

July 1, 2023; page 1

WHO and UNICEF estimates of national immunization coverage - next revision available July $15,\,2024$

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.

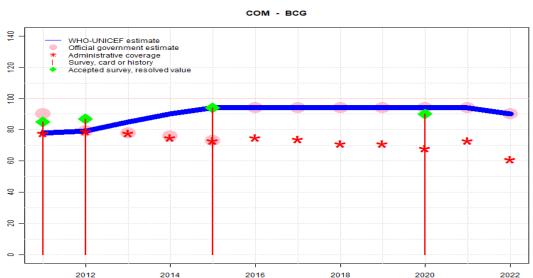
IPV1: percentage of surviving infants who received at least one dose of inactivated polio vaccine. In countries utilizing an immunization schedule recommending either (i) a primary series of three doses of oral polio vaccine (OPV) plus at least one dose of IPV where OPV is included in routine

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. Co verage estimates are based on WHO and UNICEF estimates of coverage for the dose of measles containing vaccine that corresponds to the first measles-rubella combination vaccine. Nationally reported coverage of RCV is not taken into consideration nor are the data represented in the accompanying graph and data table.
- 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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	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Estimate	78	79	85	90	94	94	94	94	94	94	94	90
Estimate GoC	•••	•••	•	•	•	•	•	•	•	•	•	•
Official	90	79	78	76	73	94	94	94	94	94	94	90
Administrative	78	79	78	75	73	75	74	71	71	68	73	61
Survey	85	87	NA	NA	94	NA	NA	NA	NA	90	NA	NA

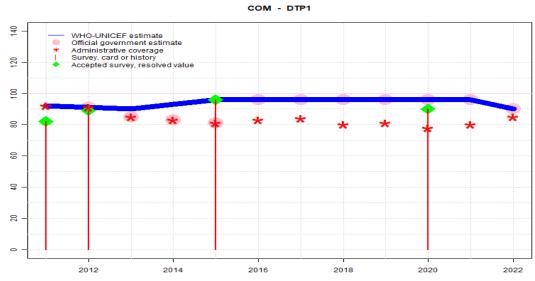
- ••• Estimate is supported by reported data [R+], coverage recalculated with an independent denominator from the World Population Prospects: 2022 revision from the UN Population Division (D+), and at least one supporting survey within 2 years [S+]. While well supported, the estimate still carries a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

- 2022: Estimate informed by reported data. WHO and UNICEF are aware of an ongoing 2022

 Multiple Indicator Cluster Survey and await the final results. Programme reports two
 months vaccine stockout at national level. Estimate challenged by: D-
- 2021: Estimate informed by reported data. Programme notes that reported official coverage is informed by results from a 2016 coverage survey. WHO and UNICEF recommend an assessment of the administrative data. Programme reports a two months vaccine stockout. Estimate of 94 percent changed from previous revision value of 96 percent. Estimate challenged by: D-
- 2020: Estimate informed by reported data supported by survey. Survey evidence of 90 percent based on 1 survey(s). Estimate of 94 percent changed from previous revision value of 91 percent. 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: . Reported official coverage levels are based on survey results. Estimate challenged by: D-
- 2015: Survey evidence does not support reported data. Estimate based on survey results. Survey evidence of 94 percent based on 1 survey(s). GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.
- 2014: Reported data calibrated to 2012 and 2015 levels. Estimate challenged by: D-R-
- 2013: Reported data calibrated to 2012 and 2015 levels. Estimate challenged by: D-R-
- 2012: Estimate informed by reported data supported by survey. Survey evidence of 87 percent based on 1 survey(s). GoC=R+S+D+
- 2011: Estimate informed by interpolation between reported data supported by survey. Survey evidence of 85 percent based on 1 survey(s). Reported data excluded due to an increase from 76 percent to 90 percent with decrease 79 percent. GoC=R+ S+ D+

Comoros - DTP1



	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Estimate	92	91	90	93	96	96	96	96	96	96	96	90
Estimate GoC	•••	•••	•	•	•	•	•	•	•	•	•	•
Official	NA	91	85	83	81	96	96	96	96	96	96	90
Administrative	92	91	85	83	81	83	84	80	81	78	80	85
Survey	82	89	NA	NA	96	NA	NA	NA	NA	90	NA	NA

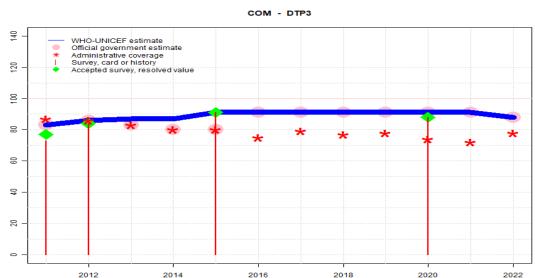
The WHO and UNICEF estimates of national immunization coverage (wuenic) are based on data and information that are of varying, and, in some instances, unknown quality. Beginning with the 2011 revision we describe the grade of confidence (GoC) we have in these estimates. As there is no underlying probability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

- 2022: Estimate informed by reported data. WHO and UNICEF are aware of an ongoing 2022

 Multiple Indicator Cluster Survey and await the final results. Estimate challenged by:
 D-
- 2021: Estimate informed by reported data. Programme notes that reported official coverage is informed by results from a 2016 coverage survey. WHO and UNICEF recommend an assessment of the administrative data. Estimate of 96 percent changed from previous revision value of 95 percent. Estimate challenged by: D-
- 2020: Estimate informed by reported data supported by survey. Survey evidence of 90 percent based on 1 survey(s). Programme reports three months vaccine stockout at national level. Estimate of 96 percent changed from previous revision value of 93 percent. 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: . Reported official coverage levels are based on survey results. Estimate challenged by: D-
- 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: Reported data calibrated to 2012 and 2015 levels. Estimate challenged by: D-R-
- 2013: Reported data calibrated to 2012 and 2015 levels. Estimate challenged by: D-R-
- 2012: Estimate informed by reported data supported by survey. Survey evidence of 89 percent based on 1 survey(s). GoC=R+S+D+
- 2011: Estimate informed by reported administrative data supported by survey. Survey evidence of 82 percent based on 1 survey(s). GoC=R+S+D+



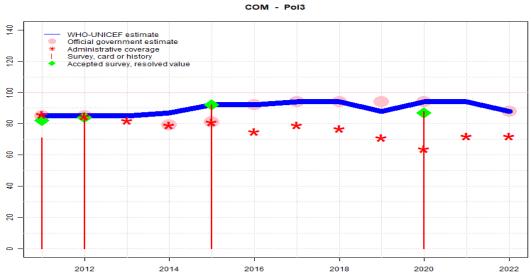
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Estimate	83	86	87	87	91	91	91	91	91	91	91	88
Estimate GoC	•••	•••	•	•	•	•	•	•	•••	•	•	•
Official	83	86	83	80	80	91	91	91	91	91	91	88
Administrative	87	86	83	80	80	75	79	77	78	74	72	78
Survey	73	84	NA	NA	91	NA	NA	NA	NA	88	NA	NA

- ••• 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.

- 2022: Estimate informed by reported data. WHO and UNICEF are aware of an ongoing 2022

 Multiple Indicator Cluster Survey and await the final results. Estimate challenged by:
 D-
- 2021: Estimate informed by reported data. Programme notes that reported official coverage is informed by results from a 2016 coverage survey. WHO and UNICEF recommend an assessment of the administrative data. Estimate of 91 percent changed from previous revision value of 85 percent. Estimate challenged by: D-
- 2020: Estimate informed by reported data supported by survey. Survey evidence of 88 percent based on 1 survey(s). Programme reports three months vaccine stockout at national level. Estimate of 91 percent changed from previous revision value of 87 percent. Estimate challenged by: D-
- 2019: Estimate informed by reported data. GoC=R+S+D+
- 2018: Estimate informed by reported data. Estimate challenged by: D-
- 2017: Estimate informed by reported data. Estimate challenged by: D-
- 2016: . Reported official coverage levels are based on survey results. Estimate challenged by: D-
- 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: D-R-
- 2014: Reported data calibrated to 2012 and 2015 levels. Estimate challenged by: D-R-
- 2013: Reported data calibrated to 2012 and 2015 levels. Estimate challenged by: D-R-
- 2012: Estimate informed by reported data supported by survey. Survey evidence of 84 percent based on 1 survey(s). GoC=R+S+D+
- 2011: Estimate informed by reported data supported by survey. Survey evidence of 77 percent based on 1 survey(s). Comoros Demographic and Health and Multiple Indicator Survey 2012 card or history results of 73 percent modified for recall bias to 77 percent based on 1st dose card or history coverage of 82 percent, 1st dose card only coverage of 69 percent and 3rd dose card only coverage of 65 percent. GoC=R+ S+ D+

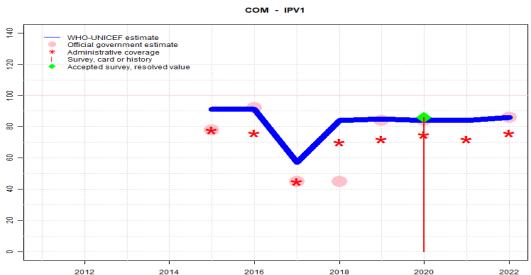


	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Estimate	85	85	85	87	92	92	94	94	88	94	94	88
Estimate GoC	•••	•••	•	•	•	•	•	•	•	•	•	•
Official	85	85	NA	79	81	92	94	94	94	94	NA	88
Administrative	86	85	82	79	81	75	79	77	71	64	72	72
Survey	71	84	NA	NA	92	NA	NA	NA	NA	88	NA	NA

- ••• 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.

- 2022: Estimate informed by reported coverage Reported data excluded due to sudden change in coverage from 72 level to 88 percent. WHO and UNICEF are aware of an ongoing 2022 Multiple Indicator Cluster Survey and await the final results. Programme reports two months vaccine stockout at national level. Estimate challenged by: D-R-
- 2021: Estimate based on extrapolation from data reported by national government. Reported data excluded due to decline in reported coverage from 94 percent to 72 percent with increase to 88 percent. Programme notes that reported official coverage is informed by results from a 2016 coverage survey. WHO and UNICEF recommend an assessment of the administrative data. Estimate of 94 percent changed from previous revision value of 89 percent. Estimate challenged by: D-
- 2020: Estimate informed by reported data supported by survey. Survey evidence of 87 percent based on 1 survey(s). Comoros Routine Immunization Coverage Survey Report, 2022 card or history results of 88 percent modified for recall bias to 87 percent based on 1st dose card or history coverage of 90 percent, 1st dose card only coverage of 79 percent and 3rd dose card only coverage of 76 percent. Estimate of 94 percent changed from previous revision value of 81 percent. Estimate challenged by: D-
- 2019: Estimate reflects trends in reported administrative data. Programme reports three months vaccine stockout at national and district levels. Estimate challenged by: D-R-
- 2018: Estimate informed by reported data. Estimate challenged by: D-
- 2017: Estimate informed by reported data. Estimate challenged by: D-
- 2016: Reported official coverage levels are based on survey results. Estimate challenged by: D-
- 2015: Survey evidence does not support reported data. Estimate based on survey results. Survey evidence of 92 percent based on 1 survey(s). Estimate challenged by: D-R-
- 2014: Reported data calibrated to 2012 and 2015 levels. Estimate challenged by: D-R-
- 2013: Reported data calibrated to 2012 and 2015 levels. Estimate challenged by: R-
- 2012: Estimate informed by reported data supported by survey. Survey evidence of 84 percent based on 1 survey(s). GoC=R+S+D+
- 2011: Estimate informed by reported data supported by survey. Survey evidence of 82 percent based on 1 survey(s). Comoros Demographic and Health and Multiple Indicator Survey 2012 card or history results of 71 percent modified for recall bias to 82 percent based on 1st dose card or history coverage of 87 percent, 1st dose card only coverage of 72 percent and 3rd dose card only coverage of 68 percent. GoC=R+S+D+

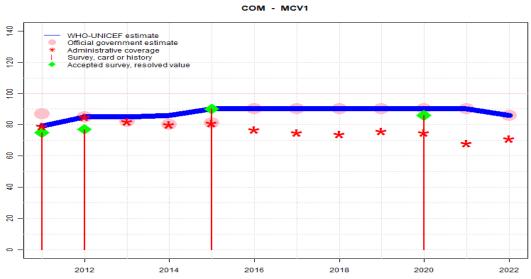


	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Estimate	NA	NA	NA	NA	91	91	57	84	85	84	84	86
Estimate GoC	NA	NA	NA	NA	•	•	•	•	•	•••	•	•
Official	NA	NA	NA	NA	78	92	45	45	84	84	NA	86
Administrative	NA	NA	NA	NA	78	76	45	70	72	75	72	76
Survey	NA	86	NA	NA								

- ••• 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.

- 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).
- 2022: Estimate informed by reported data. Reported data excluded due to sudden change in coverage from 72 level to 86 percent. WHO and UNICEF are aware of an ongoing 2022 Multiple Indicator Cluster Survey and await the final results. Estimate challenged by: D-R-
- 2021: Estimate based on extrapolation from data reported by national government. Reported data excluded due to decline in reported coverage from 84 percent to 72 percent with increase to 86 percent. Programme notes that reported official coverage is informed by results from a 2016 coverage survey. WHO and UNICEF recommend an assessment of the administrative data. Estimate challenged by: D-
- 2020: Estimate informed by reported data supported by survey. Survey evidence of 86 percent based on 1 survey(s). Estimate of 84 percent changed from previous revision value of 87 percent. GoC=R+S+D+
- 2019: Estimate of 85 percent assigned by working group. Estimate based on estimated DTP3 coverage adjusted for the difference in reported administrative coverage between DTP3 and IPV1. Estimate challenged by: D-R-
- 2018: Estimate of 84 percent assigned by working group. Estimate based on estimated DTP3 coverage adjusted for the difference in reported administrative coverage between DTP3 and IPV1. Estimate challenged by: D-R-
- 2017: Estimate based on the relation between DTP3 reported and estimate. Programme reports a nine-month vaccine stockout. Estimate challenged by: D-R-
- 2016: Estimate of 91 percent assigned by working group. Estimate is based on estimated DTP3 coverage level. Reported data excluded due to an increase from 78 percent to 92 percent with decrease 45 percent. Reported official coverage levels are based on survey results. Estimate challenged by: D-R-
- 2015: Estimate of 91 percent assigned by working group. Estimate is based on estimated DTP3 coverage level. Inactivated polio vaccine introduced during January 2015. Estimate challenged by: D-R-



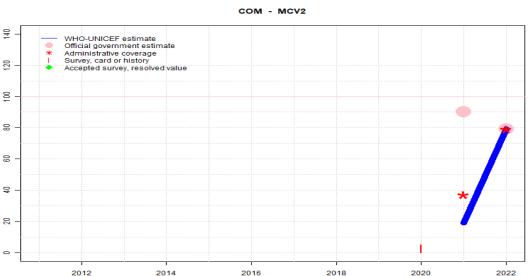
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Estimate	79	85	85	86	90	90	90	90	90	90	90	86
Estimate GoC	•••	•••	•	•	•	•	•	•	•	•	•	•
Official	87	85	82	80	81	90	90	90	90	90	90	86
Administrative	79	85	82	80	81	77	75	74	76	75	68	71
Survey	75	77	NA	NA	90	NA	NA	NA	NA	86	NA	NA

- ••• 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.

- 2022: Estimate informed by reported data. WHO and UNICEF are aware of an ongoing 2022

 Multiple Indicator Cluster Survey and await the final results. Estimate challenged by:
 D-
- 2021: Estimate informed by reported data. Programme notes that reported official coverage is informed by results from a 2016 coverage survey. WHO and UNICEF recommend an assessment of the administrative data. Estimate of 90 percent changed from previous revision value of 82 percent. Estimate challenged by: D-
- 2020: Estimate informed by reported data supported by survey. Survey evidence of 86 percent based on 1 survey(s). Estimate of 90 percent changed from previous revision value of 89 percent. Estimate challenged by: D-
- 2019: Estimate informed by reported data. Estimate challenged by: D-
- 2018: Estimate informed by reported data. Programme reports three months vaccine stockout at the national level. Estimate challenged by: D-
- 2017: Estimate informed by reported data. Estimate challenged by: D-
- 2016: . Reported official coverage levels are based on survey results. Estimate challenged by: D-
- 2015: Estimate of 90 percent assigned by working group. Estimate is based on survey results consistent with observed survey results for other vaccines which confirmed reported coverage. Estimate challenged by: D-R-
- 2014: Reported data calibrated to 2012 and 2015 levels. Estimate challenged by: D-R-
- 2013: Reported data calibrated to 2012 and 2015 levels. Estimate challenged by: R-
- 2012: Estimate informed by reported data supported by survey. Survey evidence of 77 percent based on 1 survey(s). GoC=R+S+D+
- 2011: Estimate informed by reported administrative data supported by survey. Survey evidence of 75 percent based on 1 survey(s). No explanation provided for adjustment of official coverage from administrative. GoC=R+ S+ D+



	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Estimate	NA	19	79									
Estimate GoC	NA	•	••									
Official	NA	90	79									
Administrative	NA	37	79									
Survey	NA	5	NA	NA								

- ••• 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.

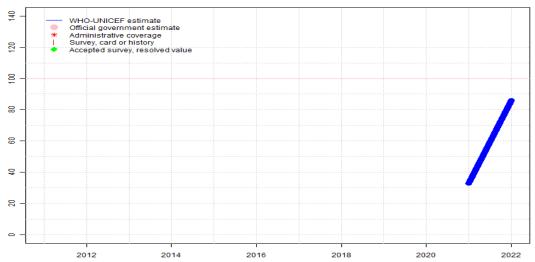
Description:

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

2022: Estimate informed by reported data. WHO and UNICEF are aware of an ongoing 2022 Multiple Indicator Cluster Survey and await the final results. Estimate informed by reported data during introduction GoC=R+D+

2021: Second measles-containing vaccine dose at 18 months of age introduced in 2021. Coverage of 37 percent among fifty percent of the national annual target population. Estimated coverage is calculated for the entire cohort of infants. Programme notes that reported official coverage is informed by results from a 2016 coverage survey. WHO and UNICEF recommend an assessment of the administrative data. Estimate challenged by: R-





	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Estimate	NA	33	86									
Estimate GoC	NA	•	•									
Official	NA											
Administrative	NA											
Survey	NA											

- ••• 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:

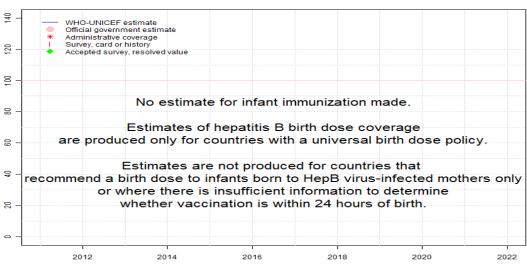
For this revision, coverage estimates for the first dose of rubella containing vaccine are based on WHO and UNICEF estimates of coverage of measles containing vaccine. Nationally reported coverage of rubella containing vaccine is not taken into consideration nor are they represented in the the accompanying graph and data table.

2022: Estimate based on estimated MCV1. WHO and UNICEF are aware of an ongoing 2022

Multiple Indicator Cluster Survey and await the final results. Estimate challenged by:
D-

2021: Rubella containing vaccine introduced during June 2021 as measles-rubella combination vaccine. Programme reports 66 percent coverage achieved in 50 percent of the target population. Estimate is based on annualized coverage for the national target population during the year of introduction. Programme notes that reported official coverage is informed by results from a 2016 coverage survey. WHO and UNICEF recommend an assessment of the administrative data. Estimate challenged by: D-



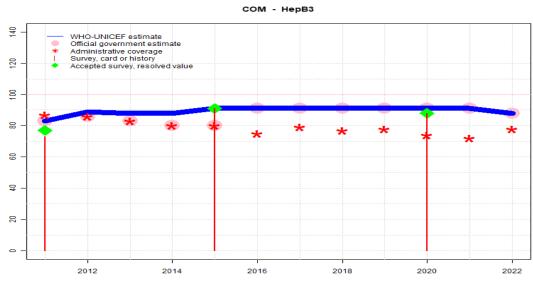


	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Estimate	NA											
Estimate GoC	NA											
Official	NA											
Administrative	NA											
Survey	NA											

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

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

Comoros - HepB3



	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Estimate	83	89	88	88	91	91	91	91	91	91	91	88
Estimate GoC	•••	•	•	•	•	•	•	•	•••	•	•	•
Official	83	86	83	80	80	91	91	91	91	91	91	88
Administrative	87	86	83	80	80	75	79	77	78	74	72	78
Survey	73	NA	NA	NA	91	NA	NA	NA	NA	88	NA	NA

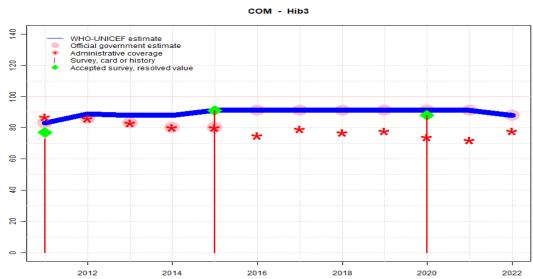
The WHO and UNICEF estimates of national immunization coverage (wuenic) are based on data and information that are of varying, and, in some instances, unknown quality. Beginning with the 2011 revision we describe the grade of confidence (GoC) we have in these estimates. As there is no underlying probability 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.
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In all cases these estimates should be used with caution and should be assessed in light of the objective for which they are being used.

- 2022: Estimate informed by reported data. WHO and UNICEF are aware of an ongoing 2022

 Multiple Indicator Cluster Survey and await the final results. Estimate challenged by:
 D-
- 2021: Estimate informed by reported data. Programme notes that reported official coverage is informed by results from a 2016 coverage survey. WHO and UNICEF recommend an assessment of the administrative data. Estimate of 91 percent changed from previous revision value of 85 percent. Estimate challenged by: D-
- 2020: Estimate informed by reported data supported by survey. Survey evidence of 88 percent based on 1 survey(s). Programme reports three months vaccine stockout at national level. Estimate of 91 percent changed from previous revision value of 87 percent. Estimate challenged by: D-
- 2019: Estimate informed by reported data. GoC=R+S+D+
- 2018: Estimate informed by reported data. Estimate challenged by: D-
- 2017: Estimate informed by reported data. Estimate challenged by: D-
- 2016: . Reported official coverage levels are based on survey results. Estimate challenged by: D-
- 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: D-R-
- 2014: Reported data calibrated to 2011 and 2015 levels. Estimate challenged by: D-R-
- 2013: Reported data calibrated to 2011 and 2015 levels. Estimate challenged by: D-R-S-
- 2012: Reported data calibrated to 2011 and 2015 levels. Estimate challenged by: D-R-S-
- 2011: Estimate informed by reported data supported by survey. Survey evidence of 77 percent based on 1 survey(s). Comoros Demographic and Health and Multiple Indicator Survey 2012 card or history results of 73 percent modified for recall bias to 77 percent based on 1st dose card or history coverage of 82 percent, 1st dose card only coverage of 69 percent and 3rd dose card only coverage of 65 percent. GoC=R+S+D+



	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Estimate	83	89	88	88	91	91	91	91	91	91	91	88
Estimate GoC	•••	•	•	•	•	•	•	•	•••	•	•	•
Official	83	86	83	80	80	91	91	91	91	91	91	88
Administrative	87	86	83	80	80	75	79	77	78	74	72	78
Survey	73	NA	NA	NA	91	NA	NA	NA	NA	88	NA	NA

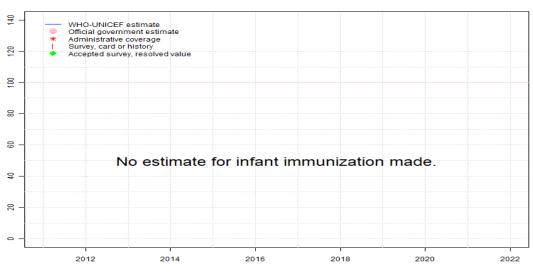
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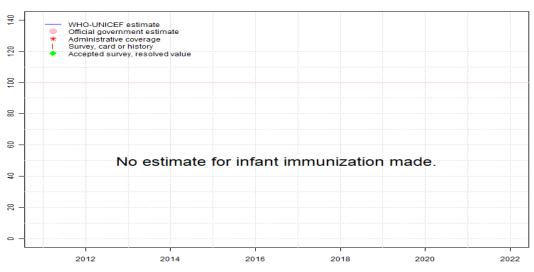


	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Estimate	NA											
Estimate GoC	NA											
Official	NA											
Administrative	NA											
Survey	NA											

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





	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Estimate	NA											
Estimate GoC	NA											
Official	NA											
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- There are no directly supporting data; or data from at least one source; [R-], [D-], [S-]; challenge the estimate.

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

NOTE: A survey to measure vaccination coverage for infants (i.e., children aged 0 to 11 months) will sample children aged 12 to 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 to 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.

2020 Rapport de l'enquête de couverture vaccinale de routine des Comores 2022

Vaccine	Confirmation method	Coverage	Age cohort	Sample	Cards seen
BCG	Card	79.3	$12\text{-}23~\mathrm{m}$	714	80
BCG	Card or History	90.3	$12\text{-}23~\mathrm{m}$	714	80
BCG	History	11.1	$12\text{-}23~\mathrm{m}$	714	80
DTP1	Card	78.9	$12\text{-}23~\mathrm{m}$	714	80
DTP1	Card or History	90.1	$12\text{-}23~\mathrm{m}$	714	80
DTP1	History	11.2	$12\text{-}23~\mathrm{m}$	714	80
DTP3	Card	76.6	$12\text{-}23~\mathrm{m}$	714	80
DTP3	Card or History	88.1	12-23 m	714	80
DTP3	History	11.5	12-23 m	714	80
HepB1	Card	78.9	$12\text{-}23~\mathrm{m}$	714	80
HepB1	Card or History	90.1	12-23 m	714	80
HepB1	History	11.2	12-23 m	714	80
HepB3	Card	76.6	$12\text{-}23~\mathrm{m}$	714	80
HepB3	Card or History	88.1	12-23 m	714	80
HepB3	History	11.5	12-23 m	714	80
Hib1	Card	78.9	$12-23 \mathrm{m}$	714	80
Hib1	Card or History	90.1	$12-23 \mathrm{m}$	714	80
Hib1	History	11.2	$12-23 \mathrm{m}$	714	80
Hib3	Card	76.6	$12-23 \mathrm{m}$	714	80
Hib3	Card or History	88.1	$12-23 \mathrm{m}$	714	80
Hib3	History	11.5	12-23 m	714	80
IPV1	Card	74.9	12-23 m	714	80
IPV1	Card or History	85.9	12-23 m	714	80

IPV1	History	10.9	12-23 m	714	80
	v				
MCV1	Card	78	12-23 m	714	80
MCV1	Card or History	85.6	12-23 m	714	80
MCV1	History	7.6	$12\text{-}23~\mathrm{m}$	714	80
MCV2	Card	4.3	$12\text{-}23~\mathrm{m}$	714	80
MCV2	Card or History	5.4	$12\text{-}23~\mathrm{m}$	714	80
MCV2	History	1.1	12-23 m	714	80
Pol1	Card	78.9	$12-23 \mathrm{m}$	714	80
Pol1	Card or History	90.2	$12\text{-}23~\mathrm{m}$	714	80
Pol1	History	11.3	$12\text{-}23~\mathrm{m}$	714	80
Pol3	Card	76.1	$12-23 \mathrm{m}$	714	80
Pol3	Card or History	87.5	12-23 m	714	80
Pol3	History	11.5	$12\text{-}23~\mathrm{m}$	714	80

2015 Enquete de Couverture Vaccinale Post Campagne de la Rougeole et de la Vaccination de Routine en Union des Comores 2016

Vaccine	Confirmation method	Coverage	Age cohort	Sample	Cards seen
BCG	Card or History	93.7	$12\text{-}23~\mathrm{m}$	669	80
DTP1	Card or History	96.1	$12\text{-}23~\mathrm{m}$	669	80
DTP3	Card or History	91	$12\text{-}23~\mathrm{m}$	669	80
HepB1	Card or History	96.1	$12\text{-}23~\mathrm{m}$	669	80
HepB3	Card or History	91	$12\text{-}23~\mathrm{m}$	669	80
Hib1	Card or History	96.1	$12\text{-}23~\mathrm{m}$	669	80
Hib3	Card or History	91	$12\text{-}23~\mathrm{m}$	669	80
MCV1	Card or History	90.1	$12\text{-}23~\mathrm{m}$	669	80
Pol3	Card or History	91.6	$12\text{-}23~\mathrm{m}$	669	80

2012 Enquête de la Couverture Vaccinale Post Campagne de Rougeole et de la Vaccination de Routine dans l'Union des Comores

Vaccine	Confirmation method	Coverage	Age cohort	Sample	Cards seen
BCG	Card or History	87.2	$12\text{-}23~\mathrm{m}$	750	75
DTP1	Card or History	88.7	$12\text{-}23~\mathrm{m}$	750	75
DTP3	Card or History	83.7	$12\text{-}23~\mathrm{m}$	750	75
MCV1	Card or History	77.2	$12\text{-}23~\mathrm{m}$	750	75
Pol1	Card or History	83.9	12-23 m	750	75

D 10	C 1 III.	09.5	10.00	750	75	D 11	C 1	70.0	10.00	400	70
Pol3	Card or History	83.5	12-23 m	750	75	Pol1	Card	72.3	12-23 m	480	73
						Pol1	Card or History	86.7	12-23 m	660	73
2011 Uı	nion des Comores E	nauête	Démograp	hique e	et de Santé et à Indica-	Pol1	History	14.4	12-23 m	180	73
	eurs Multiples 2012	1				Pol3	C or H <12 months	69.4	12-23 m	660	73
00	ans munipies 2012					Pol3	Card	67.8	12-23 m	480	73
						Pol3	Card or History	71	12-23 m	660	73
	Confirmation method					Pol3	History	3.2	$12-23 \mathrm{m}$	180	73
BCG	C or H < 12 months	84.6	12-23 m	660	73						
BCG	Card	69.5	12-23 m	480	73	2009 En	auête de couverture	vaccina	ale en Unic	n des (Comores (Octobre 2010)
BCG	Card or History	85.4	12-23 m	660	73	2000 En	iqueto de couvertais	vaccine		n deb c	comores (octobre 2010)
BCG	History	15.9	12-23 m	180	73						
DTP1	C or H < 12 months	80.6	$12\text{-}23~\mathrm{m}$	660	73		Confirmation method				
DTP1	Card	69.1	$12\text{-}23~\mathrm{m}$	480	73	BCG	Card or History	87	12-23 m	325	63
DTP1	Card or History	82.2	$12\text{-}23 \mathrm{\ m}$	660	73	DTP1	Card or History	84	12-23 m	325	63
DTP1	History	13.1	$12\text{-}23~\mathrm{m}$	180	73	DTP3	Card or History	80	12-23 m	325	63
DTP3	C or H $<$ 12 months	71.2	$12\text{-}23~\mathrm{m}$	660	73	HepB1	Card or History	84	12-23 m	325	63
DTP3	Card	65.1	12-23 m	480	73	HepB3	Card or History	80	12-23 m	325	63
DTP3	Card or History	72.7	12-23 m	660	73	MCV1	Card or History	67	12-23 m	325	63
DTP3	History	7.6	12-23 m	180	73	Pol1	Card or History	82	$12\text{-}23~\mathrm{m}$	325	63
HepB1	C or \dot{H} <12 months	80.6	12-23 m	660	73	Pol3	Card or History	80	12-23 m	325	63
HepB1	Card	69.1	$12\text{-}23~\mathrm{m}$	480	73						
HepB1	Card or History	82.2	12-23 m	660	73	2006 E-	anîta da sammetin		nala an II	nion d	og Comonog (Novembro
HepB1	History	13.1	12-23 m	180	73		•	re vacci	naie en U	mon de	es Comores (Novembre
HepB3	C or $H < 12$ months	71.2	12-23 m	660	73	20	007)				
HepB3	Card	65.1	12-23 m	480	73						
HepB3	Card or History	72.7	12-23 m	660	73	Vaccine	Confirmation method	Coverag	e Age cohor	t Sample	e Cards seen
HepB3	History	7.6	12-23 m	180	73	BCG	Card or History	94.9	12-23 m	217	77
Hib1	C or H <12 months	80.6	12-23 m	660	73	DTP1	Card or History	92.2	12-23 m	217	77
Hib1	Card	69.1	12-23 m	480	73	DTP3	Card or History	82	12-23 m	217	77
Hib1	Card or History	82.2	12-23 m	660	73	HepB1	Card or History	92.2	12-23 m	217	77
Hib1	History	13.1	12-23 m	180	73	HepB3	Card or History	82	12-23 m	217	77
Hib3	C or H <12 months	71.2	12-23 m	660	73	MCV1	Card or History	70.5	12-23 m	217	77
Hib3	Card	65.1	12-23 m	480	73	1,10 1 1	cara or mistory	10.0	12 20 111		
Hib3	Card or History	72.7	12-23 m	660	73						
Hib3	History	7.6	12-23 m	180	73	1999 Cc	omores, Enquête à I	ndicate	urs Multip	les (MI)	(CS 2000), 2001
MCV1	C or H <12 months	63.4	12-23 m	660	73						
MCV1	Card	63	12-23 m	480	73	Vaccino	Confirmation method	Coverso	se Age cohor	t Sample	e Cards seen
MCV1	Card or History	75.3	12-23 m 12-23 m	660	73 73	BCG	Card or History	79.1	12-23 m	956	71
MCV1	History	12.2	12-23 m 12-23 m	180	73	DTP1	Card or History	79.1 73	12-23 m 12-23 m	956	71
Pol1	C or H <12 months	85.5	12-23 m 12-23 m	660	73	DTP3	Card or History	70	12-23 m 12-23 m	956	71 71
L011	O OI II < 12 IIIOIIIIIS	00.0	12-23 III	000	10	D113	Card or mistory	10	14-49 III	990	11

MCV1	Card or History	72.9	$12\text{-}23~\mathrm{m}$	956	71	Pol3	Card or History	70.4	$12\text{-}23~\mathrm{m}$	956	71
Pol1	Card or History	74.6	$12\text{-}23~\mathrm{m}$	956	71						

Further information and estimates for previous years are available at:

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

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