

Methods and assumptions for estimates

UNAIDS/WHO recommend the following methods to obtain national HIV and AIDS estimates.

Generalized epidemic

In countries with a *generalized epidemic*, national estimates of HIV prevalence are based on data generated by surveillance systems that focus on pregnant women who attend a selected number of sentinel antenatal clinics, and in an increasing number of countries on nationally representative serosurveys.

Concentrated epidemic

In countries with a *low level or concentrated epidemic* national estimates of HIV prevalence are primarily based on surveillance data collected from populations at high risk (sex workers, men who have sex with men, injecting drug users) and estimates of the size of populations at high and low risk. This data is entered into the *Estimation and Projection Package (EPP) software* which fits a simple epidemiological model to the epidemic structure defined. EPP finds the best fitting curve that describes the evolution of adult HIV prevalence over time, and calibrates that curve based on prevalence found in any national surveys. Incidence is then calculated from the prevalence over time, allowing for the effect of ART. The adult incidence curve, along with national population estimates and epidemiological assumptions, is then entered into the *Spectrum software programme* to calculate the number of people infected, new infections and deaths.

Where little prevalence data

For countries with very little available prevalence data (less than three consistent surveillance sites) a point prevalence estimate and projection is made using spreadsheet models (the *Workbook Method*). The resulting point prevalence estimates for several years are entered into EPP to find the best fitting curve that describes the evolution of adult HIV prevalence over time. Incidence is then calculated from the prevalence over time, allowing for the effect of ART

Further details

More detailed explanation of methods and assumptions may be found on the *UNAIDS reference group on estimates, modeling and projections website* and in a series of papers published in *Sexually Transmitted Infections*, “Improved methods and tools for HIV/AIDS estimates and projections,” [2008, 84 \(Suppl I\)](#), [2006, 82 \(Suppl III\)](#) and [2004, 80 \(Suppl I\)](#).



Capacity building in the application of the above methods has been supported by a global series of training workshops in 2003, 2005, 2007, and 2009. The large majority of low- and middle income countries now use the above methods.

The 2009 training workshops include regional workshops in South Africa (two sessions), Thailand (two sessions), Croatia, Egypt, Senegal, Moldova, Panama (two sessions), and Barbados. These workshops brought participants up to date with the latest in new data collection developments and will build the capacity of country staff to produce updated estimates. Global and regional estimates based on these preliminary country estimates were published in the *2009 AIDS epidemic update* and new country estimates were published in the *2010 UNAIDS Report on the global AIDS epidemic*.

Resources

Estimation and Projection Package (EPP) software

<http://www.unaids.org/en/dataanalysis/tools/estimationandprojectionpackagepp/>

Spectrum software programme

<http://www.unaids.org/en/dataanalysis/tools/>

The Workbook Method

<http://www.unaids.org/en/dataanalysis/tools/workbookmethod/>

UNAIDS reference group on estimates, modeling and projections website

<http://www.epidem.org/Default.htm>