WHO UNICEF Immunization Coverage Estimates 2024 revision

(*released 15 July 2025*)

The WHO and UNICEF estimates of national immunization coverage aim to describe the performance of routine childhood immunization programmes. Estimates are based on data and information available to WHO and UNICEF as of 25 June 2025.

The data are available from WHO (https://immunizationdata.who.int/) and UNICEF (https://data.unicef.org/topic/child-health/immunization/) web sites. Interactive country profiles can be found here: https://worldhealthorg.shinyapps.io/wuenic-trends.

An explanation how to interpret the country profiles is also available: https://www.who.int/publications/m/item/guide-how-to-read-a-country.

METHODOLOGY

Each year WHO and UNICEF jointly review reports submitted by Member States to both agencies—mainly through the Joint Reporting Form on Immunization (eJRF) for annual data collection—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 for each year since 1980.

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 (or extrapolated) 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.

Following disruptions in immunization system performance data collection during 2020–2021 due to the COVID-19 pandemic, response levels from countries improved,

with 191 of 195 reports from WHO/UNICEF Member States received; 189 with coverage data (representing 96% of the global birth cohort), as of 25 June 2025. For countries that did not report data by 25 June 2025, estimates for 2024 reflect an extrapolation from the prior year's coverage data.

WHO and UNICEF estimates are produced for the following vaccine-dose combinations from 1980 through the present revision as shown in the table below. Further details on the addition of new vaccines provided elsewhere in this document.

Time-Series Available	Vaccine-dose combinations for which estimates are produced	
	Number	Vaccine-dose
1980–2024	6	BCG, DTP1, DTP3, MCV1, POL3, RCV1
1985–2024	7	… + HEPB3
1990–2024	8	… … + HIB3
1997–2024	9	… … … + YFV
2000–2024	11	… … … … + HEPBB + MCV2
2006–2024	12	… … … … … + ROTAC
2008–2024	13	… … … … … … + PCV3
2015–2024	14	… … … … … … … + IPV1
2016–2024	15	… … … … … … … … + MENG-A
2021–2024	16	… … … … … … … … …+ IPV2

BCG, BACILLE CALMETTE-GUÉRIN; DTP, DIPHTHERIA-TETANUS-PERTUSSIS CONTAINING VACCINE; MCV, MEASLES CONTAINING VACCINE; POL, POLIO; RCV, RUBELLA CONTAINING VACCINE; HEPB, HEPATITIS B CONTAINING VACCINE; HIB, HAEMOPHILUS INFLUENZAE TYPE B CONTAINING VACCINE; YFV, YELLOW FEVER VACCINE; HEPBB, HEPATITIS B BIRTH DOSE; ROTAC, ROTAVIRUS VACCINE LAST DOSE; PCV, PNEUMOCOCCAL CONJUGATE VACCINE; IPV, INACTIVATED POLIO VACCINE; MENGA, MENINGOCOCCAL A CONJUGATE VACCINE

A detailed explanation of the estimation methods is provided in following four publications:

Burton A, Monasch R, Lautenbach B, Gacic-Dobo M, Neill M, Karimov R, Wolfson L, Jones G, Birmingham M. WHO and UNICEF estimates of national infant immunization coverage: methods and processes. Bull World Health Organ. 2009;87(7):535-41.

Burton A, Kowalski R, Gacic-Dobo M, Karimov R, Brown D. A Formal Representation of the WHO and UNICEF Estimates of National Immunization Coverage: A Computational Logic Approach. PLoS ONE 2012;7(10): e47806. doi:10.1371/journal.pone.0047806

Brown D, Burton A, Gacic-Dobo M, Karimov R An Introduction to the Grade of Confidence in the WHO and UNICEF Estimates of National Immunization Coverage The Open Public Health Journal, 2013, 6, 73-76

Danovaro-Holliday MC, Gacic-Dobo M, Diallo MS, Murphy P, Brown DW.

Compliance of WHO and UNICEF estimates of national immunization coverage (WUENIC) with Guidelines for Accurate and Transparent Health Estimates Reporting (GATHER) criteria. Gates Open Res. 2021;5:77. doi: 10.12688/gatesopenres.13258.1. eCollection 2021

Coverage estimates for global, regional and other country groupings

Aggregated estimates by global, regional and other country groupings are weighted WUENIC estimates based on population estimates provided by the United Nations Population Division (UNPD):

- BCG and HepBB: Live births
- MCV2: Estimated number of children aged 2 when the dose is recommended in the second year of life, or on the estimated denominator of the minimum age at which MCV2 is recommended (for example if recommended between 4-6 years of age, the estimated population of children aged 4 is used to weight the MCV2 contribution of that country)
- All other antigens: Surviving infants

The population estimate time-series data are published by the UNPD every two years as part of the World Population Prospects (WPP) with a release date usually taking place during June/July. The current WUENIC release uses the WPP 2024 revision.

All countries are included in global and regional calculations. Countries for which a WUENIC estimate is not produced (usually because the vaccine has not been introduced or reporting has not started) are included in the calculation using a value of zero for the estimate. There are three exceptions to this:

- BCG: Includes countries that recommend BCG universally in the first year of life (usually at birth)
- IPV1 and IPV2: Includes countries that have at least one oral polio vaccine (OPV) dose in their schedule
- Yellow Fever (YFV): Includes countries that are in the list of countries at risk of yellow fever for the calendar year in question. The list is annually updated and can be found here: https://iris.who.int/bitstream/handle/10665/272408/9789241513661-eng.pdf?ua=
- Meningococcal A conjugate vaccine (MengA): Includes 26 countries that are located in the meningitis belt of sub-Saharan Africa. This list can be found here: https://www.who.int/publications/i/item/9789241516860

Calculation of number of un- and under-vaccinated children

The estimated numbers of un- and under-vaccinated children provide a regional and global approximation to call attention to countries with large numbers of unprotected children, including those with high vaccination coverage and large birth cohorts.

The number of infants who are un- and under-vaccinated are estimated by country, region and globally by applying WUENIC coverage to the target population from the latest available release of the UN population estimates.

The term “zero-dose children” refers to those who have not received any dose of DTP-containing vaccine, as per the IA20230 Monitoring and Evaluation Framework[1]

For example, the calculation of zero-dose prevalence is as follows:

- 100 - WUENIC for DTP1 = Zero-dose prevalence

This is then applied to the target population to derive the number of zero-dose children:

- (Zero-dose prevalence / 100) x UN estimates of surviving infants = # zero-dose children

The numbers of zero-dose children are reported rounded to the nearest thousand.

Caution: Estimates does not correct retrospectively for any catch-up doses therefore coverage for the cohorts might be underestimated, thus the number of un and under vaccinated for years begore 2024 might have declined.
Exceptionally, estimates were revised for the Democratic People’s Republic of Korea. PRK was able to track birth cohorts missed due to vaccine shortages, and when vaccines were received they vaccinated missed cohorts and updated the reported official data. In 2025, in addition to data for 2024, the country provided revised data for 2023, 2022 and 2021. Thus, their estimates are based on reported data, exceptionally including late vaccination.

Disclaimer

All reasonable precautions have been taken by the World Health Organization and United Nations Children's Fund to verify the information contained in the WUENIC. However, the WUENIC are distributed without warranty of any kind, either expressed or implied. The responsibility for the interpretation and use of the material lies with the reader. In no event shall the World Health Organization or United Nations Children's Fund be liable for damages arising from its use.

Vaccine-dose estimated coverage values should be interpreted alongside the descriptive text that accompanies each data point.

VACCINES RECENTLY ADDED TO THE ESTIMATION PRODUCTION CYCLE

The number of vaccine-dose combinations added since the first release of the WHO and UNICEF estimates of national immunization coverage is shown below with detailed notes in the following sections.

[1] https://www.immunizationagenda2030.org/images/documents/IA2030_Annex_FrameworkForActionv04.pdf

Summary table of the evolution vaccine-dose combination for which WHO and UNICEF estimates are produced

1999	2005	2010	2014	2016	2017	2023
BCG	BCG	BCG	BCG	BCG	BCG	BCG
DTP3	DTP3	DTP3	DTP3	DTP3	DTP3	DTP3
POLIO3	POLIO3	POLIO3	POLIO3	POLIO3	POLIO3	POLIO3
MCV1	MCV1	MCV1	MCV1	MCV1	MCV1	MCV1
HEPB3	HEPB3	HEPB3	HEPB3	HEPB3	HEPB3	HEPB3
	DTP1	DTP1	DTP1	DTP1	DTP1	DTP1
	HIB3	HIB3	HIB3	HIB3	HIB3	HIB3
		PCV3	PCV3	PCV3	PCV3	PCV3
		ROTA (LAST)	ROTA (LAST)	ROTA (LAST)	ROTA (LAST)	ROTA (LAST)
		YFV	YFV	YFV	YFV	YFV
			MCV2	MCV2	MCV2	MCV2
			HEPBB	HEPBB	HEPBB	HEPBB
				RCV	RCV	RCV
					IPV1	IPV1
						IPV2
						MENG-A
(5)	(7)	(10)	(12)	(13)	(14)	(16)

Second dose of measles containing vaccine

Beginning with the 2013 revision (completed in July 2014), WHO and UNICEF produce coverage estimates for the **second dose of measles containing vaccine** (MCV2) from 2000 onwards for countries where a second dose is recommended in the national immunization schedule for universal use and where empirical data are available for at least one year since introduction in the schedule. In the 2024 Revision, MCV2 estimates are produced for 191 WHO/UNICEF Member States.

Coverage estimates for MCV2 are produced for the age cohort according to the administration recommended in national immunization schedule of each country. Global and regional coverage estimates are produced for vaccinations by the nationally recommended age. Currently, much of the information available is nationally reported coverage, as relatively few countries have included MCV2 in nationally representative coverage surveys. 132 of the 191 countries for which MCV2 estimates are produced include this dose in the second year of life.

Hepatitis B birth dose

Beginning with the 2013 revision (completed in July 2014), WHO and UNICEF produce coverage estimates for the **hepatitis B birth dose** from 2000 onwards for countries where the vaccine dose is recommended in the national immunization schedule for

universal use and where empirical data are available for at least one year since introduction in the schedule.

Hepatitis B birth dose (HepBB) estimates are produced for doses given within 24 hours after birth. WHO and UNICEF started to separate out reported coverage given in 24 hours and HepB birth dose total (doses given within and after 24 hours of birth) for performance year 2016 onwards. An assumption is made that countries who were able to distinguish birth doses from late doses as of 2016 were able to do so prior to this performance year. Currently, survey results for HepBB are scant and in many instances the surveys either do not appropriately collect or report on the strict timing for administration. Estimates are made only for countries able to distinguish doses administered within first 24 hours of life. WHO and UNICEF estimates for HepBB may well be overestimated, especially for countries with low rates of institutionalized births.

In the 2024 Revision, HepBB estimates are produced for 109 Member States.

Inactivated polio vaccine

WHO and UNICEF began producing estimates of vaccination coverage for **inactivated polio vaccine** (IPV) in 2015 following the Global Polio Eradication Initiative (GPEI) strategic plan recommendation that at least one full dose, or two fractional doses, of IPV be included in routine immunization schedules as a strategy to mitigate the potential consequences should any re-emergence of type 2 poliovirus occur following the withdrawal of Sabin type 2 strains from **oral polio vaccine** (OPV). In April 2016, the switch from trivalent OPV (tOPV) to bivalent OPV (bOPV) began, thereby removing the type 2 component from immunization programmes worldwide in order to minimize the risk of continued type 2 circulating vaccine-derived poliovirus (cVDPV) cases and vaccine associated paralytic polio (VAPP). In 2018-19, ≥1-dose of full IPV or two fractional doses were recommended by the Strategic Advisory Group of Experts on Immunization (SAGE) to induce long-lasting protection against poliomyelitis and since 2022 >=2 IPV doses are recommended for all countries[2].

Beginning with the 2015 revision (completed in July 2016), IPV1 coverage estimates were produced for countries using both IPV and OPV in their immunization programme. Beginning with the 2016 revision, IPV1 estimates are produced for all countries using IPV and reporting IPV coverage data regardless of OPV use. Estimated global and regional average coverage levels are produced **only for those countries where both OPV and IPV are included in the national immunization schedule**.

[2] https://www.who.int/teams/immunization-vaccines-and-biologicals/policies/position-papers/polio

The production of IPV1 coverage estimates results in no change on the estimated coverage levels for the third dose of polio (Pol3). For countries recommending routine immunization with a primary series of three doses of IPV alone, the WHO and UNICEF estimates of coverage for Pol3 are equivalent to estimated coverage with three doses of IPV. For countries with a sequential schedule, estimated coverage for Pol3 is based on that for the third dose of polio vaccine regardless of vaccine presentation.

During 2015-17 revisions (i.e., estimates for 2015, 2016 and 2017), estimates for IPV reflect coverage with at least one routine full dose, or two fractional doses, of IPV (IPV1) among infants <1 year of age. With the new recommendation for ≥2-doses of IPV, whether full or fractional, the interpretation of WHO and UNICEF estimates for IPV have become more complex as of the 2018 revision with regards to what the estimates reflect.

For IPV1, in the 2016 revision, WHO and UNICEF produced estimates for individual countries, but not regional or global coverage estimates given that countries were still introducing this vaccine and IPV supply was unreliable. **Beginning with the 2017 revision, WHO and UNICEF produced regional and global average coverage estimates for IPV1 for countries also using OPV.**

During 2016 and 2017 (mostly), with the occurrence of global IPV supply disruptions, some countries began implementing fractional doses of IPV. The quality of reporting for first and second fractional doses is largely unknown; however, when countries did report coverage for the first and second fractional dose, the WHO and UNICEF estimate for IPV reflects coverage for the second fractional dose. This remained the practice since the 2018 revision (completed during July 2019). However, with the new SAGE recommendations, interpretation of what IPV1 reflects as of the 2018 WUENIC revision is not straightforward. See the table below.

IPV	bOPV	Protection
1 fractional dose	≥3 doses	Primed for protection against poliovirus types 2; Protected against poliovirus types 1 and 3
≥2 fractional doses	≥3 doses	Protected against poliovirus types 1, 2 and 3
1 full dose	≥3 doses	Primed for protection against poliovirus types 2; Protected against poliovirus types 1 and 3
≥2 full doses	≥3 doses	Protected against poliovirus types 1, 2 and 3
1 fractional dose	<3 doses	Primed for protection against poliovirus types 1, 2 and 3
≥2 fractional doses	<3 doses	Primed for protection against poliovirus types 1 and 3; Protected against poliovirus type 2
≥2 full doses	<3 doses	Primed for protection against poliovirus types 1 and 3; Protected against poliovirus type 2
1 full dose	<3 doses	Primed for protection against poliovirus types 1, 2 and 3

In some instances, estimated IPV1 coverage may reflect the percentage of infants in a country who received two fractional IPV doses, in which case these children are protected against strains 1, 2 and 3 if the child has received bOPV3. In other instances, estimated IPV1 coverage may reflect the percentage of infants in a country who received one full dose of IPV, in many instances through a combination penta- or hexa-valent vaccine. Beginning with the 2023 revision (completed in July 2024), IPV2 coverage estimates were produced for countries using both IPV and OPV in their immunization programme. These estimates 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. Estimated global and regional average coverage levels are produced **only for those countries where both OPV and IPV are included in the national immunization schedule**. If a country stopped the use of OPV, IPV2 estimates are not produced starting that year. In the 2024 Revision, IPV2 estimates were produced for 57 Member States for 2021, for 77 in 2022, for 85 Member States in 2023 and for 98 in 2024.

In 2024 there were six countries with fractional IPV doses in the schedule: Bangladesh, Cuba, Ecuador, India, Nepal, and Sri Lanka.

For those using polio sequential polio schedule, with a long gap between the two fractional doses, IPV1 estimates reflects the data reported for the 1st fractional dose and IPV2 estimates reflect the 2nd fractional dose. This is the case for Cuba, Ecuador and Nepal.

For those with a short gap between the two fractional doses, namely Bangladesh, India and Sri Lanka, IPV1 estimates reflects the data reported for the 2nd fractional dose. For India, the 3rd fractional dose is the dose considered as IPV2.

CAUTIOUS INTERPRETATION OF IPV1 AND IPV2 COVERAGE ESTIMATES IS RECOMMENDED AT THIS TIME.

Meningococcal A conjugate vaccine

Beginning with the 2023 revision (completed in July 2024), WHO and UNICEF produce coverage estimates for at least one dose of **meningococcal A conjugate vaccine** (MengA) from 2016 onwards for countries where at least one dose of meningococcal A conjugate vaccine is recommended in the national infant schedule and who reported data to WHO and UNICEF. **WHO and UNICEF produce global/regional average coverage estimates for countries located in the meningitis belt of sub-**

Saharan Africa. In the 2024 Revision, MengA estimates are produced for 15 of 26 Member States in the meningitis belt.

Rubella-containing vaccine

Also beginning with the 2015 revision, WHO and UNICEF produce coverage estimates for **rubella-containing vaccine** for those countries where the vaccine is included in the national immunization schedule. Estimates are made for the entire time series from 1980. The approach taken to estimate coverage for rubella containing vaccine is as follows:

- If rubella-containing vaccine is recommended in year Y and rubella containing vaccine is administered with the *first* dose of measles-containing vaccine (MCV1), then the estimate for rubella containing vaccine for year Y is equal to the estimated coverage for MCV1 in year Y.
- If rubella-containing vaccine is recommended in year Y and rubella-containing vaccine is administered with the *second* dose of measles-containing vaccine (MCV2), then the estimate for rubella containing vaccine for year Y is equal to the estimated coverage for MCV2 in year Y.
- When a rubella combination vaccine is introduced and reported coverage represents partial year introduction, the estimate is annualized to the entire target population of the year of introduction.

Because no single antigen rubella vaccine is in use and given that estimates for rubella containing vaccine are based on estimates for either MCV1 or MCV2. Reported country coverage are displayed in the country reports from 2024 revision.

Global and regional average estimates have been produced for rubella-containing vaccine since the 2015 revision. In the 2024 Revision, RCV1 estimates are produced for 178 Member States.

Country response to the Joint Reporting Form on Immunization, 2025 (data for 2024)

Reported immunization service delivery performance data were received through the Joint Reporting Form on Immunization by 25 June 2025 from 191 of 195 WHO/UNICEF Member States; 189 included coverage data.

List of WHO and UNICEF member states with no reported coverage data submitted as of 25 June 2025.

- France
- Israel
- Luxemburg*

- Monaco*
- Türkiye
- United States of America

* eJRF reported but no coverage data provided

SUMMARY OF WUENIC VALUES FOR THE THIRD DOSE OF DTP CONTAINING VACCINE

The table below provides a summary of WUENIC for DTP3 for 2024. WUENIC was equal to the reported coverage in 2024 for over two-thirds countries (136 countries) and was equal to the prior year's estimated coverage level due to absent reported data for an additional 7 countries. WUENIC was lower than reported coverage for 44 countries and was greater than reported coverage for just eight countries.

Summary of WUENIC values for the third dose of DTP containing vaccine, 2024

WUENIC = reported coverage	**136 (70%)** countries --- **28** countries with reported data that are supported by a survey within the last 5 years (not necessarily supportive of the 2024 coverage level, however) (Burkina Faso, Cameroon, Congo, DRC (2), Equatorial Guinea, Eswatini, Gabon, Ghana, Mauritania, Nepal, Rwanda (2), Sao Tome and Prince, Senegal, Uganda, and Trinidad and Tobago) --- Canada, Jamaica, Tanzania, Thailand and the USA have recent surveys that are with 5% of their last reported value for DTP3 --- **62** countries for which there have been no surveys since 2000 (cohort year) and thus no data other than reported data on which to base WUENIC. Many if not most of these countries are high or upper middle-income countries.
WUENIC < reported coverage	44 (23%) countries; --- 21 countries with >10%-point difference, --- 9 with ≥5% and ≤10% -point difference --- 14 with < 5% -point difference
WUENIC > reported coverage	8 (4%) countries; --- 3 countries with >10%-point difference (Botswana, Philippines, Romania) --- 3 with ≥5% and ≤10% -point difference (Bangladesh, Kenya, Zambia) --- 2 with small differences <5%
WUENIC 2023 = WUENIC 2022 due to no reported 2023 DTP3 coverage data	7 (3.6%) countries (France, Israel, Luxembourg, Monaco,Nauru Türkiye, United States)

Rules for survey inclusion / exclusion

Final survey reports that were either publicly reported and available or those received from countries by the WHO and UNICEF working group prior to 25 June 2025 were included in the 2024 revision of the WUENIC, sent to countries for review and comment. If a country replied to the draft WUENIC with information on survey results

to consider, then the survey results were included in the final report if the survey report included a methods description in addition to the survey coverage estimates.

As in the past, only surveys with final reports are considered for inclusion. The purpose for this restriction of including survey data between the Draft and Final estimates is to hold true to a general principle not to make changes in underlying input data or working group decisions that the Member States have not seen. Past experiences with coverage survey results that changed between preliminary and final reports dictate the importance of this restriction. In addition, preliminary survey results often present vaccination coverage estimates based on the combination of respondent recall and documented evidence but not by documented evidence alone, making recall bias adjustment for multidose antigens impossible. If preliminary survey results are available, they are noted in the right-side explanatory text in the country reports.

Countries for which new surveys were included for the 2024 WUENIC revision:

50 surveys (for 40 countries) surveys received (27 used, for 26 countries) [23 not used for various reasons note in the text of the country profile for each country]

Demographic and Health Survey (DHS), includes 7 Key Indicator reports, as full report was not available and it was unlikely for the final report to become available in the foreseeable future. Those are noted with an asterisk below.

10: Angola 2023-2024*, DRC 2023-2024*; Jordan 2023**, Lesotho 2023-2024*, Malawi 2023-2024*, Mali 2023*, Nigeria 2023-2024*, Senegal 2023, Zambia 2024* and Zimbabwe 2023-2024*

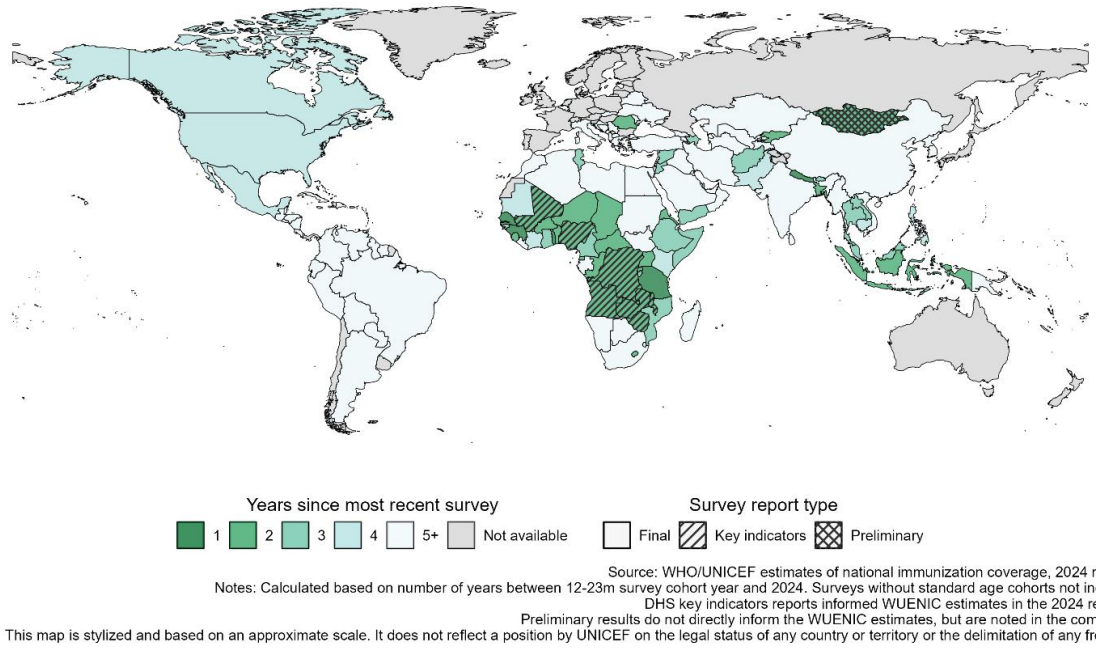
Multiple Indicator Cluster Survey (MICS)

7: Azerbaijan 2023, Kyrgyzstan 2023, Laos 2023, Nauru 2023, Qatar 2023, Tunisia 2023 and Vanuatu 2023

Other coverage surveys including vaccination coverage

33: Bangladesh 2023-2024, Bhutan 2023, Bolivia 2023 (not in WUENIC database), Burkina Faso 2023 and Burkina Faso 2024 (PCCS), Canada 2013-2014 and Canada 2015-2016, Central African Republic 2023-2024, Eritrea 2024, Ethiopia 2022 and Ethiopia 2023, Guinea 2024, Guinea-Bissau 2023, Indonesia 2018, Indonesia 2020, Indonesia 2022, Indonesia 2023, Indonesia 2024, Malaysia 2022, Nepal 2023, Nepal 2024-2025, Niger 2024, Peru 2024 (not in WUENIC database), Romania 2024, Senegal 2025, Sierra Leone 2024, Switzerland 2017-2019, Switzerland 2020-2022, Switzerland 2023-2024, Tanzania 2024, Togo 2024, Uganda 2024 and USA 2021-2023.

Figure 1. Years since most recent survey with vaccination coverage estimates



Additional data sources:

Estimated population data from the UN Population Division[3] are used as one of the inputs utilized in the review of country data and when the working group considers uncertainty in the WHO and UNICEF estimates. The 2024 WUENIC revision (published in July 2025) used the *2024 revision of the* ***World Population Prospect*** *from the* United Nations Population Division for estimating the Grade of Confidence (GoC) in each WUENIC estimate and for calculations of regional and global vaccination coverage figures.

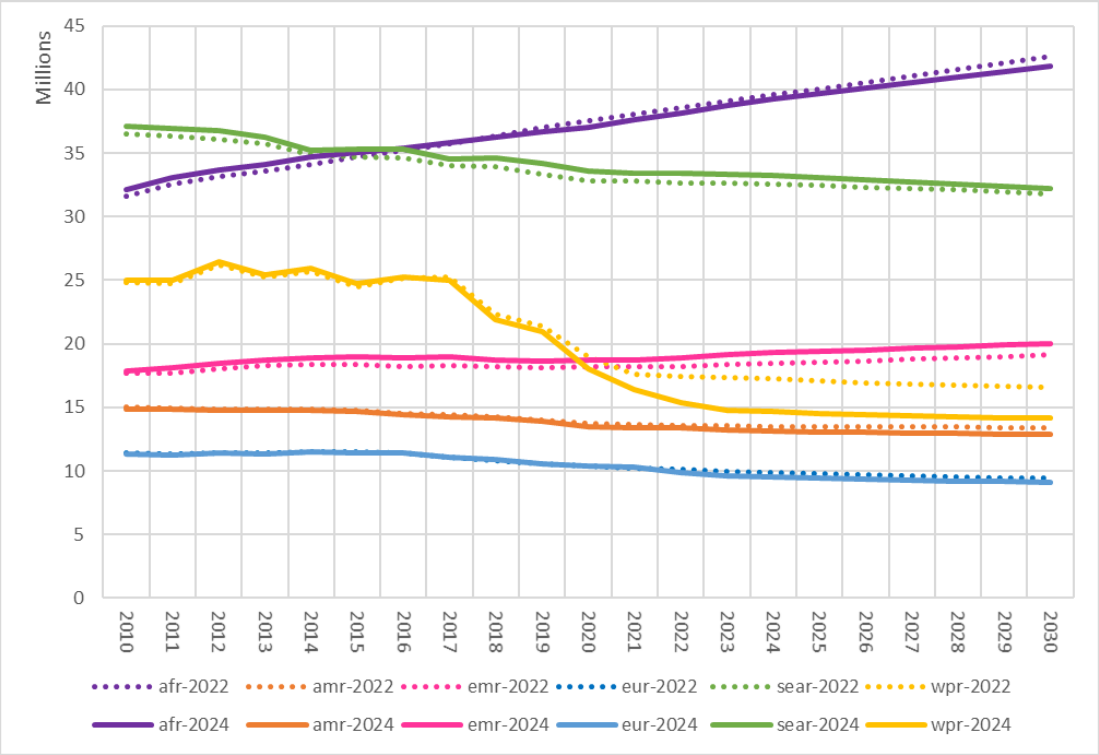
The World Population Prospect 2024 was published on 11 July 2024 and replaced the 2022 revision. World Population Prospects 2024 takes into consideration the fullest range of demographic evidence available to date, referencing data from 1,910 censuses, 79 more than in the 2022 revision, as well as information on births and deaths from civil registration and vital statistics systems for 169 countries and demographic indicators from 3,189 surveys. Population data from censuses or registers referring to 2019 or later were available for 114 countries and areas, representing 48 per cent of the 237 countries and areas included in this analysis (and

[3] United Nations, Department of Economic and Social Affairs, Population Division (2024). *World Population Prospects 2024, Online Edition*. https://www.un.org/development/desa/pd/https%3A//www.un.org/development/desa/pd/world-population-prospects-2024

54 per cent of the world population). For 100 countries and areas, the most recent available population count was from the period 2009–2018. For the remaining 23 countries and areas, the most recent available census data were from before 2009, that is, more than 15 years ago. Civil registration and vital statistics systems are the preferred source of information for computing statistics on levels and trends in the fertility and mortality of a population, and for estimating changes in the size of a population and in its distribution by age and sex between censuses. Information on births and deaths from civil registration and vital statistics systems was available for 169 countries. Additionally, demographic indicators derived from 3,189 surveys (423 more than in the 2022 revision), were considered in the present evaluation. Among the 236 countries and areas with 1,000 inhabitants or more in 2023, all but 40 had available data on fertility collected in 2019 or later. For 2023, 35 countries and areas had total fertility and age-specific fertility data and an additional 6 countries had data on the number of births. More details can be found here: https://population.un.org/wpp/

As with most revisions, estimates of live births and surviving infants changed compared to previous years, and also the projections for the future were updated. A larger increase in surviving infants than previously estimated was observed for the WHO Eastern Mediterranean Region (Figure 2). The changes in target population estimates had no effect for global DTP3 coverage than if calculations had utilized data from the 2022 revision; the changes in target population estimates result in 1 percentage point lower regional average DTP3 coverage for the Eastern Mediterranean Region.

Figure 2. Estimated number of surviving infants by WHO region, 2022 and 2024 revisions, 2010-2030



Direct communications with country teams between WUENIC Draft and Finalization

WHO and UNICEF encourage countries to review and comment on the country reports shared following the draft production. In past years, regional or sub-regional consultations have been held during May/June to go through select country data and estimates. During the 2024 revision cycle, WHO and UNICEF held a conference call consultation with the country teams from Chad, Ethiopia, Haiti, Mozambique, Senegal, Uganda. In addition, call were held with UNICEF and WHO country and regional teams in relation to Azerbaijan, Laos, Myanmar and Nicaragua.

CHANGES BETWEEN 2023 AND 2024 WUENIC REVISIONS:

Database structure change.

Summary of WUENIC code- and database transitions between 2023 and 2024 revisions

During the period marked by the 2009 WUENIC revision completed in July 2010 and the 2023 revision completed in July 2024, the WUENIC reflected a rule-based knowledge representation and reasoning system described in Burton et al, 2009; Burton et al, 2012; and Kowalski & Burton, 2012 that leveraged Prolog, a logic programming language, to implement the WUENIC rule-base. While Prolog served as an excellent system, the number of persons skilled in the language is limited thereby creating issues for the maintenance and sustainability of the WUENIC system. In addition, during this period input data for vaccination coverage estimates production were maintained and stored within an MS Access relational database. The MS Access database, which required a Microsoft Windows operating system for use, resided locally on computers but did not allow for real-time multi-member collaboration and required manual backup among other limiting features.

With these issues in hand, WHO and UNICEF implemented several changes to the WUENIC system beginning with the 2024 revision completed in July 2025. First, the WUENIC rule-base was translated from Prolog (following an update to a current version of Prolog to facilitate the translation) to R, a free, open-source statistical software and programming language widely used for statistical computing and graphics. The transition process from Prolog to R, which began in 2023 and was completed in 2024, involved extensive testing to ensure the R codebase produced estimated time-series identical to those observed in the legacy system. Second, the input data were shifted from the MS Access to the WHO Immunization Information System (WIISE) and immunization data warehouse (WIISE Mart), allowing the Working Group to take advantage of cloud availability, live collaboration across Working Group members, auto backups, and application programming interfaces (API) calls/requests of the input data by the WUENIC codebase. The transition process culminated with development of the standalone R package, wuenicr, that bundles together the requisite functionality, data, and documentation needed to undertake the WUENIC estimation process end-to-end.

In addition to implementing newly automated input data checks and further refinement of existing output data checks, the new wuenicr codebase reflects the following rule changes made by the Working Group.

- DTP1 estimated coverage in the absence of reported data or illogical reported data. Historically, when a country did not report data for DTP1 or reported DTP3 coverage exceeded that reported for DTP1, the rules estimated DTP1 coverage leveraging a modelled relationship derived from survey data. Beginning with the 2024 revision, the rules estimate DTP1 coverage in such instances by assigning estimated DTP1 coverage equal to estimated DTP3 coverage assuming zero dropout. The Working Group retains the ability to override the rule with explanation.

- New vaccine window. Within the codebase, the rules governing coverage estimation for new vaccines differ from established vaccines in that they allow for large year-to-year increases in vaccination coverage that might be expected

during an introduction period. This differs from established vaccines, where large, unexplained year-to-year increases or decreases in coverage are considered differently (e.g., an unexplained increase in coverage greater than 10%-points may be ignored). However, historically, the Working Group did not have a mechanism for transitioning a country from the new vaccine to the established vaccine rules. Beginning with the 2024 revision, the rules implement a three (3) year new vaccine window from the first year that estimates are produced for a newly introduced vaccine during which time the new vaccine rules are implemented. Beyond year three following introduction, the established vaccine rules are implemented. The Working Group retains the ability to override the rule with explanation.

- Visualisation of reported data. Historically, reported data for Rubella Containing Vaccine (RCV) were not displayed on country reports for RCV coverage because those reported data are not utilised in the estimation decisions. As described elsewhere in this meta-data document, estimation of RCV is informed by estimated MCV coverage, either MCV1 or MCV2, depending on the country's vaccine schedule. While there is no change to the estimation rules for RCV, beginning with the 2024 revision, the reported RCV data are now displayed in the country report.

  Also, under new decisions by the Working Group, if there is no WUENIC produced for a country / vaccine / year combination, then reported data will not be displayed in the time-series plot or in the corresponding data table in the country report. The purpose of this decision is to avoid confusion in those instances where a country may report coverage data for a vaccine that has been removed from its national immunization schedule.

  Moreover, readers will notice that country reports no longer include pages for vaccines when the last produced WUENIC value preceded the first year of the displayed time-series. For example, Country C removed BCG vaccine from its national schedule in 2008. Previously, because WHO and UNICEF produced coverage estimates for BCG through 2008, the report for Country C for the 2023 revision included a blank BCG page for the displayed 2012–2023 time-series. Beginning with the 2024 revision, the report for Country C will no longer have a page for BCG.

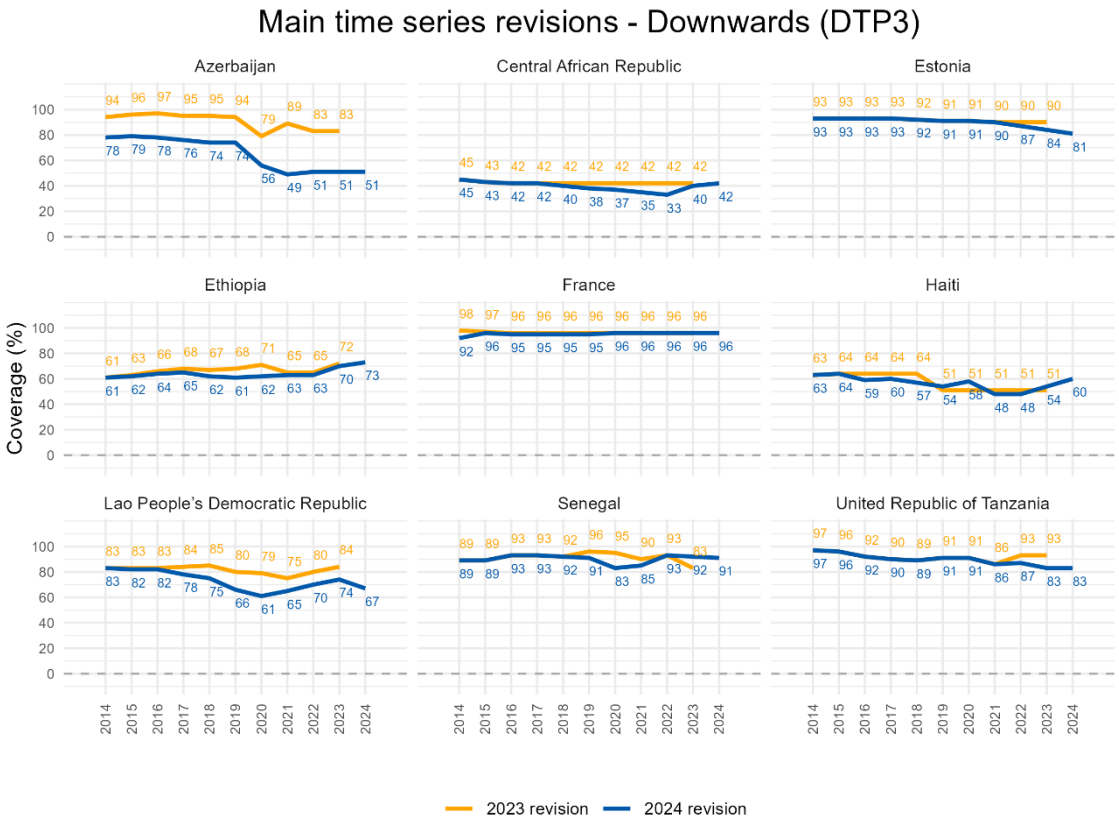
  And finally, historically the background front matter in each country report — material that was added in the 2016 revision (completed July 2027) — has been provided only in English. Beginning with the 2024 revision, all country reports continue to have the information in English as well as a translated version of the material in French or Spanish is provided for select countries.

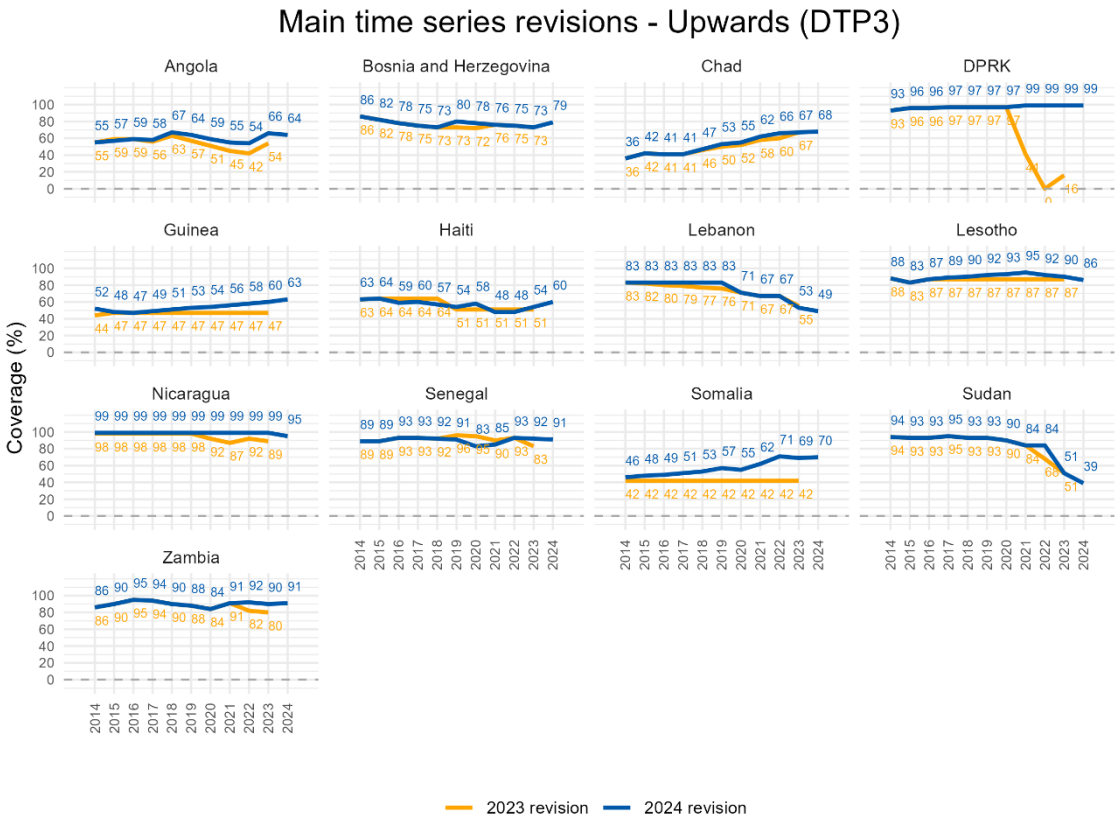
Changes in estimates due to updates in empirical data between revisions result from:

- Updated data submitted by Member States and previously reported time series were revised.
- New survey data becoming available after 2023 revision (between 1 July 2024 and 25 June 2025)
- 2023 data reported late (between 1 July 2024 and 25 June 2025), and not included in 2023 revision (published in July 2024) of coverage estimates

A list of countries with major changes in the estimated time series is provided in Figure 3.

Figure 3: Countries with important revisions in the WHO and UNICEF estimates of national immunization coverage (WUENIC estimates for DTP3) time series between 2023 and 2024 revisions





Vaccine introduction and data availability

For vaccine introduction, or the introduction of additional doses into the routine immunization schedule (such as the second dose of measles-containing vaccines or Hepatitis B birth dose), WHO and UNICEF estimates of national immunization coverage are produced beginning in the first year for which data are reported by national authorities. In situations where a vaccine was introduced sub-nationally or the introduction occurred after January, the WHO and UNICEF estimates of coverage are based on computed coverage for the annual national target population.

The following lists of countries reflect those where WHO is aware that the country has introduced the vaccine but for which there is insufficient data for generating WUENIC.

- ***Hepatitis B***

Countries with infant immunization not in national schedule: *Denmark, Finland, Hungary, Iceland*.

- ***Hepatitis B birth dose:***

Data collection form (JRF coverage tables) was modified in 2017 (for 2016 data). Countries were asked to report birth dose given in 24 hours and "all birth doses" (i.e., within and after 24 hours). This permitted revision of historical data and exclusion of countries where data on birth dose given within 24 hours is not available. These include:

- *Angola*: Introduced in 2015; however, data on birth dose given within 24 hours is not reported.
- *Canada*: Reports partial HepB birth dose introduction, but no data are reported.
- *Jamaica*: No birth dose given within 24 hours reported (reported data on all doses from 2023).
- *Libya*: No birth dose given within 24 hours reported (reported data on all doses from 2001).
- *Mauritania*: Introduced in 2013. No data reported on birth dose given within 24 hours. Reported birth dose for 2023 and 2024 but no late birth doses.
- *Niue*: Vaccine introduced before 2000 but country only report late dose.
- *Paraguay*: Introduced in 2017. No data reported on birth dose given within 24 hours.
- *Russian Federation*: Birth dose included, but coverage is not assessed at the national level, thus, coverage data not reported by the country.
- *Uganda*: No birth dose given within 24 hours reported (reported data on all doses from 2022).

- **Haemophilus influenzae *type b (Hib)***

Only *China* is missing national-level introduction.

- ***Inactivated Polio Vaccine second dose (IPV2)***

Estimates for a second dose of inactivated polio vaccine (IPV) were first done in 2023. Estimates begin for 2021. IPV2 coverage estimates are only produced for OPV-using countries and that have reported coverage at least once. The following OPV-using countries have introduced IPV2 but not yet reported data.

- *Morocco:* Introduced in 2024. No reported data.
- *Malawi:* Introduced in 2024. No a reported data.
- *Namibia*: Introduced in 2023. No reported data.
- *Thailand*: Introduced in 2023. No reported data.

- ***Pneumococcal conjugate vaccine (PcV):***

- *Austria*: Introduced in 2014. No reported data.
- *Chad*: Introduced in October 2024. No reported data for the 3rd dose.
- *Cuba*: Introduced in August 2024 No reported data for the 3rd dose.
- *Iran:* Introduced in 2024. Coverage data reported = 0%.

- *Monaco*: Introduced in 2006. No reported data.
- *Montenegro*: Introduced in August 2024. No reported data.

***Iraq:* Following introduction in 2017 and reported coverage data for 2017–2019. A value of zero was reported between 2020 and 2022; reporting of values > 0 resumed in 2023.

***Venezuela:* Following introduction in 2014 and reported coverage data for 2015–16, the country appears to have stopped using the vaccine. Since 2017, the country has reported coverage levels equal to 'zero'. WHO and UNICEF will continue to work to obtain confirmation whether the vaccine has been formally removed from the national schedule.
N.B.: Countries may use different PCV schedules, namely 3 basic doses in infants with no booster (3+0), 2 basic doses in infants with a later booster (2+1), or 3 basic doses in infants with a booster (3+1). Recommended PCV schedules are in flux with countries making changes, most often from a 3+0 to a 2+1 or 3+1 schedule. In most countries, PCV3 represents the third dose whether given before 12 months or at or after 12 months; however, in some cases WUENIC estimates for PCV3 may reflect the percentage of surviving infants who received two doses of PCV prior to the 1st birthday, which is noted next to the estimate.

Countries that have not yet introduced: Antigua and Barbuda, Bosnia and Herzegovina, Belarus, Brunei Darussalam, Cabo Verde, China, Comoros, Czechia, Democratic People's Republic of Korea, Dominica, Egypt, Equatorial Guinea, Estonia, Gabon, Grenada, Guinea, Jamaica, Jordan, Maldives, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Sri Lanka, Somalia, South Sudan, Suriname, Syria, Thailand, Ukraine, Viet Nam.

- ***Second dose measles-containing vaccine:***
  - *Benin*: Introduced in 2024. No reported data.

Countries that have not yet introduced as of 2024: Central African Republic, Gabon and South Sudan.

- ***Rubella-containing vaccine:***

Based on Measles estimates (either first or second dose as appropriate per schedule) but modified if partial introduction.

- *South Africa:* Introduced in 2024. No reported data.

Countries that have not yet introduced: Afghanistan, Central African Republic, Chad, DR Congo, Djibouti, Ethiopia, Gabon, Guinea, Guinea-Bissau, Equatorial Guinea, Liberia, Madagascar, Niger, Nigeria, Somalia, South Sudan.

- ***Rotavirus vaccine (Rota last dose):***
  - *Andorra*: Introduced in 2020. No reported data.
  - *Chad*: Introduced in October 2024. Only data for 1st and 2nd dose reported at this time.
  - *France*: Introduced in 2022. No reported data.
  - *Netherlands*: Introduced in 2024. No reported data.
  - *Oman*: Reported in schedule in 2024. No reported data.
  - *Russian Federation*: Introduced sub-nationally in 2016. No reported data.

****Venezuela*: Following introduction in 2006 and reported coverage data for 2006–17, the country appears to have stopped using the vaccine. Since 2018, the country has reported coverage levels equal to 'zero'. WHO and UNICEF will continue to work to obtain confirmation whether the vaccine has been formally removed from the national schedule.

*****Philippines*: Rotavirus introduction was part of a pilot project during 2012 and 2015 and subsequently discontinued.

62 countries have not yet introduced rotavirus vaccine.

- ***Yellow Fever:***

A listing of at-risk countries can be accessed online at:
https://iris.who.int/bitstream/handle/10665/272408/9789241513661-eng.pdf?ua=

  - *Seychelles:* Uses vaccine in routine schedule, but an estimate is not produced because the country is not at risk.
  - *Cabo Verde:* Uses vaccine in routine schedule, but an estimate is not produced because the country is not at risk.
  - *São Tome and Principe:* Country no longer at risk but has continued using vaccine in routine schedule, and estimates continue to be produced.

Argentina and Paraguay were added in 2009 to the list of at risk. Argentina introduced YFV in high-risk areas in 2002 and Paraguay introduced YFV in high-risk areas in 2004, Paraguay subsequently transitioned to recommend yellow fever vaccine nationwide.

Two countries, Ethiopia and South Sudan, are on the yellow fever transmission risk listing (see above) but have not yet introduced the vaccine.

List of countries where WHO and UNICEF estimates of national immunization coverage are different (>5%-pts) from reported data — based on DTP3 coverage in 2024.

Reported data: countries official estimates are treated as reported data unless the working group decides to accept the reported administrative coverage data instead. Administrative coverage data are accepted if the government official data are absent or there is insufficient justification for the government official estimate or the government official estimate represents target coverage instead of achieved coverage. Instances where WUENIC differs from the reported coverage data are shown below.

The comment field in the table below provides an explanation of 2023 coverage estimates; for a more comprehensive explanation, it is important to look at the explanations of the complete time-series for different antigens from the specific country profiles: https://immunizationdata.who.int/listing.html or https://worldhealthorg.shinyapps.io/wuenic-trends

Country	WUENIC	Admin	Official	Comment	Diff
Afghanistan*	59	85	85	Reported data calibrated to 2021 levels. Estimate challenged by: D-R-	-26
Angola	64	73	73	Reported data calibrated to 2022 levels. Estimate challenged by: R-S-	-9
Azerbaijan	51	78	78	Reported data calibrated to 2021 levels. Reported data excluded. Admin data reported for 2024 suggest a substantial proportion of delayed or catch-up vaccination, with about 12 percent third doses administered after the first year of life. Estimate challenged by: R-	-27
Benin*	63	116	78	Reported data calibrated to 2022 levels. Decline of over 10 percent in the target population of surviving infants between 2023 and 2024. WHO and UNICEF recommend a revision of the time series in light of inconsistent denominator used in the last three years. Estimate challenged by: D-R-	-15
Botswana	95	75	NA	Reported data calibrated to 2012 levels. Reported data excluded. Fluctuation in reported data suggest poor quality administrative recording and reporting. Reported data are incomplete with 71 percent expected reports received. 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. WUENIC may be overestimating the true coverage in recent years. GoC=Assigned by working group. Reported coverage and denominator are inconsistent, and the estimate is confirmed only by survey for 2006 and 2012 birth cohorts.	20

Cabo Verde	93	101	99	Estimate based on extrapolation from data reported by national government. Reported data excluded. Denominator declines of about 20 percent between 2023 and 2024. WHO and UNICEF recommend a critical review of the reported numerator and denominator time-series data. Estimated coverage is likely an overestimate. No nationally representative independent assessment for the most recent 5 annual birth cohorts. WHO and UNICEF recommend a high quality independent assessment to verify reported levels of coverage. GoC=R+ D+	-6
Cambodia*	83	95	NA	Reported data calibrated to 2020 levels. Estimate challenged by: R-	-12
Central African Republic*	42	101	101	Estimate is based on the relationship between reported number of doses in 2023 and 2024, applied to the 2023 estimated coverage. Reported data excluded because 101 percent greater than 100 percent. WHO and UNICEF encourage continued improvement in data quality and a revision of the coverage time series based on survey results. Estimate challenged by: D-R-	-59
Chad*	68	102	102	Estimated coverage reflects trend in reported data. Reported data excluded because 102 percent greater than 100 percent. Country-level analysis of 77 indicators reported through the WHO and UNICEF Joint Reporting Form on Immunization (JRF) suggests that the vaccination system performed better overall in 2024 compared to 2023. Similarly, the country conducted Big Catch-Up activities in 2024 that served as an intensification platform for routine vaccination. Estimate challenged by: D-R-	-34
Côte d'Ivoire*	77	95	95	Reported data calibrated to 2020 levels. Between 2023 and 2024, the estimated number of surviving infants increased by 6.4 percent and for children in the second year of life it increased 8.2 percent. These increases may explain an observed decline in coverage for some antigens when the number of children vaccinated increased. Estimate challenged by: D-R-	-18
Djibouti*	77	93	93	Reported data calibrated to 2022 levels. Estimate challenged by: R-	-16

Ecuador	70	87	87	Estimate based on extrapolation from data reported by national government. Reported data excluded. Inconsistent trend in reported denominator. Increase of over eight percent seen in target population between 2023 and 2024 is not aligned with previous year-to-year changes in live births and surviving infants. No nationally representative independent assessment for the most recent 5 annual birth cohorts. WHO and UNICEF recommend a high quality independent assessment to verify reported levels of coverage. Estimate challenged by: D-	-17
Ethiopia*	73	104	99	Estimate is based on the relationship between reported admin coverage in 2023 and 2024, applied to the 2023 estimated coverage. Reported data excluded because 104 percent greater than 100 percent. WHO and UNICEF await the final results of the ongoing Demographic and Health Survey. Official estimates are inconsistent for different antigens. Estimate challenged by: D-R-	-31
Haiti*	60	85	85	Reported data calibrated to 2015 levels. Country reports data quality issues and uncertain denominators related to population movements, including emigration to other countries. However, data quality improvement activities are ongoing, including standardization of data collection tools and procurement in collaboration with the national health information unit; training on data collection and reporting; regular supervision sessions reinforcing data quality; implementation of a feedback system (bulletins and reports); quarterly departmental data review meetings and Data quality self-assessments were conducted in 4 of the 10 Departments of the country. 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 as the situation permits. Estimate challenged by: D-R-	-25
Kenya*	91	83	83	Reported data calibrated to 2020 levels. Estimate challenged by: R-	8
Lao People's Democratic Republic*	67	89	89	Reported data calibrated to 2021 levels. Programme reported vaccine stock-out at the subnational level. Estimate challenged by: D-R-	-22
Lebanon	49	59	59	Reported data calibrated to 2019 levels. Caution should be used when interpreting the data, as the trend seen for DTP1 vs. later doses would suggest a large increase in drop-out in recent years. WHO and UNICEF are aware of an ongoing 2023 Multiple Indicator Cluster Survey and await the final results. Estimate challenged by: R-	-10

Madagascar*	60	81	81	Reported data calibrated to 2023 levels. WHO and UNICEF are aware of the ongoing 2024-2025 Multiple Indicator Cluster Survey and await final results. Estimate challenged by: D-R-	-21
Mali*	82	103	88	Estimate exceptionally based on the difference between estimated and reported administrative coverage applied to estimated coverage. Reported data excluded because 103 percent greater than 100 percent. Official reported data inconsistent between 2023 and 2024. Estimate challenged by: D-R-	-21
Mozambique*	70	128	128	Estimate based on previous year estimate. Reported data excluded. The estimated coverage may underestimate the actual coverage achieved in 2024. The country implemented several intensified vaccination activities as part of the Big Catch-up initiative. The reported increase in 2024 coverage likely reflects a higher number of infants vaccinated during these efforts. However, the increase in coverage from 2023 to 2024 was substantial and has not been fully considered, due to the potential risk of overestimation from the inclusion of older children. The country has noted that these intensified efforts used a different data collection system for infants and for older children. WHO and UNICEF encourage a comprehensive review and revision of coverage related time-series data in light of recent DHS survey results. Reported data excluded because 128 percent greater than 100 percent. Reported data excluded due to sudden change in coverage from 112 to 128 percent. Programme reported less than a month vaccine stock-out at the national and subnational levels. Estimate challenged by: D-R-	-58
Nigeria*	67	93	53	Reported data calibrated to 2022 levels. Alongside continued implementation of the national data quality improvement plan activities, WHO and UNICEF encourage continued efforts to independently assess the quality of the administrative recording and reporting system at all levels. Official estimate based on the results of the most recent survey at the time of reporting. Estimate challenged by: D-R-S-	-26
Philippines	71	59	59	Reported data calibrated to 2020 levels. Programme reports seven months vaccine stockout at national and subnational levels. Estimate challenged by: R-	12

Romania	79	66	66	Estimate based on extrapolation from data reported by national government. Reported data excluded. Reported data excluded due to sudden change in coverage from 79 to 66 percent. Country transitioning from a paper-based system to an electronic immunization registry (EIR). It is expected that from 2025, only the EIR will be used. No nationally representative independent assessment for the most recent 5 annual birth cohorts. WHO and UNICEF recommend a high quality independent assessment to verify reported levels of coverage. Estimate challenged by: D-	13
Sierra Leone*	91	101	101	Estimate based on extrapolation from data reported by national government. Reported data excluded. Large increases in reported coverage for some vaccines are unexplained. Estimated coverage may underestimate actual coverage for some antigens where increases in reported coverage reflect better performance. Reported data excluded because 101 percent greater than 100 percent. Estimate challenged by: D-	-10
State of Palestine	88	102	102	Estimate based on extrapolation from data reported by national government. Reported data excluded because 102 percent greater than 100 percent. Reported data excluded due to sudden change in coverage from 88 to 102 percent. GoC=R+ D+	-14
Suriname	69	83	83	Reported data calibrated to 2016 levels. Country indicates that denominators used reflect estimates for 2023, as those for 2024 were not available at the time of data submission. 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. Estimate challenged by: R-	-14
Syrian Arab Republic*	73	79	79	Reported data calibrated to 2012 levels. Country reports inclusion of Northwest in numerators and denominators. Also, country conducted several rounds of intensification of vaccination activities. Since 2012, estimates are based on a calibration factor given by the recalculated coverage using the reported number of doses and an independent estimate of the target population in the context of civil unrest. Recent surveys, though they exclude part of the population, suggest coverage levels that are closer to official coverage estimates compared to prior to 2012. Estimate challenged by: D-R-	-6

São Tomé and Principe*	87	97	97	Estimate based on extrapolation from data reported by national government. Reported data excluded. Unexplained decline of 30 percent in target population. Estimate challenged by: D-	-10
Timor-Leste	83	109	109	Reported data calibrated to 2021 levels. Reported data excluded. Country indicates that underestimation of denominator may explain admin coverage above 100 percent for some doses.Reported data excluded because 109 percent greater than 100 percent. Estimates may underestimate actual coverage, as reported data suggest an increase in number of vaccinated children from a lowest point in 2021. WHO and UNICEF are aware of a planned coverage evaluation survey in 2025-2026 which may help inform coverage trends. WHO and UNICEF recommend a revision of reported coverage time series. Estimate challenged by: D-R-	-26
Uganda*	91	98	98	Estimate based on extrapolation from data reported by national government. Reported data excluded. Country conducted catch up activity. The information system does not allow separating doses administered at the recommended age from delayed or catch-up doses. Estimate challenged by: D-	-7
United Republic of Tanzania*	83	96	95	Reported data calibrated to 2023 levels. Reported data excluded. Reported target population increased of over 40 percent between 2023 and 2024. Programme reports intensification and catch-up vaccination activities for children up to five years of age. Children up to five years of age were included in the reported numerator and denominator. Estimate challenged by: D-R-	-12
Yemen*	42	73	73	Reported data calibrated to 2021 levels. Country reported less supervisory visits in conflict affected areas. Estimate challenged by: D-R-	-31
Zambia*	91	81	81	Reported data calibrated to 2022 levels. Estimate challenged by: D-R-	10

*Gavi-eligible country
WUENIC: WHO UNICEF coverage estimates 2024 revision (completed July 2025)
Admin: reported administrative coverage data
Gov: reported government official estimate of coverage
D–: indicates the estimated coverage is challenged by recomputed coverage using reported coverage numerator data and an independent denominator
R–: indicates the estimated coverage is challenged by reported coverage data
Diff: difference between reported data and WHO/UNICEF coverage estimates where the reported data reflects the government official estimate if provided, otherwise it reflects the reported administrative coverage data unless government official estimate excluded.