



Programme for the surveillance of HIV/AIDS/and sexually transmitted infections

<http://www.who.int/emc/diseases/hiv/index.html>

History of the disease

AIDS (Acquired Immune Deficiency syndrome) is caused by a virus, HIV (human immunodeficiency virus) first isolated in 1983. It has been identified in over 200 countries and territories worldwide and is spreading rapidly in many affected populations, particularly in developing countries.

HIV belongs to an unusual group of viruses called retroviruses, which include viruses causing leukaemia in humans, cats, cattle and other animals, and certain other virus found in monkeys and apes, sheep and goats. Retroviruses also belong to a subgroup called lentiviruses, because they are slow to cause disease.

There are two main strains of HIV: HIV-1 that has caused the majority of infections and AIDS cases and HIV-2, which is concentrated in selected countries. Of the other known related viruses, a type of retrovirus found in many other primates (simian immunodeficiency virus, SIV) may be the most likely contender for the origin of HIV. Of the many different strains of SIV found in various monkey and ape species in Africa, some causing an AIDS-like disease in their host, the most similar to HIV-1 is the chimpanzees SIV. Viruses mutate, or change, more easily than more complex organisms. HIV itself has numerous varieties and has been shown to mutate even within an individual during the progress of the infection. AIDS develops in a HIV-positive person after years of infection, as HIV steadily weakens the body's immune system and increases its vulnerability to pneumonia, tuberculosis, diarrhoea, tumours and other opportunistic illnesses. With the number of people infected with HIV continuing to rise, the number of people falling sick and dying of AIDS will multiply.

While the origins of AIDS remain obscure, it is known that HIV occurred as long ago as the late 1950s in isolated individuals. It began to be widespread in the mid- to late 1970s but, because of the long incubation period, the virus did not cause widespread disease until the 1980s. In most countries, in its early stages the viral epidemic progressed undetected.

Transmission

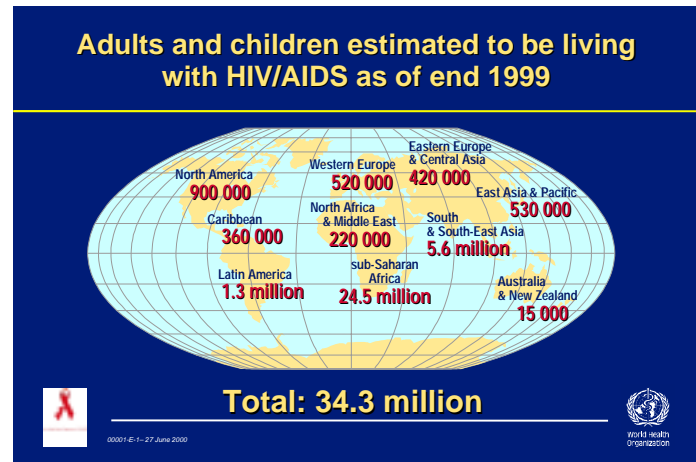
HIV is easily killed outside the human body and therefore can only be transmitted directly from person to person, either by sexual contact, exchange of blood or body fluids or from mother to child. Sexual transmission of the HIV is relatively inefficient and repeated unprotected exposures are normally required. HIV incidence and prevalence can vary greatly from country to country and even within countries, depending on several risk factors and risk behaviours. Since the HIV epidemic is driven mainly by sexual transmission, the level and intensity of risk behaviours (vaginal or anal unprotected sex) in a given community are the main determinants of the spread of the virus.

These factors may determine the probability of exposure to HIV infection (e.g.: level and extent of risk behaviours, high HIV prevalence in the community). Others may influence the probability of HIV transmission per exposure (e.g.: the prevalence of other sexually transmitted infections (STIs), levels of condom use, circumcision). In view of the importance of these determinants, information on risk factors obtained from behavioural surveillance studies and STI incidence and prevalence can help better explain epidemic curves and

monitor the impact of interventions. The concept of 2nd generation HIV surveillance, introduced by WHO and UNAIDS, integrates AIDS and HIV surveillance with additional sources of essential data to better monitor the epidemic.

Magnitude of the problem

At the end of 1999, an estimated 34.3 million people around the world were living with HIV/AIDS and 95% of these live in the developing world. It is also estimated that during 1999, 5.4 million people (including 620 000 children under 15 years of age) became infected. With 15 000 new infections each day, HIV/AIDS is quickly becoming one of the major causes of death and disease worldwide.



While HIV/AIDS is a serious threat to people in all areas of the world, sub-Saharan Africa is most at risk. Of the 5.6 million people infected with HIV in 1999, 4 million live in this region where there were an estimated 2.2 million HIV/AIDS deaths during 1999 (85% of the global total), although only one tenth of the world population lives there. In addition, there are now more women infected than men among the 24.5 million adults and 1 million children estimated to be living with HIV/AIDS in sub-Saharan Africa.

WHO's role

Surveillance of HIV/AIDS and sexually transmitted infections (STIs) is of paramount importance to monitor the patterns of disease spread and assess the impact of prevention and control actions. Surveillance of the HIV epidemic is primarily based on three complementary methods:

- surveillance of AIDS cases, a clinical end point of severe HIV infection;
- surveillance of HIV prevalence in sentinel populations;
- Behavioural and STI surveillance (“risk” surveillance).

In view of its mandate, expertise, and global and regional networks, WHO has the capacity and comparative advantage for assisting countries in strengthening their information systems and improving the quality and completeness of available HIV/AIDS/STI data. Collaboration with UNAIDS and international partners will ensure that appropriate infrastructures will be developed and surveillance activities will be integrated as fully as possible.

Global partnerships

To improve the availability of information for monitoring of the epidemic, as well as the planning, monitoring and evaluation of national and international responses, UNAIDS and WHO have agreed on a common mechanism for the global surveillance of HIV/AIDS and STIs. The UNAIDS/WHO Working Group on Global HIV/AIDS/STI Surveillance provides a forum for information sharing, coordination, joint planning and evaluation of activities. The working group fosters involvement of other partners and institutions, and agrees on the estimates and projections of HIV/AIDS and STIs at the global level. It also works in cooperation with an extensive global network of collaborating centres, institutions and experts to support work on HIV/AIDS and STIs.

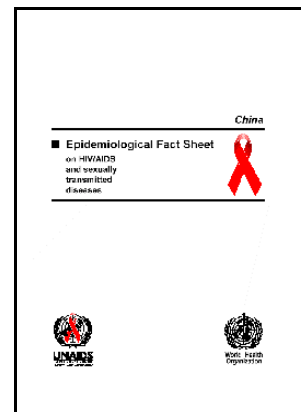
Activities

The Working Group deals with a wide range of issues directly or indirectly related to the global surveillance of HIV/AIDS and STI. These activities can be grouped in four main areas of work:

Global surveillance

Information is collected from all Member States, normally through WHO Regional offices, and is compiled in a global database for regular analysis and dissemination through global reports and publications. Data is also collected from the scientific press, reports of consultants and missions and international conferences, often in collaboration with international and national institutions like the United States Bureau of Census and the European Centre for AIDS Epidemiology. Every effort is made to ensure that the information is as complete and updated as possible. The group is currently developing a new database design that will allow networking of regional databases, and access and eventual input of data through the Internet.

The information compiled in the global database is used to produce HIV Epi Fact Sheet for each individual country. The Epi Fact Sheet contains the most updated information relevant to HIV, including demographic, social, behavioural and STI data. First issued in June 1998, the Epi Fact Sheets have been updated in June 2000 for the AIDS conference in Durban. Yearly updates are planned thereafter.



Development of guidelines and surveillance tools

To improve the collection of HIV, AIDS, STI and behavioural data at country level, the Working Group gathers examples of best practices and experiences from all regions and uses them to develop global guidelines and training materials to be used in designing, monitoring and evaluating national surveillance systems. Looking at the differences in the epidemic scenarios across the world since the 1980s, a revised surveillance system, dubbed 2nd generation HIV surveillance, has been developed through series of workshops and the combined work of international experts. The new system builds on the existing HIV surveillance activities and focuses more on the monitoring of mature epidemics, adaptation of tools to contain progressing epidemics and the more consistent collection and use of behavioural data for risk assessment and evaluation of preventive interventions.



The background document on 2nd generation surveillance has been published and will be followed by series of technical guidelines outlining the operational aspects of implementing the different components. A first document on STI surveillance guidelines and several publications on behavioural surveillance are already available.

Support to regional and national surveillance activities

The Working Group provides support to regional and national HIV, STI and behavioural surveillance activities through regular regional and intercountry meetings and workshops, fielding of staff or external consultants, briefing of national and international staff in headquarters and, in some cases, direct financial support. UNAIDS and the European Community have recently signed a three-year project that will provide financial and technical support in Asia, Africa and the Caribbean while field-testing the basic concepts of 2nd generation surveillance. WHO will provide technical and financial support for intercountry HIV surveillance activities. Funding is also available for support to few countries in the implementation of STI surveillance.

Research and development

The changing realities of the HIV epidemic, the development of new testing methodologies and the need to improve on the accuracy and completeness of the data require continuous research into new epidemiological tools for monitoring the spread of HIV and other aspects related to the HIV epidemic. In collaboration with international and national institutions, the UNAIDS/WHO Working Group plays a leading role in coordinating the development of new methodologies, operational research and the assessment of new and emerging problems related to the HIV epidemic. Examples include:

- use of demographic health surveys for HIV prevalence studies;
- utilization of mapping tools (HealthMap) and Geographic Information Systems for HIV surveillance;
- integration of HIV with other disease surveillance systems;
- monitoring of Antiretroviral resistance, the use of alternative HIV testing methodologies (saliva, urine) in surveillance.

In addition, more advanced tools for the estimation and projection of the HIV epidemic are being developed in a continuous effort to improve the accuracy of the information and its usefulness for planning and monitoring of preventive and care efforts.

Conclusion

To accurately monitor the AIDS Epidemic, the following activities are fundamental:

- surveillance and analysis of temporal and geographical HIV, AIDS and STI infection trends;
- estimation and epidemic forecasting;
- evaluation and implementation of the effectiveness of programmes at the national, regional and global level;
- dissemination of and access to information worldwide to enable/foster best practices.

With the introduction of the concept of 2nd generation HIV surveillance, UNAIDS and WHO seek to encourage countries to improve their existing HIV/AIDS and STI surveillance systems. Key activities include ensuring the regular undertaking of HIV sentinel surveillance studies, encouraging the collection of more information on STI and of behavioural data, identifying ways to improve timely and appropriate analysis, dissemination and use of key information for the monitoring of the HIV epidemic and planning of prevention and control activities.

WHO, in collaboration with UNAIDS and international partners, can assist countries to successfully carry out these activities as part of an integrated approach to HIV/AIDS and STI surveillance.

For more information please contact surveillance@unaids.org