6	12-23 m	2612	41
BCG	Card	39.4	12-23 m	-	41
BCG	Card or History	76.8	12-23 m	2612	41
BCG	History	37.4	12-23 m	-	41
DTP1	C or H <12 months	74.8	12-23 m	2612	41
DTP1	Card	40.5	12-23 m	-	41
DTP1	Card or History	78.7	12-23 m	2612	41
DTP1	History	38.2	12-23 m	-	41
DTP3	C or H <12 months	58.4	12-23 m	2612	41
DTP3	Card	37.3	12-23 m	-	41
DTP3	Card or History	61.3	12-23 m	2612	41
DTP3	History	24	12-23 m	-	41
HepB1	C or H <12 months	74.8	12-23 m	2612	41
HepB1	Card	40.5	12-23 m	-	41
HepB1	Card or History	78.7	12-23 m	2612	41

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HepB1	History	38.2	12-23 m	-	41
HepB3	C or H <12 months	58.4	12-23 m	2612	41
HepB3	Card	37.3	12-23 m	-	41
HepB3	Card or History	61.3	12-23 m	2612	41
HepB3	History	24	12-23 m	-	41
Hib1	C or H <12 months	74.8	12-23 m	2612	41
Hib1	Card	40.5	12-23 m	-	41
Hib1	Card or History	78.7	12-23 m	2612	41
Hib1	History	38.2	12-23 m	-	41
Hib3	C or H <12 months	58.4	12-23 m	2612	41
Hib3	Card	37.3	12-23 m	-	41
Hib3	Card or History	61.3	12-23 m	2612	41
Hib3	History	24	12-23 m	-	41
MCV1	C or H <12 months	62.3	12-23 m	2612	41
MCV1	Card	37.6	12-23 m	-	41
MCV1	Card or History	70.1	12-23 m	2612	41
MCV1	History	32.5	12-23 m	-	41
Pol1	C or H <12 months	83.3	12-23 m	2612	41
Pol1	Card	40.3	12-23 m	-	41
Pol1	Card or History	86.2	12-23 m	2612	41
Pol1	History	45.9	12-23 m	-	41
Pol3	C or H <12 months	62	12-23 m	2612	41
Pol3	Card	37	12-23 m	-	41
Pol3	Card or History	64.8	12-23 m	2612	41
Pol3	History	27.8	12-23 m	-	41

2005 Sudan Household Health Survey 2006

Vaccine	Confirmation method	Coverage	Age cohort	Sample	Cards seen
BCG	C or H <12 months	72.9	12-23 m	1165621	35
BCG	Card	32.4	12-23 m	1165621	35
BCG	Card or History	74.9	12-23 m	1165621	35
BCG	History	42.5	12-23 m	1165621	35
DTP1	C or H <12 months	71.2	12-23 m	1165621	35
DTP1	Card	33.4	12-23 m	1165621	35
DTP1	Card or History	74.1	12-23 m	1165621	35
DTP1	History	40.7	12-23 m	1165621	35
DTP3	C or H <12 months	52.9	12-23 m	1165621	35
DTP3	Card	30	12-23 m	1165621	35

DTP3	Card or History	54.8	12-23 m	1165621	35
DTP3	History	24.7	12-23 m	1165621	35
MCV1	C or H <12 months	59.3	12-23 m	1165621	35
MCV1	Card	28.5	12-23 m	1165621	35
MCV1	Card or History	66.4	12-23 m	1165621	35
MCV1	History	37.9	12-23 m	1165621	35
Pol1	C or H <12 months	79.7	12-23 m	1165621	35
Pol1	Card	33.4	12-23 m	1165621	35
Pol1	Card or History	82.7	12-23 m	1165621	35
Pol1	History	49.3	12-23 m	1165621	35
Pol3	C or H <12 months	59.5	12-23 m	1165621	35
Pol3	Card	29.4	12-23 m	1165621	35
Pol3	Card or History	61.9	12-23 m	1165621	35
Pol3	History	32.5	12-23 m	1165621	35

1999 Sudan Multiple Indicator Cluster Survey 2001

Vaccine	Confirmation method	Coverage	Age cohort	Sample	Cards seen
BCG	C or H <12 months	65	12-23 m	3720	27
BCG	Card	24.7	12-23 m	3720	27
BCG	Card or history	66.2	12-23 m	3720	27
BCG	History	41.5	12-23 m	3720	27
DTP1	C or H <12 months	64.7	12-23 m	3720	27
DTP1	Card	24.3	12-23 m	3720	27
DTP1	Card or history	66.5	12-23 m	3720	27
DTP1	History	42.2	12-23 m	3720	27
DTP3	C or H <12 months	42	12-23 m	3720	27
DTP3	Card	20.1	12-23 m	3720	27
DTP3	Card or history	44.1	12-23 m	3720	27
DTP3	History	24	12-23 m	3720	27
MCV1	C or H <12 months	45.3	12-23 m	3720	27
MCV1	Card	18.3	12-23 m	3720	27
MCV1	Card or history	50.7	12-23 m	3720	27
MCV1	History	34.4	12-23 m	3720	27
Pol1	C or H <12 months	72.7	12-23 m	3720	27
Pol1	Card	21.4	12-23 m	3720	27
Pol1	Card or history	74.7	12-23 m	3720	27
Pol1	History	53.3	12-23 m	3720	27
Pol3	C or H <12 months	43.7	12-23 m	3720	27

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Pol3	Card	18.4	12-23 m	3720	27
Pol3	Card or history	47.7	12-23 m	3720	27

Pol3	History	27.3	12-23 m	3720	27
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Further information and estimates for previous years are available at:

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

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