

Factsheet

The process behind India's revised AIDS estimates

India's National AIDS Control Organization (NACO) has recently completed a complex process of data collection and analysis, in order to produce revised estimates on India's AIDS epidemic.

UNAIDS has put together a set of fact sheets to explain the different steps India went through to produce the revised estimates. This is the first fact sheet which explains the data collection process and gives additional background information on the specific surveys and surveillance.

1. Data collection: Surveys and surveillance

The process to come to revised estimates is complex in any country however the diversity of the epidemic in India renders the process even more complicated. In India, the HIV epidemic is very different in different regions of the country. Specifically, HIV prevalence is higher in some southern and north-eastern states of India than it is in other areas including large parts of northern India. Also, the main modes of transmission vary from one region to another—so it is essential that all relevant data sources are examined and included.

The revised estimates were produced from a new and expanded set of recently collected data in India. These new data have come from three main sources:

- An **expanded sentinel surveillance system**
 - *India started a formal sentinel surveillance system in 1998 and has greatly expanded its surveillance system in recent years, both in terms of number of surveillance sites and in terms of population groups covered.*
 - *From being largely based in general population groups (mainly pregnant women attending antenatal clinics as well as people attending sexually transmitted infections clinics), the system has in recent years included more surveillance sites for population groups that are at a higher risk of HIV infection.*
 - *From 155 sites in 1998, India expanded its surveillance to 1,164 sites in 2006.*
- A large **population-based survey**—conducted in 2005-2006—called the National Family Health Survey or NFHS-3 which is a household population survey, similar to the Demographic and Health surveys conducted in many countries.
 - *The population-based survey represents an entirely new source of data for India and is the first time that it has included an HIV component.*
 - *The sample size for HIV was over 100,000 people.*
 - *This type of survey has been conducted in many countries in Africa where it has been the basis for improving estimates.*

- An **integrated behavioural and biologic assessments system**—essentially a targeted surveillance system focusing on groups at higher risk of HIV infection, located in the states with high prevalence.

Surveys explained

In many countries at the beginning of the AIDS epidemic, testing for HIV was done in a very sporadic and non-routine way. Tests tended to be done only where there was an index of suspicion that the person may be infected with HIV—and that is as true in India as it is in other places.

So people who were sick or people who were worried were going to clinics and being tested for HIV which was the basis on which the understanding of the epidemic was built. This method was rather unreliable as the samples only represented a small number of people and was not representative of the wider population. This is why sentinel surveillance was introduced.

Sentinel surveillance

Sentinel surveillance was introduced in many parts of the world in the early 90's, but the sentinel system in India didn't get started until 1998. Sentinel surveillance are warning systems, they take settings where blood tests are being carried out, in ante-natal clinics for example, and every one month or two months in a year, they test everyone who comes into that clinic. This system has its strengths and weaknesses.

The sentinel surveillance in ante-natal clinic attendees is quite effective in measuring HIV prevalence in urban women. Sentinel surveillance however does not do well in measuring HIV prevalence in rural areas as the sites tend to be located mostly in urban areas and therefore under-represent rural populations. Importantly, they do not measure HIV prevalence in men.

India has in recent years expanded its sentinel surveillance system to extend its geographical coverage and also to include groups at higher risk of HIV infection such as people who inject drugs, men who have sex with men and commercial sex workers. So India's system has improved in recent years in terms of measuring the country's HIV prevalence.

Population-based or household surveys

Household surveys have large population sizes. The sample size for HIV, for instance, of the National Family Health Survey-3 in India was over 100,000 people. These surveys involve essentially going into villages and towns, going into households and checking everyone who's in that household on that day. These surveys have been around since the late 70's - early 80's and were set up mainly to look at family planning, the use of contraception and fertility rates.

Initially these surveys had only been asking questions, e.g. how many children have you had? do you use contraceptives? etc. But in 2000 and 2001 voluntary blood tests were introduced. So in addition to the questionnaire, consenting household members would also receive a blood test. The blood was then tested for malaria, for detecting vitamin deficiencies and also for HIV.

Because these surveys do not depend on someone going to a clinic, and because of their sampling method, they are more representative. Compared to sentinel surveillance, they

generate more accurate information for rural areas and for men. However, they also have their weaknesses, in that they only generate information about people living in households and being present in the household on the day of the survey. They are more accurate in measuring HIV in generalized epidemics, i.e. epidemics with HIV prevalence of greater than 1% among pregnant women, than in measuring HIV in concentrated epidemics.

They are also expensive and generally can only be done once every five years. To monitor the trends of an epidemic, it is important to combine the more frequent sentinel surveillance which is typically done once a year with the national household surveys.

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