



EDMA HIV-AIDS TEAM
Fact Sheet
November 2007

1. HIV Facts

AIDS epidemic update

UNAIDS Epidemic Update, November 2007 ⁽¹⁾

760,000 people to be living with HIV in Western and Central Europe in 2007.
31,000 new HIV infections in 2007 in Western and Central Europe.
12,000 adult and child death from Aids related illnesses during 2007.

Heterosexually acquired HIV infections, most of which were among immigrants and migrants, accounted for the largest proportion (42%) of new HIV diagnoses in **Western Europe** in 2006. A little under one third (29%) of newly diagnosed HIV infections were attributable to unsafe sex between men, and only 6% to injecting drug use ⁽²⁾.

About three quarters of heterosexually acquired HIV infections were **among immigrants and migrants** ⁽³⁾, reinforcing **the need to adapt prevention, treatment and care services so that they reach these populations**.

The HIV epidemics in **Spain, Italy, France** and the **United Kingdom**, continue to be the largest in Western and Central Europe.

In Western Europe (excluding the United Kingdom), **the number of annual reported new HIV diagnoses almost tripled between 1999 and 2005**, from 7,497 to 19,476; but declined significantly in 2006, to 16,316 cases. The largest number of diagnoses was reported in **France** (where 5,750 HIV infections were newly diagnosed in 2006), **Germany** (2,718) and **Portugal** (2,162) ⁽²⁾.

The annual number of newly diagnosed HIV infections has more than doubled in the United Kingdom, from 4,152 in 2001 to 8,925 in 2006 ⁽²⁾. This reported increase is mainly due to sustained levels of newly acquired infections among men who have sex with men, an increase in diagnoses among heterosexual men and women who acquired their infection when visiting high-prevalence countries (mainly sub-Saharan Africa and the Caribbean), and improved reporting due to expanding HIV testing services. ⁽²⁾

In the UK, **about one third of persons with HIV do not know that they have been infected** ⁽³⁾. They therefore are not receiving the treatment and care they may need, and **are at risk of transmitting the virus to others**. In a 2005 survey, 79% of respondents nationally (and only 70% in London, the area with the highest HIV prevalence in the country) knew that HIV can be transmitted through unprotected sex, compared with the 91% in 2000.

HIV / AIDS Surveillance in Europe ⁽⁴⁾

The **total number (7.76m in European Union / 32.48m in total WHO European region) of**

Anlage 1 b zur Einladung ÖA 77

HIV tests performed annually for diagnostic purpose (i.e. unlinked anonymous tests and blood donations excluded) provide a crude measure of HIV testing activities, but **do not inform on who is being tested or to what extent testing is targeted at high risk populations.**

HIV testing data are derived from different sources in different countries and may not be exhaustive in all countries, and hence may not always be comparable. **In contrast to the East and the Centre, many countries in the West do not systematically collect such data and in some cases only estimates are available.**

The changing face of the HIV epidemic in Western Europe: What are the implications for public health policies? ⁽⁵⁾

Incidence studies based on assays that can identify recent infections should be promoted in Europe and, where feasible, integrated into surveillance systems. As treatment becomes more widespread, **transmission of HIV strains resistant to antiretroviral drugs might increase.**

More than ever, in the era of highly effective antiretroviral treatment, early diagnosis and treatment of infected individuals is essential to HIV prevention, care and control. **A large proportion of people infected with HIV remain unaware of their infection**-31% is the estimate for the UK. These people will not benefit from effective treatment and may continue, unknowingly, **to transmit HIV to others.** Furthermore, **recently infected people have high viral loads**, which increase the risk of transmission.

2. Related IVD Tests

OVERVIEW ON CLINICAL TESTS USED TO DIAGNOSE AND MONITOR HIV PATIENTS ⁽⁶⁾⁽⁷⁾⁽⁸⁾

Diagnosis

<u>Test used</u>	<u>Purpose</u>	<u>Testing schedule</u>
<i>Serology Markers:</i> Enzyme immunoassays (EIA), Immunofluorescence assays, particle agglutination, rapid tests & confirmation tests (e.g. Western Blot)	Detection, diagnosis and confirmation of HIV infected patient	cf prescription
<i>HIV Proviral DNA test</i>	Infant diagnosis (< 18 months) Early diagnosis of children born from HIV positive mothers Treatment and breast feeding decision	Diagnosis at 28 days already of new born persistence of maternal HIV antibodies during 12-18 months
<i>Genotyping resistance test</i>		

Anlage 1 b zur Einladung ÖA 77

Monitoring of HIV patient prior (even prognosis) ⁽⁹⁾ and under treatment

<u>Test used</u>	<u>Purpose</u>	<u>Testing schedule</u>
HIV Viral Load (VL)	Monitor HIV patient under treatment: compliance and resistance management	Newly Diagnosed patient: controlling VL Untreated patients: 2-4 times / year Treated patients: 4 times / year
CD4 cell count	Monitor HIV patient under treatment: compliance and resistance management	Newly Diagnosed patient Untreated patients: 2-4 times / year Treated patients: 4 times / year (*). In the US the testing schedule for virological testing is different, recommending that CD4+ T cell count be measured at the time of diagnosis and every 3-4 months thereafter for the untreated patient ⁽¹⁰⁾ .
Serology	Monitor HIV patient under treatment: compliance and resistance management	Newly Diagnosed patient Untreated and Treated patients: yearly
Genotyping resistance test		

OVERVIEW ON CLINICAL TESTS USED TO MITIGATE HIV TRANSMITTED BLOOD TRANSFUSIONS

Safety of Blood Transfusion

<u>Test used</u>	<u>Purpose</u>	<u>Testing schedule</u>
Serology Markers: HIV1/HIV2 EIA	Safety in Blood Transfusion by reducing the window period	every Blood donations
Molecular markers: Nucleic Acid Testing for HIV, HCV and HBV	Additional safety in Blood Transfusion detection of HIV window cases before seroconversion	every Blood donations

3. IVDs Utility: Diagnostics are indispensable

Revised Recommendations for HIV Testing of Adults, Adolescents, and Pregnant Women in Health-Care Settings ⁽¹⁷⁾

The **objectives** of these recommendations are **to increase HIV screening** of patients, including pregnant women, in health-care settings; **foster earlier detection of HIV infection; identify and counsel persons with unrecognized HIV infection...**

Rationale for Routine Screening for HIV Infection

...These revised CDC recommendations advocate **routine voluntary HIV screening as a normal part of medical practice, similar to screening for other treatable conditions**. Screening is a basic public health tool used to identify unrecognized health conditions so treatment can be offered before symptoms develop and, for communicable diseases, so interventions can be implemented **to reduce the likelihood of continued transmission...**

HIV infection is consistent with all generally accepted criteria that justify screening:

1. HIV infection is a serious health disorder that can be diagnosed before symptoms develop;
2. **HIV can be detected by reliable, inexpensive, and non-invasive screening tests;** In Europe the HIV price range is 0.9 - 1.5 Euros / test in average depending on quantities, reagent, contract, etc.
3. Infected patients have years of life to gain if treatment is initiated early, before symptoms develop;
4. The costs of screening are reasonable in relation to the anticipated benefits. Among pregnant women, screening has proven substantially more effective than risk-based testing for detecting unsuspected maternal HIV infection and preventing perinatal transmission.

Recent studies demonstrate that **voluntary HIV screening is cost-effective even in health-care settings in which HIV prevalence is low** ^{(12) (13) (14)}. In populations for which prevalence of undiagnosed HIV infection is $\geq 0.1\%$, HIV screening is as cost-effective as other established screening programs for chronic diseases (e.g., hypertension, colon cancer, and breast cancer) ^{(13) (14)}. **Because of the substantial survival advantage** resulting from earlier diagnosis of HIV infection when therapy can be initiated before severe immunologic compromise occurs, **screening reaches conventional benchmarks for cost-effectiveness** even before including the important public health benefit from reduced transmission to sex partners.

Because **viral load is the chief biologic predictor of HIV transmission** ⁽¹⁵⁾, **reduction in viral load through timely initiation of HAART might reduce transmission**, even for HIV-infected patients who do not change their risk behaviour ⁽¹⁴⁾. Estimated transmission is 3.5 times higher among persons who are unaware of their infection than among persons who are aware of their infection and contributes disproportionately to the number of new HIV

infections each year in the United States ⁽¹⁶⁾. In theory, new sexual HIV infections could be reduced >30% per year if all infected persons could learn their HIV status and adopt changes in behaviour similar to those adopted by persons already aware of their infection ⁽¹⁶⁾.

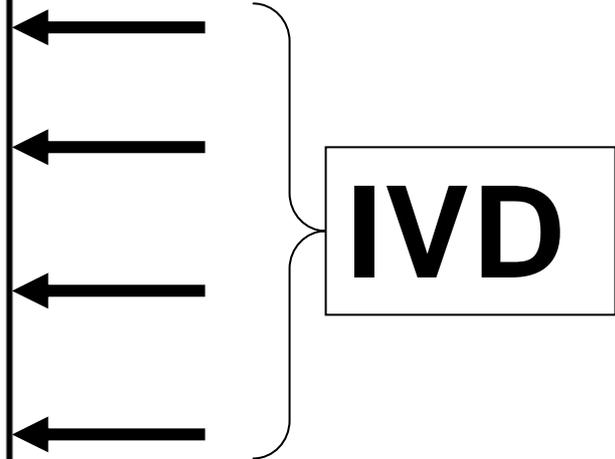
Anlage 1 b zur Einladung ÖA 77

4. Guidelines for the Use of Antiretroviral Agents in HIV-1-Infected Adults and Adolescents ⁽¹⁷⁾

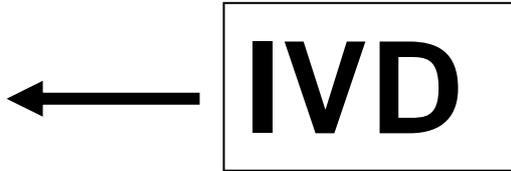
WHEN TO TREAT: Indications for Antiretroviral Therapy

Panel's Recommendations (Table 5):

- *Antiretroviral therapy is recommended for all patients with history of an AIDS-defining illness or severe symptoms of HIV infection regardless of CD4⁺ T cell count (AI).*
- *Antiretroviral therapy is also recommended for asymptomatic patients with <200 CD4⁺ T cells/mm³ (AI).*
- *Asymptomatic patients with CD4⁺ T cell counts of 201–350 cells/mm³ should be offered treatment (BII).*
- *For asymptomatic patients with CD4⁺ T cell of >350 cells/mm³ and plasma HIV RNA >100,000 copies/mL most experienced clinicians defer therapy but some clinicians may consider initiating treatment (CII).*
- *Therapy should be deferred for patients with CD4⁺ T cell counts of >350 cells /mm³ and plasma HIV RNA <100,000 copies/mL (DII).*



UTILIZATION OF DRUG RESISTANCE TESTING IN CLINICAL PRACTICE



IVD

Panel's Recommendations:

- *HIV drug resistance testing is recommended for persons with acute HIV infection if the decision is made to initiate therapy at this time (BIII). If therapy is deferred, resistance testing at this time should still be considered (CIII).*
- *Drug resistance testing is also recommended for persons with chronic HIV infection prior to initiation of therapy (BIII). Earlier testing may be considered (CIII).*
- *A genotypic assay is generally preferred for antiretroviral-naïve persons (BIII).*
- *HIV drug resistance testing should be performed to assist in selecting active drugs when changing antiretroviral regimens in cases of virologic failure (BII).*
- *Drug resistance testing should also be considered when managing suboptimal viral load reduction (BIII).*
- *Drug resistance testing in the setting of virologic failure should be performed while the patient is taking his/her antiretroviral drugs, or immediately (i.e., within 4 weeks) after discontinuing therapy (BII).*
- *Drug resistance testing is not advised for persons with viral load <1,000 copies/mL, because amplification of the virus is unreliable (DIII).*

MANAGEMENT OF THE TREATMENT EXPERIENCED PATIENT

Panel's Recommendations:

- *Virologic failure on treatment can be defined as a confirmed HIV RNA level >400 copies/mL after 24 weeks, >50 copies/mL after 48 weeks, or a repeated HIV RNA level >400 copies/mL after prior suppression of viremia to <400 copies/mL.*
- *Evaluation of antiretroviral treatment failure should include assessing the severity of HIV disease of the patient; the antiretroviral treatment history, including the duration, drugs used, antiretroviral potency, adherence history, and drug intolerance/toxicity; and the results of prior drug resistance testing.*
- *Drug resistance testing should be obtained while the patient is taking the failing antiretroviral regimen (or within 4 weeks of treatment discontinuation).*
- *In managing virologic failure, the provider should make a distinction between limited, intermediate, and extensive prior treatment exposure and resistance.*
- *The goal of treatment for patients with prior drug exposure and drug resistance is to re-establish maximal virologic suppression.*
- *For some patients with extensive prior drug exposure and drug resistance where viral suppression is difficult or impossible to achieve with currently available drugs, the goal of treatment is preservation of immune function and prevention of clinical progression.*
- *Assessing and managing a patient with extensive prior antiretroviral experience and drug resistance who is experiencing treatment failure is complex and expert advice is critical.*



IVD

5. Availability of IVDs Tests ^{(4) (5) (10)}

In the European Union the proportion of undiagnosed HIV infection is estimated to be as high as 30%. A large number of people remain unaware of their infection and can therefore neither benefit from antiretroviral treatment nor reduce the risk of passing the infection to others.

Among 8,916 individuals who were diagnosed with AIDS in Western Europe in 2002, **55% discovered their seropositivity only 6 months or less before developing AIDS**, being therefore unable to benefit from clinical care to reduce morbidity and mortality and engage in behaviours that reduce risk for HIV transmission.

It is very important to allow identify the HIV infection before symptoms develop and to implement an intervention to reduce the probability of continued transmission. Access to healthcare is universal in Western Europe and most people aware of their positive serostatus are in theory eligible for free treatment, although access to treatment may differ according to demographic and social characteristics.

Prevention strategy based on universal HIV testing has been highly effective. For example, systematic screening of blood donations since 1985 has dramatically reduced the risk of HIV transmission through blood transfusion. In addition, incidence of paediatric HIV/AIDS has declined substantially with the introduction of specific recommendation for routine HIV testing of pregnant women. The modality of pregnancy related HIV testing can differ from country to country, but the result is a drop in the number of HIV infected newborns. Similarly, targeted testing of specific subpopulations (like injecting drug users) for the risk of developing HIV between 1997 and 2002, decreased HIV diagnoses.

These successes contrast with a relative lack of progress in preventing sexual transmission of HIV through heterosexual contact, largely due to an increase in the number of cases diagnosed in people originating from countries with generalized HIV epidemics.

Prevention and testing programs must be adapted to reach this population.

The U.S. Centre for Disease Control & Prevention (CDC) (Atlanta, GA) has recently issued a formal recommendation that virtually everyone aged 13-64 should be tested for HIV infection as part of regular check ups similarly to blood sugar or cholesterol tests.

In 2003 CDC introduced the initiative Advancing HIV Prevention: New strategies for a Changing Epidemic. Two key strategies of this initiative were:

1. to make HIV testing a routine part of medical care on the same voluntary basis as other diagnostic and screening tests; and
2. to reduce perinatal transmission of HIV further by universal testing of all pregnant women .

These revised CDC recommendations advocate voluntary routine HIV screening as a normal part of medical practice, similar to screening for other treatable conditions. **In all health care settings, screening for HIV infection should be performed routinely for all patients aged 13-64 years, unless prevalence of undiagnosed HIV infection in their patients has been documented to be lower than 0.1%.**⁽¹¹⁾ Screening is a basic public health tool used to identify unrecognised health conditions, so treatment can be offered

Anlage 1 b zur Einladung ÖA 77

before symptoms develop and interventions can be implemented to reduce continued transmission.

Aspects of these recommendations that differ from previous recommendations for adults and adolescent are as follows:

- Screening after notifying the patient that an HIV test will be performed unless the patient declines (opt-out screening) is recommended in all health-care settings. Specific signed consent for HIV testing should not be required. General informed consent for medical care should be considered sufficient to encompass informed consent for HIV testing.
- Persons at high risk for HIV should be screened for HIV at least annually.
- HIV test results should be provided in the same manner as results of other diagnostic or screening tests.
- Prevention counselling should not be required as a part of HIV screening programs in health-care settings. Prevention counselling is strongly encouraged for persons at high risk for HIV in settings in which risk behaviours are assessed routinely (e.g., STD clinics) but should not have to be linked to HIV testing.
- HIV diagnostic testing or screening to detect HIV infection earlier should be considered distinct from HIV counselling and testing conducted primarily as a prevention intervention for uninfected persons at high risk.

These guidelines also reiterate the recommendation for universal HIV screening early in pregnancy but advise simplifying the screening process to maximize opportunities for women to learn their HIV status during pregnancy, preserving the woman's option to decline HIV testing.

Based on the above observations, it may be possible to ***identify the main objectives of a strategy to increase (earlier) detection of HIV infected persons in Europe:***

- Reiterate the recommendations for targeted testing on the basis of risk behaviours, preconception care and injecting drug users.
- Improve access to routine HIV testing of migrants from countries with generalized HIV epidemic, since most of these HIV infections have been demonstrated to be acquired in their country of origin and diagnosed only when already symptomatic or during pregnancy.
- Identify and introduce routine targeted testing of new subgroups of high risk individuals, like young people with multiple sex partners or people with other infectious diseases like Sexually Transmitted Diseases, Tuberculosis, and hepatitis C.

The added value for the patients: ***"Earlier identification through screening would lengthen life by 1.5 years for a person with HIV infection."*** ⁽¹³⁾



References

1. **UNAIDS: AIDS Epidemic Update**, November 2007
2. **EuroHIV: HIV / AIDS Surveillance in Europe**, 2007
3. **British Medical Association**, 2006
4. **EuroHIV: HIV / AIDS Surveillance in Europe**, December 2006
5. **The changing face of the HIV epidemic in Western Europe: what are the implications for public health policies?** Lancet 2004;364:83-94
6. **EUROGUIDELINES (European Guidelines for Clinical Management and Treatment of HIV Infected Adults in Europe 2001)**; European Aids Clinical Society (EACS); N.Clumeck
7. **Council Recommendation on the suitability of blood and plasma donors and the screening of donated blood in the European Community** (98/463/EC); Official Journal L 203, 21/07/1998 P. 0014 – 0026
8. **Directive 2002/98/EC of the European Parliament and of the Council setting standards of quality and safety for the collection, testing, processing, storage and distribution of human blood and blood components**; Official Journal L 33, 8/2/2003, p. 30 – 40
9. Mellors JW, Muñoz A, Giorgi JV, et al. **Plasma viral load and CD4+ lymphocytes as prognostic markers of HIV-1 infection**. Ann Intern Med 1997;126:946–54.
10. MMWR May 17, 2002 Vol 51 No. RR-7
11. **CDC: Revised Recommendations for HIV Testing of Adults, Adolescents, and Pregnant Women in Health-Care Settings**, MMWR September 22, 2006 / 55(RR14);1-17
12. Walensky RP, Weinstein MC, Kimmel AD, et al. **Routine human immunodeficiency virus testing: an economic evaluation of current guidelines**. Am J Med 2005; 118:292--300.
13. Paltiel AD, Weinstein MC, Kimmel AD, et al. **Expanded screening for HIV in the United States---an analysis of cost-effectiveness**. N Engl J Med 2005; 352:586--95.
14. Sanders GD, Bayoumi AM, Sundaram V, et al. **Cost-effectiveness of screening for HIV in the era of highly active antiretroviral therapy**. N Engl J Med 2005;352:570—85
15. Walensky RP, Weinstein MC, Smith HE, Freedberg KA, Paltiel AD. **Optimal allocation of testing dollars: the example of HIV counseling, testing, and referral**. Med Decis Making 2005; 25:321--9.
16. Quinn TC, Wawer MJ, Sewankambo N, et al. **Viral load and heterosexual transmission of human immunodeficiency virus type 1**. Rakai Project Study Group. N Engl J Med 2000; 342:921--9.
17. Marks G, Crepaz N, Janssen RS. **Estimating sexual transmission of HIV from persons aware and unaware that they are infected with the virus in the USA**. AIDS 2006; 20:1447--50.
18. **Guidelines for the Use of Antiretroviral Agents in HIV-1-Infected Adults and Adolescents**. October 10, 2006. Developed by the DHHS Panel, a Working Group of the Office of AIDs Research Advisory Council (OARAC).