Release Statement

High-resolution, modelled DTP1,3 and MCV1 vaccination coverage and zero-dose estimates for Nigeria (2000 – 2024), version 1.0

23 January 2026

This data release provides gridded (at a spatial resolution of 30 arc-seconds, approximately 1 km grid cells), annual estimates of DTP1,3 and MCV1 vaccination coverage rates and numbers of zero-dose children (defined as those who had not received DTP1) for Nigeria covering the period from 2000 to 2024. The project team utilized data from the 2003, 2008, 2013, 2018, and 2024 Demographic and Health Surveys (DHS) and the 2016/17 and 2021 Multiple Indicator Cluster Surveys (MICS), along with geospatial covariates to model and predict vaccination coverage for each birth cohort within the study period. Estimates were produced for each grid cell within a Bayesian geostatistical modelling framework. The approach allowed the quantification of uncertainties in the coverage estimates. The estimation of numbers of zero-dose children combined the vaccination coverage estimates with existing high-resolution population estimates of children aged under one-year-old.

These data were produced by the WorldPop' VaxPop team at the University of Southampton. This work was part of the Gavi zero-dose III project, with funding provided by Gavi, the Vaccine Alliance [grant number: MEL 11779722]. Project partners included Gavi, UNICEF, and WorldPop at the University of Southampton.

The authors followed rigorous procedures designed to ensure that the used data, the applied method and thus the results are appropriate and of reasonable quality. If users encounter apparent errors or misstatements, they should contact WorldPop at release@worldpop.org.

WorldPop, University of Southampton, and their sponsors offer these data on a "where is, as is" basis; do not offer an express or implied warranty of any kind; do not guarantee the quality, applicability, accuracy, reliability or completeness of any data provided; and shall not be liable for incidental, consequential, or special damages arising out of the use of any data that they offer. These data are operational vaccination coverage and zero-dose estimates and are not official government statistics.

RELEASE CONTENT

1. NGA_Coverage_rasters_DTP1.zip

2. NGA_Coverage_rasters_DTP3.zip
3. NGA_Coverage_rasters_MCV1.zip
4. NGA_ADM_coverage_estimates.zip
5. NGA_ADM_zero_dose_estimates.zip

LICENSE

SUGGESTED CITATION

Utazi C. E., Megheib M., Olowe I. D., Chaudhuri S., Tejedor-Garavito N. and Tatem A. J. (2026). Modelled vaccination coverage and zero-dose estimates for Nigeria, 2000 - 2024 version 1.0, WorldPop, University of Southampton. DOI:10.5258/SOTON/WP00880.

FILE DESCRIPTIONS

The projection for all GIS files is the geographic coordinate system WGS84 (World Geodetic System 1984).

NGA_Coverage_Rasters_DTP1.zip

Geotiff raster layers containing estimates of DTP1 vaccination coverage rates and associated uncertainties for each approximately 1km grid cell (0.00898 decimal degrees grid) across Nigeria from 2000 to 2024. These estimates relate to the birth cohort in each year. The files are named as follows (using 2024 as an example):

- 2024dtp1_mean.tif: Estimated mean coverage rate
- 2024dtp1_median.tif: Estimated median coverage rate
- 2024dtp1_sd.tif: Standard deviation
- 2024dtp1_low.tif: Lower bound of the 95% credible interval
- 2024dtp1_up.tif: Upper bound of the 95% credible interval

NGA_Coverage_Rasters_DTP3.zip

Geotiff raster layers containing estimates of DTP3 vaccination coverage rates and associated uncertainties for each approximately 1km grid cell (0.00898 decimal degrees grid) across Nigeria from 2000 to 2024. These estimates relate to the birth cohort in each year. The files are named as follows (using 2024 as an example):

- 2024dtp3_mean.tif: Estimated mean coverage rate
- 2024dtp3_median.tif: Estimated median coverage rate
- 2024dtp3_sd.tif: Standard deviation
- 2024dtp3_low.tif: Lower bound of the 95% credible interval
- 2024dtp3_up.tif: Upper bound of the 95% credible interval

NGA_Coverage_Rasters_MCV1.zip

Geotiff raster layers containing estimates of MCV1 vaccination coverage rates and associated uncertainties for each approximately 1km grid cell (0.00898 decimal degrees grid) across Nigeria from 2000 to 2024. These estimates relate to the birth cohort in each year. The files are named as follows (using 2024 as an example):

- 2024mcv1_mean.tif: Estimated mean coverage rate
- 2024 mcv1_median.tif: Estimated median coverage rate
- 2024 mcv1_sd.tif: Standard deviation
- 2024 mcv1_low.tif: Lower bound of the 95% credible interval
- 2024 mcv1_up.tif: Upper bound of the 95% credible interval

NGA_ADM_coverage_estimates.zip

GIS shapefiles, GeoPackage and CSV files containing estimates of DTP1, DTP3 and MCV1 vaccination coverage rates and associated uncertainties for at ADM0 (national), regional (geopolitical zones), ADM1 (state) and ADM2 (local government area) levels across Nigeria from 2000 to 2024. These estimates relate to the birth cohort in each year. The files are named as follows:

- NGA_adm0_dtp1_survey.csv: Estimates of DTP1 coverage (mean, median, std. dev., lower and upper 95% credible interval) for Nigeria from 2000 to 2024.

- NGA_adm0_dtp3_survey.csv: Estimates of DTP3 coverage (mean, median, std. dev., lower and upper 95% credible intervals) for Nigeria from 2000 to 2024.
- NGA_adm0_mcv1_survey.csv: Estimates of MCV1 coverage (mean, median, std. dev., lower and upper 95% credible interval) for Nigeria from 2000 to 2024.
- ADM1_estimates_all_indicators.shp/.gpkg: Administrative level 1 estimates of DTP1, DTP3 and MCV1 coverage (mean, median, std. dev., lower and upper 95% credible intervals) for Nigeria from 2000 to 2024.
- ADM2_estimates_all_indicators.shp/.gpkg: Administrative level 2 estimates of DTP1, DTP3 and MCV1 coverage (mean, median, std. dev., lower and upper 95% credible intervals) for Nigeria from 2000 to 2024.
- Region_estimates_all_indicators.shp/.gpkg: Regional estimates of DTP1, DTP3 and MCV1 coverage (mean, median, std. dev., lower and upper 95% credible intervals) for Nigeria from 2000 to 2024.

NGA_ADM_zero_dose_estimates.zip

GeoPackage and CSV files containing estimates of numbers of (DTP-) zero-dose children (children aged under 1 in each year) at ADM0, ADM1 and ADM2 levels in Nigeria from 2000 to 2024. The files are named as follows:

- ADM0_zero_dose_estimates.csv/.gpkg: Estimates of numbers of zero-dose children (and corresponding under 1 population estimates) for Nigeria from 2000 to 2024.
- ADM1_zero_dose_estimates.csv/.gpkg: Estimates of numbers of zero-dose children (and corresponding under 1 population estimates) for Nigeria at administrative level 1 from 2000 to 2024.
- ADM2_zero_dose_estimates.csv/.gpkg: Estimates of numbers of zero-dose children (and corresponding under 1 population estimates) for Nigeria at administrative level 2 from 2000 to 2024.

RELEASE HISTORY

Version 1.0 (24 January 2026) [doi:10.5258/SOTON/WP00880]

- Original release

METHODOLOGY

Details of the methodology used to produce these datasets, including model fitting, validation, and prediction can be found in this preprint: https://medrxiv.org/cgi/content/short/2026.01.19.26344414v1.

ACKNOWLEDGEMENTS

The WorldPop group is acknowledged for overall project support.

WORKS CITED

Utazi C. E., Megheib M., Olowe I. D. et al (2026). Mapping DTP1,3 and MCV1 coverage and zero-dose prevalence in Nigeria: A spatiotemporal analysis (2000 – 2024). medRxiv 2026.01.19.26344414; doi: https://doi.org/10.64898/2026.01.19.26344414.