Population of unvaccinated children under one year of age (DPT1, DPT3, MCV1) in 75 countries at a resolution of 30 arc-second (approximately 1km at the equator), 2015-2023. R2025 v1.

20 May 2025

Update 19 May 2025: WorldPop are aware of some inconsistencies with their 2015-2030 data for some countries (e.g. TCD, PAK, NPL) and are working to resolve these.

Description

This data release includes rasters of un/under vaccinated children under the age of one, produced by combining the IHME vaccination predictions of DPT1, DPT3 and MCV1 with WorldPop Global2 population of children under the age of one in 75 countries between 2015-2023.

Release Content

- 9 mosaics with population estimates for children under the age of 1 having not received the DPT1 vaccine: *dpt1_[year]_0to1_unvaxpop_R2025_v1*
- 9 mosaics with population estimates for children under the age of 1 having not received the DPT3 vaccine: *dpt3_[year]_0to1_unvaxpop_R2025_v1*
- 9 mosaics with population estimates for children under the age of 1 having not received the MCV1 vaccine: *mcv1_[year]_0to1_unvaxpop_R2025_v1*

Method:

IHME gridded 'mean raked' vaccination rates for vaccines DPT1, DPT3, and MCV1 in 75 countries (5km scale)[1] were resampled to 1km and aligned with the WorldPop Global2 1km mastergrid[2]. As the IHME data records vaccination rates, we found the rate at which children remained unvaccinated by subtracting the values of the IHME raster from 1. This number was then multiplied by the population value from a constrained and UN-adjusted mosaicked raster combining Global2 population estimates with bespoke population estimates produced by WorldPop[3] to find the number of children under the age of one that were unvaccinated within each grid cell. There are a small number of areas where disputed territories of countries extended into an area where IHME had not produced vaccination estimates (e.g. some disputed territory between India and China). In these few cases, the IHME estimate values were extended out (or nibbled), to the edge of the disputed boundary (rather than the WorldPop Global2 mastergrid boundary for the country) using the value of the nearest IHME estimate. This enables

analysis to include these disputed territories, but it should be noted that estimates in these places will not be as accurate as elsewhere.

Suggested citation:

Steingraber A., Tejedor-Garavito N.. Population of unvaccinated children under one year of age (DPT1, DPT3, MCV1) in 75 countries at a resolution of 30 arc-second (approximately 1km at the equator), 2015-2023. R2025 v1. WorldPop - School of Geography and Environmental Science, University of Southampton. 2025. DOI: 10.5258/SOTON/WP00817

---

[1] Mosser, J. IHME Vaccine Coverage Mapping—mcv1_cov_mean_raked_2000_2023, dpt1_cov_mean_raked_2000_2023, dpt3_cov_mean_raked_2000_2023. September 2024. Institute for Health Metrics and Evaluation. Available at: https://www.healthdata.org/research-analysis/health-risks-issues/vaccine-coverage-data. Accessed January 2025.

[2] Bondarenko M., Priyatikanto R., Tejedor-Garavito N., Zhang W., McKeen T., Cunningham A., Nosatiuk B., Tatem A., Sorichetta A.. Global mosaiced national boundaries at a resolution of 30 arc-second (approximately 1km at the equator) R2024B version v1. Global Demographic Data Project - Funded by The Bill and Melinda Gates Foundation (INV-045237). WorldPop - School of Geography and Environmental Science, University of Southampton. 2025 DOI:10.5258/SOTON/WP00813

[3] Steingraber, Aubrey; Tejedor-Garavito, Natalia; Bondarenko, Maksym. WorldPop Global2 population of children under 1 year old combined with WorldPop bespoke population of children under 1 year old mosaics at 1km scale (2015-2023). R2025 V1. 2025. WorldPop - School of Geography and Environmental Science, University of Southampton. DOI: 10.5258/SOTON/WP00814