Ending AIDS Starts With Access

METHODS

UNAIDS GLOBAL AIDS UPDATE 2026

Annex 1:

METHODS

Methods for deriving UNAIDS HIV estimates

Introduction

Every year, UNAIDS provides revised global, regional and country-specific modelled estimates using the best available epidemiological and programmatic data to track the HIV epidemic and response. Modelled estimates are required because it is not possible to count the exact number of people living with HIV, people who are newly infected with HIV, or people who have died from AIDS-related causes in any country.

Doing so would require regularly testing every person for HIV and investigating all deaths, which is logistically unfeasible and ethically problematic. Modelled estimates—and the lower and upper uncertainty bounds around these estimates—provide a rigorous representation of the HIV pandemic in terms of levels and trends.

Country teams use UNAIDS-supported software to develop estimates. The country teams are comprised primarily of national monitoring and evaluation specialists, programme officers, epidemiologists, demographers and other experts from the national ministry of health, national AIDS bodies and technical partners.

The software used to produce most HIV estimates is Spectrum (developed by Avenir Health[1]) and its AIDS Impact Model (AIM). Most countries use an incidence model that runs within the AIM module of Spectrum. A few countries use an external model whose incidence estimate is imported into AIM (Table A1.1). The UNAIDS Reference Group on Estimates, Modelling and Projections[2] provides technical guidance on the development of the AIM module in Spectrum.

Data and estimates presented in the UNAIDS report are primarily generated through UNAIDS processes, unless explicitly referenced. These include epidemiological estimates produced using the models described above, special analyses conducted by UNAIDS, data from the Global AIDS Monitoring process, the National Commitment and Policy Instrument, and analyses of HIV financing data.

1 www.avenirhealth.org
2 www.epidem.org

Table A1.1. Summary of incidence models used in the Spectrum software for developing national HIV estimates during the UNAIDS 2026 estimates round

Incidence model	Countries (*n*)	HIV prevalence (adults aged 15–49 years, median, 2025)	Regions
Estimation and Projection Package (EPP), generalized epidemic	38	1.61%	Caribbean Eastern and southern Africa Western and central Africa
EPP, concentrated epidemic	43	0.34%	Asia and the Pacific Caribbean Eastern Europe and central Asia Latin America Middle East and North Africa Western and central Africa
AIDS Epidemic Model	13	0.35%	Asia and the Pacific
Case Surveillance and Vital Registration (CSAVR) or European Centre for Disease Prevention and Control (ECDC) model, fitting deaths or case reports	69	0.12%	Asia and the Pacific Caribbean Eastern Europe and central Asia Latin America Middle East and North Africa Western and central Europe and North America
Other	9	0.27%	Asia and the Pacific Eastern and southern Africa Western and central Europe and North America
All models	172	0.36%	

Methods and models used by UNAIDS and countries to create estimates[3]

Countries where HIV transmission sustains an epidemic in the general population typically use the Estimation and Projection Package (EPP) module of the Spectrum modelling tool, which fits a trend to HIV prevalence data from pregnant women attending antenatal clinics and from nationally representative population-based surveys. Many countries have historically conducted HIV sentinel surveillance among women attending antenatal clinics, which requires collecting data from a selection of clinics for a few months every few years. In recent years, most countries have stopped conducting sentinel surveillance among pregnant women and are now using data from the routine HIV tests conducted when pregnant women attend antenatal clinics and are tested for HIV. These data avoid the need for separate surveillance efforts, and they provide a complete set of data from all clinics across the country instead of samples from selected sites.

The trends from pregnant women at antenatal clinics, whether measured through surveillance or routine data, can be used to inform estimates of national prevalence trends, whereas data from population-based surveys—which are conducted less frequently but include men and ensure coverage of all people, regardless of whether they use health-care services—are representative of national HIV prevalence levels and, if repeated, also inform trends. Data from

3 The methods are described in detail elsewhere *(1, 2)*.

these surveys also contribute to estimating age- and sex-specific HIV prevalence and incidence levels and trends. A few countries in sub-Saharan Africa that do not have population-based surveys use adjusted HIV prevalence levels from comparisons of antenatal clinic surveillance and population-based survey data from other countries in the region. The resulting HIV prevalence trends, in addition to numbers of people on antiretroviral therapy, are then used to estimate national HIV incidence trends, while accounting for the effects of antiretroviral therapy on survival.

Countries where HIV transmission occurs largely among people from key populations at higher risk of HIV and the epidemic is low-level or concentrated use the AIDS Epidemic Model—a variant of the EPP model that fits to high-quality surveillance prevalence data and population size estimates for each of several key populations and the lower-risk general population.

To estimate HIV prevalence in the remaining lower-risk general population, these countries generally use surveillance data from pregnant women and account for people who ceased behaviours that had put them at increased risk for HIV acquisition at an earlier time—for example, women who stopped selling sex will be included among the remaining population of people living with HIV. The resulting HIV prevalence curve and the number of people on antiretroviral therapy are then used to derive a national HIV incidence trend.

Most countries in western and central Europe and North America use AIDS-related mortality data from vital registration and HIV case reports and the delay from infection to diagnosis to estimate national HIV prevalence and incidence trends.

These countries use the Case Surveillance and Vital Registration (CSAVR) model within Spectrum or the European Centre for Disease Prevention and Control (ECDC) model or, in a few instances, a country-specific model. The CSAVR model is also used by some countries in the Caribbean, Latin America and the Middle East and North Africa that have robust disease reporting systems but limited HIV surveillance or survey data.

All countries using UNAIDS-supported estimation methods apply a common set of assumptions regarding HIV disease progression and the effectiveness of HIV treatment by age and sex, while accounting for regional variation. These assumptions are based on systematic literature reviews and meta-analyses of study data by scientific experts and recommended by the UNAIDS Reference Group on Estimates, Modelling and Projections.

Demographic data, including estimates of fertility, mortality and migration, are derived from the United Nations Population Division World Population Prospects 2024 or recent census data and reflect the de facto population (current residents, regardless of nationality) of each country.

Country teams review assumptions and update the data in their Spectrum files every year with the latest available data, including on numbers of adults and children receiving antiretroviral therapy, pregnant women receiving antiretroviral therapy, and HIV surveillance. The country teams then run the model and review the results before sharing it with UNAIDS.

Final country-submitted files containing the modelled outputs are reviewed at UNAIDS to ensure results are comparable across regions and countries and over time. Selected inputs into the model—including numbers of people on antiretroviral therapy and numbers of women receiving treatment to prevent vertical transmission—are further reviewed and validated in partnership with the Global Fund to Fight AIDS, Tuberculosis and Malaria (Global Fund), the United Nations Children's Fund (UNICEF), the United States President's Emergency Plan for AIDS Relief and its agencies, the World Health Organization (WHO), and other partners.

In the 2026 round of estimates, subnational epidemiological estimates were also created and used by 32 countries (31 in sub-Saharan Africa, one in the Caribbean). Methods for creating these subnational estimates are described later in this annex.

Uncertainty bounds around UNAIDS estimates

The estimation software calculates uncertainty bounds around each estimate. These bounds define the range within which the true value lies in 95% of cases (if it could be measured). Narrow bounds indicate that an estimate is precise, and wide bounds indicate greater uncertainty regarding the estimate, given the data and assumptions.

In countries using HIV surveillance data, the quantity and source of the available data partly determine the precision of the estimates. Countries with more HIV surveillance data typically have smaller ranges than countries with less surveillance data or smaller sample sizes. Countries in which one or more national population-based surveys have been conducted generally have smaller ranges around estimates than countries where such surveys have not been conducted. In countries using HIV case reporting and AIDS-related mortality data, the number of years of data and the magnitude of the cases reported or AIDS-related deaths observed will contribute to determining the precision of the estimate.

The assumptions required to arrive at the estimate also contribute to the extent of the ranges around the estimates. In brief, the more assumptions, the wider the uncertainty range, since each assumption introduces additional uncertainties. For example, the ranges around the estimates of adult HIV prevalence are smaller than those around the estimates of HIV incidence among children, which require additional data on prevalence among pregnant women and the probability of vertical transmission of HIV, which have their own additional uncertainty.

UNAIDS is confident that the actual numbers of people living with HIV, people who are newly infected with HIV and people who have died from AIDS-related causes lie within the reported ranges. With more years of good-quality surveillance data over successive estimation rounds, the uncertainty in a country's estimate will typically decrease.

Improvements included in the 2026 UNAIDS estimates model

Country teams update their HIV estimates annually using Spectrum. These estimates may differ from those published in previous years for two main reasons. First, newly available surveillance and programme data are incorporated into

the model, which can lead to revisions in historical and current estimates of HIV prevalence, HIV incidence and antiretroviral therapy coverage. Second, the model is continually refined to reflect advances in scientific knowledge and statistical methodology, resulting in more accurate estimates of HIV epidemic trends over time.

Occasionally, countries change the incidence modelling option within Spectrum, based on improvements in the data available in the country.

Because the estimates are updated with new data and methodological improvements at each round, the results from previous estimation rounds should not be compared directly with those from the current round. Instead, a complete historical time series is developed at each round of estimation, enabling consistent assessment of trends over time.

Between the 2025 and 2026 estimation rounds, one refinement was introduced to the models, following guidance from the UNAIDS Reference Group on Estimates, Modelling and Projections: assumptions about the mortality among children living with HIV who are on antiretroviral therapy have been updated to the latest data available from the International Epidemiology Databases to Evaluate AIDS Consortium. This resulted in small fluctuations (of 1–2%) in the number of deaths among children on antiretroviral therapy in most countries.

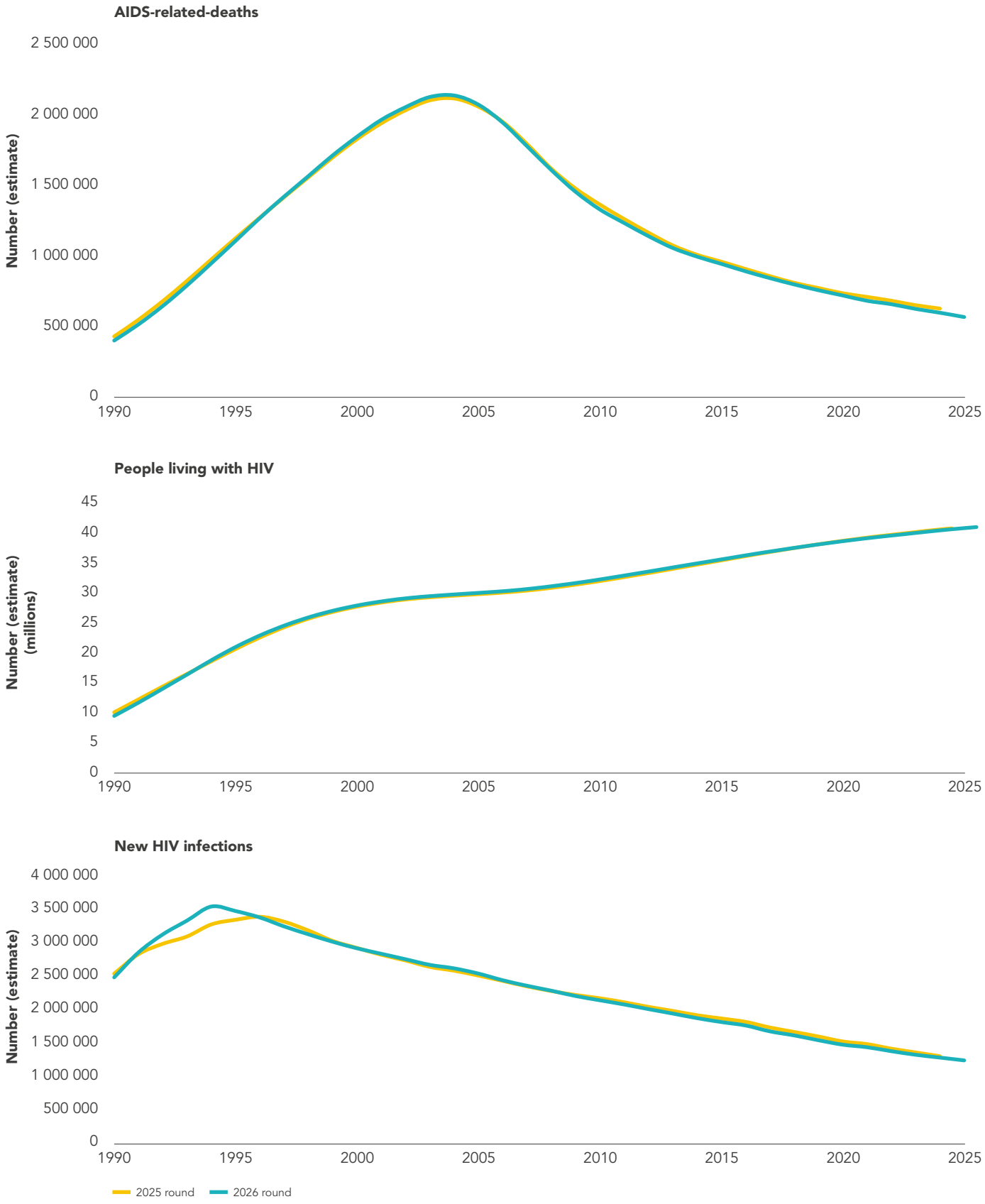
Prevention Denominators Tool

The new Prevention Denominators Tool allows users to estimate the number of people in need of prevention methods based on targets set for condoms, pre-exposure prophylaxis (PrEP), voluntary medical male circumcision, and services for people from key populations. Population sizes (for 2025 and projected to 2030), service coverage from 2025, and rates of HIV serodiscordancy (relevant to PrEP needs) are included in the Tool based on published country-reported data (including, but not limited to, data reported within the Global AIDS Monitoring tool) or other standardized public databases (such as national household surveys, UNAIDS consolidated population size estimates, or sustainability planning and global and regional key population infection estimates).

Estimates of the number of people from key populations are based on national population size estimates used in the 2025 round of Goals model calibrations. Numbers of pregnant women living with HIV are from the 2025 round of UNAIDS epidemiological estimates (see above). Numbers of serodiscordant couples were estimated from prevalence in these AIM files. Total numbers of people receiving PrEP at least once in 2024 were taken from country reports to Global AIDS Monitoring. If the distribution of PrEP use across key populations was missing, it was proportionally allocated across populations. Users can change any of these inputs if they have more recent data.

The Prevention Denominators Tool is not meant to replace existing tools such as the Condom Needs Estimation Tool, DMPPT2 or PrEP-it, which contain additional details. Instead, it aims to provide a quick assessment of needs as part of the estimates process.

Figure A1.1. Comparison of 2026 and 2025 UNAIDS estimates: numbers of new HIV infections, AIDS-related deaths and people living with HIV, global, 1990–2025



Source: UNAIDS epidemiological estimates, 2025 and 2026 rounds.

For countries where voluntary medical male circumcision is a high priority, circumcision targets are by district. Users can update any of the inputs. The Tool is intended to help countries identify people who need services to meet the 2030 HIV targets.

Figure A1.1 presents the 2026 and 2025 estimates. Shifts in the curves are the combined effect of the updated country data and changes to the model structure and assumptions described above. At the global level, trends in numbers of new HIV infections, AIDS-related deaths and people living with HIV are similar to those estimated in the preceding round, although there are variations within some regions or countries.

Publication of country-specific estimates

UNAIDS aims to publish estimates for all countries with populations of 250 000 or more people (according to the United Nations Population Division World Population Prospects 2024, as of 2024). For countries with populations of 250 000 or more people where estimates were not submitted by the country, UNAIDS developed estimates using the Spectrum software, based on published or otherwise available information. These estimates contribute to regional and global totals but are not published as country estimates on the AIDSinfo website.

For 2025, estimates of numbers of people living with HIV were produced for 172 countries (98.6% of the global population) and published for 135 countries (of which 134 also published estimated the number of adults living with HIV). These are sourced as UNAIDS 2026 epidemiological estimates because they were compiled from countries in 2026.

If there are not enough historical data to determine incidence trends, UNAIDS does not publish historical incidence:

- EPP-based incidence trends are published only if there are four or more prevalence data points, including at least one in the past four years for the most important subpopulation.
- For low-level epidemics that rely on case and death surveillance data, incidence trends are published if the input data include at least eight data points on both AIDS-related deaths and new HIV diagnoses within the period 1990–2025.

In the 2026 round, numbers of new infections for the year 2026 were published for 131 countries. Six additional countries published incidence up to 2024, and one more country up to 2023.

Counts of countries on track to achieve the global targets for reducing the number of new HIV infections, and their associated rankings, are restricted to countries with at least 200 new infections in 2025 because estimates for smaller epidemics are subject to greater uncertainty.

Beyond these incidence restrictions, UNAIDS does not publish country estimates for any indicator when available data are insufficient, or when rigorous evidence contradicts the estimates. In the 2026 round, estimates were not published for 30 countries, either because of insufficient data or because of no country submission.

In countries with small epidemics, the number of pregnant women living with HIV is often difficult to estimate. Many women living with HIV in these countries are members of key populations or the sexual partners of people from key populations, and they may have different fertility levels compared with women in the general population. For countries with epidemics concentrated among key populations, UNAIDS presents estimates of vertical HIV transmission and the number of children living with HIV only when they are informed by data on HIV prevalence among pregnant women attending antenatal clinics, with coverage sufficiently high to be considered representative of the national population of pregnant women.

Estimates related to children are not published for countries where the estimated number of pregnant women living with HIV is fewer than 50.

More information on the UNAIDS estimates and the individual Spectrum files for most countries can be found at https://hivtools.unaids.org. Data from the estimates can be found at https://aidsinfo.unaids.org.

Methods for deriving the 95–95–95 testing and treatment targets

Introduction

Since 2015, UNAIDS has reported estimates of global, regional and country-specific progress against the testing and treatment targets. In the United Nations Political Declaration on HIV and AIDS, testing and treatment targets were set to reach 95–95–95 by 2030. These targets refer to three indicators:

- First 95: the percentage of people living with HIV who know their HIV-positive status.
- Second 95: the percentage of people who know their HIV-positive status who are accessing treatment.
- Third 95: the percentage of people living with HIV on treatment who have a suppressed viral load.

The second and third 95s can also be expressed as a percentage of all people living with HIV. When numbers or coverage of the treatment target are expressed relative to the total number of people living with HIV, this is called the HIV testing and treatment cascade.

Data sources for constructing country measures

Country-level progress against the 95–95–95 targets is assessed using data reported from Spectrum and Global AIDS Monitoring. Estimates are published for all people and separately for children (aged 0–14 years), men (aged ≥15 years) and women (aged ≥15 years). Corresponding upper and lower bounds are based on uncertainty ranges around the estimated numbers of people living with HIV for each country, population group and year. These target-related indicators and their data sources are described in the UNAIDS Global AIDS Monitoring 2026 guidelines *(3)*.

Table A1.2 summarizes the number of countries that have reported each indicator in each region over the past eight years.

The final set of country measures of progress against the 95–95–95 targets for 2015–2025 is available at http://aidsinfo.unaids.org. Not all countries were able to report against all three targets. In the 2026 estimates round, complete treatment cascades for 2025 were published for 92 countries (all ages combined), an increase from 85 countries in the 2025 round and 79 countries in the 2024 round.

Table A1.2. Data available by country for measuring progress against the 95–95–95 targets, 2015–2025

Number	Year	Asia and the Pacific	Caribbean	Eastern and southern Africa	Eastern Europe and central Asia	Latin America	Middle East and North Africa	Western and central Africa	Western and central Europe and North America	Global
Countries a		39	16	21	16	17	19	25	39	193
Countries considered in UNAIDS global estimates		29	10	20	16	17	19	25	36	172
Countries with published estimate of adults living with HIV in 2025		23	10	20	10	14	16	23	18	134
Countries with publicly available data on adults who know their HIV-positive status	2015	15	9	19	9	10	14	23	14	113
	2016	17	9	19	9	12	14	23	18	121
	2017	18	9	19	10	13	14	23	21	127
	2018	19	9	19	10	13	14	23	20	127
	2019	20	9	19	10	13	14	23	17	125
	2020	20	9	19	10	13	15	23	19	128
	2021	20	9	19	10	13	15	23	20	129
	2022	20	9	19	10	13	15	23	22	131
	2023	20	9	19	10	13	15	23	22	131
	2024	22	8	19	9	14	14	23	20	129
	2025	20	9	19	9	13	15	23	11	119

Number	Year	Asia and the Pacific	Caribbean	Eastern and southern Africa	Eastern Europe and central Asia	Latin America	Middle East and North Africa	Western and central Africa	Western and central Europe and North America	Global
Countries with publicly available data on adults living with HIV who are on treatment	2015	15	9	19	9	10	14	23	14	113
	2016	17	9	19	9	12	14	23	18	121
	2017	18	9	19	10	13	14	23	21	127
	2018	19	9	19	10	13	14	23	20	127
	2019	20	9	19	10	13	14	23	17	125
	2020	20	9	19	10	13	15	23	19	128
	2021	20	9	19	10	13	15	23	20	129
	2022	20	9	19	10	13	15	23	22	131
	2023	20	9	19	10	13	15	23	22	131
	2024	22	8	19	9	14	13	23	19	127
	2025	20	9	19	9	13	15	23	10	118
Countries with publicly available data on adults living with HIV who were tested and found to have a suppressed viral load	2015	4	2	2	4	5	6	-	8	31
	2016	5	4	6	5	7	7	-	13	47
	2017	7	9	7	7	8	8	1	16	63
	2018	8	10	12	8	10	9	4	17	78
	2019	12	9	16	9	9	8	6	17	86
	2020	10	9	16	9	9	8	8	17	86
	2021	12	9	16	8	10	8	12	18	93
	2022	14	9	17	9	10	9	12	18	98
	2023	19	10	16	9	9	9	12	19	103
	2024	16	10	17	9	9	9	11	15	96
	2025	17	10	16	10	9	13	16	9	100

Source: UNAIDS epidemiological estimates 2015–2025.
[a] Costa Rica's viral load suppression data for 2023–2025 were suppressed in September 2026 and are excluded from these counts.

Estimates of people living with HIV

In the latest 2026 round of HIV estimates, the number of people living with HIV was derived for 172 of 193 countries, representing 99% of the total global population.

Knowledge of HIV status among people living with HIV

Numbers of people who know their HIV-positive status were estimated over time using data available in each country, including HIV case surveillance data, programme data and nationally representative population-based survey data. Where data were available separately for children (aged 0–14 years) and adults

(aged ≥15 years, by sex), age- and sex-specific measures were calculated and then aggregated to obtain national measures.

Countries outside sub-Saharan Africa without national household surveys estimated the number of people who knew their HIV-positive status from HIV case notification data and programme registers. Some countries with concentrated epidemics used notification data directly if the HIV surveillance system had been functioning since 2015 or longer and if they were able to subtract from cumulative diagnosed people those who had died, had emigrated or were otherwise lost to follow-up. If this calculation estimated the number of people who knew their HIV-positive status as smaller than the number of people on antiretroviral therapy, the reported value was excluded because it was potentially incorrect due to one or more common biases. For example, a country may underestimate the number of people who know their HIV-positive status if not all people diagnosed are reported to the surveillance system in a timely manner. Conversely, the measure may be overestimated if people are registered or reported more than once and such duplicates are not detected, or if people die or emigrate but are not removed from the system. Such overestimation of the number of people living with HIV who know their HIV-positive status was common before 2015.

Alternatively, countries with concentrated epidemics could estimate knowledge of HIV status as part of their overall epidemic estimation through the CSAVR model, which produces estimates of HIV incidence, knowledge of HIV-positive status and antiretroviral therapy coverage from case and death notifications.

Most countries in eastern and southern Africa and western and central Africa estimated knowledge of HIV-positive status among adults using the UNAIDS-supported Shiny90 tool, which is part of the Spectrum software. This mathematical model fits data from national population-based surveys on proportions of respondents living with HIV and without HIV who had ever been tested for HIV, in addition to HIV testing services programme data on the annual number of HIV tests conducted and the number of positive tests, and Spectrum model results *(4)*.

Knowledge of HIV status estimates from Shiny90 have strengths over estimates drawn directly from population surveys or programme records. By constructing the population's HIV incidence and testing history over time, the resulting trend in HIV status awareness is adjusted for known reporting biases in awareness of HIV status in household surveys and accounts for retesting and repeat diagnoses among routine programme data on annual HIV diagnoses *(5, 6)*. The Shiny90 estimates distinguish people living with HIV who had an HIV test after seroconversion and so are aware of their HIV-positive status and people who seroconverted after their last HIV-negative test. The distinction is informed by the national incidence trend calculated in Spectrum. Shiny90 estimates knowledge of status by sex and age, assuming adult male/female testing rate ratios have remained relatively constant since 2010. Results include additional indicators such as the estimated percentage of people diagnosed within a year and the number of people (by HIV status) who were retested.

Caution is warranted with knowledge of HIV-positive status estimates if the last population-based survey was conducted more than five years ago, or if there are concerns about the accuracy of self-reported testing history in the survey.

Shiny90 and CSAVR estimates of knowledge of HIV-positive status cover only adults aged 15 years and older. For children, the knowledge of HIV-positive status is estimated by incorporating information on early infant diagnosis, paediatric HIV

testing and antiretroviral therapy programmes to estimate the number of children who have been diagnosed with HIV and remain alive.

People accessing antiretroviral therapy

Global and regional measures of antiretroviral therapy coverage are calculated from data entered by country teams into the Spectrum software or the Global AIDS Monitoring reporting tool. In the 2026 round, 124 countries reported treatment numbers for 2025 (covering 85% of estimated people on treatment). Between 2015 and 2025, 142 countries had at least one published estimate of the number of people on treatment. For a few countries that did not report numbers of people on treatment for all years—primarily high-income countries in Asia and the Pacific and western and central Europe and North America—people on treatment were estimated either in consultation with the public health agency responsible for monitoring the national treatment programme or from published and online sources.

UNAIDS, in partnership with the Global Fund, UNICEF, the United States Government, WHO and other partners that support treatment service delivery in countries, annually reviews and validates treatment numbers that countries have reported to UNAIDS. The number of people on treatment may be overestimated if people who transfer from one facility to another are reported by both facilities, or if people who have died, disengaged from care or emigrated are not identified and removed from treatment registries. Conversely, treatment numbers are sometimes underestimated if not all clinics report the number of people on treatment completely or if they are not reported in a timely manner.

UNAIDS and other international partners support countries to verify the accuracy of reported numbers of people currently receiving treatment. Treatment numbers are also adjusted using country-specific information on loss to follow-up and treatment reinitiation to improve the accuracy of coverage estimates.

People with a suppressed viral load

Progress towards the viral load suppression target among people on treatment and as a percentage of all people living with HIV was estimated from data reported in Spectrum. For reporting, the threshold for suppression is a viral load below 1000 copies/mL. Some countries set lower thresholds to identify a person as having an undetectable viral load. Where a country uses a lower threshold, Spectrum applies an adjustment to estimate the percentage of people with a suppressed viral load of 1000 copies/mL or lower. The Global AIDS Monitoring guidance describes this adjustment in detail. The guidance also specifies that only routine viral load tests should be reported and only a person's last test result from the reporting year should be submitted—so reported numbers represent people tested and the percentage of those people with a confirmed suppressed viral load rather than tests performed *(3)*.

Countries are asked to report viral load suppression outcomes for all years, regardless of testing coverage. However, UNAIDS publishes viral load testing and suppression results only for countries and years in which the number of viral load tests reported is at least 50% of the number of people on antiretroviral therapy. For countries and years with nationally representative but not universal data on viral suppression, the reported proportion of people with a suppressed viral load among people tested for viral load (the third "95") is multiplied by the total

number of people on treatment to estimate the overall number of people with a suppressed viral load.

Table A1.2 shows numbers of countries with a reliable estimate of the number of people with a suppressed viral load. This increased from 63 countries in 2017 to 103 countries in 2023 and 100 countries by 2025.

Some challenges exist in using country-reported data to monitor progress towards the viral load suppression target. First, routine viral load testing may not be available at all treatment facilities. Facilities that provide viral load testing may differ systematically from facilities that do not offer this, meaning the reported results may not be representative of all facilities providing treatment. Despite this uncertainty, we assume that the percentage of people with a suppressed viral load among people accessing viral load testing is representative of all people on treatment.

Second, UNAIDS requests countries to report results only from routine viral load testing. If countries report test results primarily performed because of suspected treatment failure, then the number of people with a suppressed viral load in these countries will be underestimated. UNAIDS validates country submissions for quality, but it is not always possible to identify cases where both routine and other types of testing have occurred.

Third, UNAIDS guidance recommends reporting viral load test results only for people on antiretroviral therapy. People who are not on treatment and who naturally have a suppressed viral load will not be included in this measure.

Methods for constructing regional and global results towards the 95–95–95 targets

All programme data submitted to UNAIDS are validated by UNAIDS and its partners before publication. Country-submitted data that do not meet quality standards, either at the indicator level or across the treatment cascade, are not included in the calculation of regional or global estimates. These include, for example, viral load suppression results for years when less than 50% of people on treatment were tested for viral load.

To estimate regional and global progress against the 95–95–95 targets for adults, UNAIDS imputes missing country data for the first and third "95" targets using a Bayesian hierarchical model. This uses regional trends—or global trends, when regional trends are sparse—sex differences and patterns over time from countries with good-quality data and coherent cascade estimates. Upper and lower bounds around global and regional estimates of the HIV testing and treatment cascade reflect uncertainty in the number of people living with HIV and uncertainty from missing country data in the number of people who know their HIV-positive status or who have a suppressed viral load. These ranges do not capture uncertainty in country-reported numbers of people who know their HIV-positive status, who were tested for viral load or who have a suppressed viral load. Details on the model's methods and assumptions are available elsewhere *(7)*.

Table A1.3 shows the proportions of people living with HIV for whom knowledge of HIV status and viral load suppression were imputed, as opposed to being estimated by or for the country, from 2015 to 2025. Generally, the proportion imputed decreased over time, as more countries reported good-quality data.

Some regions (e.g. eastern Europe and central Asia, western and central Europe and North America) have an increased proportion of countries with imputed knowledge of status or viral load suppression in 2025 compared with earlier years, because the latest data were still being reviewed. Regional estimates of knowledge of HIV status and viral load suppression are published for years with less than 50% imputed by the Bayesian regional model.

Some countries are still not able to report on the testing and treatment cascade or elements of the cascade. Whereas the percentage of people tested for viral load has increased steadily in many countries, knowledge of HIV status remains difficult to estimate, especially in countries without population-based surveys that measure HIV serostatus alongside respondents' testing history. Although most countries have estimated knowledge of HIV status for some or more recent years, this indicator remains more challenging to estimate than antiretroviral therapy coverage and viral load suppression.

Table A1.3. Proportion of estimated people living with HIV for whom knowledge of status was imputed, and proportion of estimated people on treatment for whom viral load suppression was imputed, 2015–2025

Indicator	Year	Asia and the Pacific	Caribbean	Eastern and southern Africa	Eastern Europe and central Asia	Latin America	Middle East and North Africa	Western and central Africa	Western and central Europe and North America	Global
Proportion of estimated people living with HIV for whom knowledge of HIV status was imputed	2015	70	0	0	2	8	8	2	32	12
	2016	67	0	0	2	6	8	2	11	10
	2017	20	0	0	2	1	7	2	13	4
	2018	8	0	0	3	1	7	2	17	3
	2019	8	0	0	3	1	7	0	22	3
	2020	8	0	0	1	1	5	2	17	2
	2021	7	0	0	3	1	5	0	5	2
	2022	7	0	0	3	1	5	1	8	2
	2023	7	0	0	1	2	5	0	10	2
	2024	0	0	5	2	0	6	0	19	4
	2025	1	0	6	2	13	4	2	92	10
Proportion of estimated people on treatment for whom viral load suppression status was imputed	2015	77	89	58	71	21	40	100	25	60
	2016	97	82	47	72	18	38	100	11	55
	2017	96	1	41	72	13	39	99	16	51
	2018	53	0	33	69	9	38	85	21	39
	2019	52	2	10	4	11	40	43	9	19
	2020	18	11	2	5	9	61	30	62	12
	2021	17	3	8	4	10	61	13	9	10
	2022	16	3	1	1	10	46	13	20	6
	2023	2	0	1	1	10	44	24	66	9
	2024	4	0	1	1	10	43	25	33	7
	2025	4	0	2	1	21	14	20	97	11

Source: UNAIDS epidemiological estimates 2016–2025.

People living with advanced HIV disease

National numbers of people living with advanced HIV disease (AHD) are estimated as part of the Spectrum HIV epidemic trend estimates for the years 2015–2025. AHD is defined as adults and children aged ≥5 years living with HIV with a CD4 count below 200/mL or WHO stage III or IV disease, plus all children aged under 5 years living with HIV.

AHD is estimated in Spectrum and comprises seven categories of people living with HIV:

- All children aged 0–4 years living with HIV.
- Children aged 5–14 years living with HIV not on antiretroviral therapy and with a CD4 count below 200 copies/mL.
- Adults living with HIV not on antiretroviral therapy and with a CD4 count below 200 copies/mL.
- Adults on antiretroviral therapy for less than one year, with a CD4 count below 200 copies/mL and without a suppressed viral load.
- Adults on antiretroviral therapy for less than one year, with a CD4 count below 200 copies/mL and with a suppressed viral load.
- Adults on antiretroviral therapy for more than one year, with a CD4 count below 200 copies/mL and without a suppressed viral load.
- Adults on antiretroviral therapy for more than one year, with a CD4 count below 200 copies/mL and with a suppressed viral load.

For adults and children aged 5–14 years on antiretroviral therapy, the proportions of each category assumed to have AHD were estimated from data from 20 national household surveys (Population HIV Impact Assessment Surveys) conducted between 2016 and 2021 in 14 sub-Saharan African countries, as shown in Table A1.5.

Table A1.5. Prevalence of Advanced HIV Disease by antiretroviral therapy and viral load suppression status; findings from available national surveys

Category	Proportion with AHD (%)
Adults on antiretroviral therapy for less than one year and without a suppressed viral load	0.25
Adults on antiretroviral therapy for less than one year and with a suppressed viral load	0.06
Adults on antiretroviral therapy for more than one year and without a suppressed viral load	0.14
Adults on antiretroviral therapy for more than one year and with a suppressed viral load	0.01

To calculate proportions of people living with HIV in each category, Spectrum uses annual national viral load testing and suppression data that countries have entered into the national Spectrum file. Years with missing data are imputed.

For details, see Spectrum user guide Annex 3 *(8)* and Stevens et al. *(9)*.

Of note, these population-based epidemic trend estimates are intended to complement rather than replace country-reported programme data submitted through Global AIDS Monitoring. The programme data report the proportions of people with AHD, defined according to WHO age- and CD4-based criteria, among people presenting to clinics with an initial HIV diagnosis for antiretroviral therapy initiation or reinitiation.

Subnational HIV estimates for sub-Saharan Africa

Subnational HIV estimates were generated using the Naomi model for 31 countries in sub-Saharan Africa and one country in the Caribbean that had conducted one or more representative population-based serosurveys (see Table A1.6).

The Naomi model uses small-area estimation to jointly model HIV prevalence and people living with HIV, antiretroviral therapy coverage and HIV incidence *(10)*. The model combines subnational-level data about multiple outcomes from several sources in a Bayesian statistical model. It uses national population-based survey data, antiretroviral therapy data and antenatal clinic testing data to provide robust indicators of subnational HIV burden. It provides estimates, with uncertainty ranges, for key indicators, including HIV prevalence, the number of people living with HIV, antiretroviral therapy coverage, HIV incidence and the number of new infections. The results are stratified by sex, five-year age groups and subnational geographic level.

The model produces estimates at three timepoints: the year of the most recent population-based survey, the latest HIV estimates year *(2025)*, and short-term projections to support HIV programme planning. Subnational population estimates by sex and age group are obtained from country-specific consensus sources and calibrated to match the population estimates used in Spectrum.

Cross-sectional estimates for HIV prevalence, antiretroviral therapy coverage and HIV incidence are produced at the midpoint of the most recent nationally representative household survey. For HIV prevalence, the model is calibrated to survey data on HIV prevalence by subnational level, sex and five-year age group from the most recent population-based survey (Demographic and Health Survey or Population-based HIV Impact Assessment). Since the survey sample size in each subnational area is relatively small, routinely reported data about HIV prevalence among pregnant women attending their first antenatal care visit, extracted from the national health information system, are used to improve estimates of the spatial pattern of HIV.

Antiretroviral therapy coverage by subnational area, age and sex is estimated from population-based survey data about the presence of antiretroviral biomarkers in survey respondents living with HIV. Routinely reported antiretroviral therapy coverage among pregnant women before their first antenatal care visit is used as a covariate for the spatial pattern of antiretroviral therapy coverage. Antiretroviral therapy coverage and HIV prevalence are calibrated so the total number of people on antiretroviral therapy matches the report in the Spectrum national file.

A challenge for estimating treatment coverage for subnational areas is that people may access antiretroviral therapy services in a different district from their residence (e.g. if facilities are closer or perceived to provide better services). The model allows for the probability that people living with HIV access antiretroviral therapy in a neighbouring subnational area. The prior assumption is that most people living with HIV will access antiretroviral therapy in their area of residence, but this probability can vary based on subnational area data about the number of people receiving antiretroviral therapy compared with HIV prevalence, antiretroviral therapy coverage and population.

Table A1.6. Countries using the Naomi model to generate subnational estimates

Angola	Ghana	Niger
Botswana	Guinea	Nigeria
Burkina Faso	Guinea–Bissau	Rwanda
Burundi	Haiti	Sierra Leone
Cameroon	Kenya	South Africa
Chad	Lesotho	Togo
Congo	Liberia	Uganda
Eswatini	Malawi	United Republic of Tanzania
Ethiopia	Mali	Zambia
Gabon	Mozambique	Zimbabwe
Gambia	Namibia	

Direct estimates of HIV incidence are not available at the subnational level. Although some recent household surveys have measured HIV incidence at the national level based on biomarker measures for recent HIV infections, too few recent infections are observed in any district to make a robust estimate. Therefore, to estimate HIV incidence at the subnational level, the HIV transmission rate from Spectrum estimates is calculated and applied to small-area estimates of HIV prevalence and antiretroviral therapy coverage in each subnational area. The sex and age distribution in each subnational area are based on incidence rate ratios from a country's national Spectrum file, applied to the population structure in each area.

The model projects from the most recent household survey to the current period by creating a one-step projection of the population to 2025.

Population estimates are updated with official population estimates. The number of people living with HIV is projected forward based on survival estimates by province, sex and age group from Spectrum over the same period (which accounts for HIV disease progression and the effects of antiretroviral therapy coverage reducing AIDS-related mortality). Antiretroviral therapy coverage is updated based on the number of people on treatment in 2025 from service provision data.

Laws and policies

The data on laws and policies included in the report are based on validated data reported by countries through the National Commitments and Policy Instrument, a component of Global AIDS Monitoring *(3)*, between 2017 and 2026 and complementary sources, including national legal and policy documents and other global databases.

Data submitted by countries through the National Commitments and Policy Instrument are reviewed by UNAIDS. During this review process, reported information is compared with available primary sources and other related publicly available information. UNAIDS also liaises with national Global AIDS Monitoring focal points to request clarification or revise data submitted through the Global AIDS Monitoring online reporting tool.

Service disruption due to funding cuts in 2025

In early 2025, following the abrupt reduction of support to United States-funded activities, UNAIDS established a country reporting portal for affected countries to report on a number of key Global AIDS Monitoring indicators to monitor the impact on service delivery on a monthly basis in 2025 and then quarterly in 2026. The tool for data collection is similar to a tool used during the COVID-19 pandemic and the ensuing disruption in services.

Countries have used the tool and reported data, depending on their health information systems and their ability to collect and collate data from service provision sites. The reported data are available through the AIDSinfo website at https://aidsinfo.unaids.org/services.

In using and interpreting these data, the following caveats must be considered:

- The timing of data compilation varies by country (and sometimes by indicators within a country).
- There were data disruptions in many countries because the United States funding covered data clerks and their managers.
- UNAIDS has undertaken limited validation of the data and has allowed for corrections after the data have been published.

UNAIDS regional definitions

All presentations of data, including historic trends, use the following UNAIDS regional definitions:

Asia and the Pacific:

Afghanistan
Australia
Bangladesh
Bhutan
Brunei Darussalam
Cambodia
China
Democratic People's Republic of Korea
Fiji
India
Indonesia
Iran (Islamic Republic of)
Japan
Lao People's Democratic Republic
Malaysia
Maldives
Mongolia
Myanma
Nepal
New Zealand
Pakistan
Papua New Guinea
Philippines
Republic of Korea
Singapore
Sri Lanka
Thailand
Timor-Leste
Viet Nam

Caribbean:

Bahamas
Barbados
Belize
Cuba
Dominican Republic
Guyana
Haiti
Jamaica
Suriname
Trinidad and Tobago

Eastern Europe and central Asia:

Albania
Armenia
Azerbaijan
Belarus
Bosnia and Herzegovina
Georgia
Kazakhstan
Kyrgyzstan
Montenegro
North Macedonia
Republic of Moldova
Russian Federation
Tajikistan
Turkmenistan
Ukraine
Uzbekistan

Eastern and southern Africa:

Angola
Botswana
Comoros
Eritrea
Eswatini
Ethiopia
Kenya
Lesotho
Madagascar
Malawi
Mauritius
Mozambique
Namibia
Rwanda
South Africa
South Sudan
Uganda
United Republic of Tanzania
Zambia
Zimbabwe

Latin America:

Argentina
Bolivia (Plurinational State of)
Brazil
Chile
Colombia
Costa Rica
Ecuador
El Salvador

Guatemala
Honduras
Mexico
Nicaragua
Panama
Paraguay
Peru
Uruguay
Venezuela (Bolivarian Republic of)

Middle East and North Africa:

Algeria
Bahrain
Djibouti
Egypt
Iraq
Jordan
Kuwait
Lebanon
Libya
Morocco
Oman
Qatar
Saudi
Arabia
Somalia
Sudan
Syrian Arab Republic
Tunisia
United Arab Emirates
Yemen

Western and central Africa:

Benin
Burkina Faso
Burundi
Cabo Verde
Cameroon
Central African Republic
Chad
Congo
Côte d'Ivoire
Democratic Republic of the Congo
Equatorial Guinea
Gabon
Gambia
Ghana
Guinea
Guinea-Bissau
Liberia
Mali
Mauritania
Niger
Nigeria
Sao Tome and Principe
Senegal
Sierra Leone
Togo

Western and central Europe and North America:

Austria
Belgium
Bulgaria
Canada
Croatia
Cyprus
Czechia
Denmark
Estonia
Finland
France
Germany
Greece
Hungary
Iceland
Ireland
Israel
Italy
Latvia
Lithuania
Luxembourg
Malta
Netherlands (Kingdom of the)
Norway
Poland
Portugal
Romania
Serbia
Slovakia
Slovenia
Spain
Sweden
Switzerland
Türkiye
United Kingdom of Great Britain and Northern Ireland
United States of America

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UNAIDS
Joint United Nations Programme on HIV/AIDS

20 Avenue Appia
1211 Geneva 27
Switzerland

+41 22 595 59 92

unaids.org