

HIV Counseling, Testing, and Referral

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Over the past decade, the annual number of new cases of human immunodeficiency virus (HIV) infection has been relatively stable but remains unacceptably high (an estimated 40,000 new cases per year). Furthermore, the demographics for HIV infection are changing. Rates of new infections are declining in newborns, older men who have sex with men, and whites. However, rates of new infections are rising in young persons, women, Hispanics, and blacks. In 2001, the Centers for Disease Control and Prevention issued revised guidelines for HIV counseling, testing, and referral. The guidelines focus on the reduction of barriers to testing, voluntary routine testing of high-risk populations and persons with risk factors, case management and partner tracing for infected persons, and universal testing of pregnant women. Effective strategies for reducing HIV infection include behavioral interventions, comprehensive school-based HIV and sex education, access to sterile drug equipment, screening of the blood supply, and postexposure prophylaxis for health care workers. (*Am Fam Physician* 2004;70:295-302,307-8. Copyright© 2004 American Academy of Family Physicians.)



► **Editorial:** page 246.

► **Patient information handout:** A patient information handout on lowering the risk of HIV infection, written by the author of this article, is provided on page 307.

See page 231 for definitions of strength-of-recommendation labels.

Patients who know they are infected with HIV are more likely to adopt behavioral changes to reduce transmission of the virus.

In the absence of a cure for human immunodeficiency virus (HIV) infection, prevention is the most effective strategy for reducing the number of new cases.^{1,2} The Centers for Disease Control and Prevention (CDC) has developed a strategic plan for the prevention of HIV infection. By the year 2005, the CDC seeks to achieve the following: reduce annual new HIV infections from the current estimated 40,000 cases to 20,000 cases through the use of interventions such as counseling, HIV testing, and referral; increase the proportion of persons who know they are infected with HIV from the currently estimated 70 percent to 95 percent through voluntary HIV counseling and testing; and increase the proportion of HIV-infected persons who are linked to appropriate prevention, care, and treatment services from the currently estimated 50 percent to 80 percent.³ Patients who know they are infected with HIV are more likely to adopt behav-

ioral changes to reduce transmission of the virus.³

Changing Demographics

Demographic data provide some insight into areas where preventive and testing efforts are needed most. In 2001, about 60 percent of the population in the United States lived in large urban areas (of least 500,000 residents). At the time of diagnosis, 82 percent of persons reported to have acquired immunodeficiency syndrome (AIDS) lived in large urban areas. Fewer than 20 percent lived in smaller metropolitan areas (50,000 to 500,000 residents) or nonmetropolitan areas.⁴

More than one half of new HIV infections are in blacks. Persons younger than 25 years account for about one half of new HIV infections in the United States, and 70 percent of all new infections are diagnosed in men. Men who have sex with men account for 42 percent of new infections, heterosexual contact accounts for 33 percent of new cases, and intravenous drug use accounts for 25 percent of cases.⁴

Testing

RATIONALE FOR TESTING

Early diagnosis of HIV infection is critical to controlling the spread of the virus.⁵ Studies have demonstrated that once patients learn that they are HIV positive, many of them reduce the high-risk behaviors that can result in the transmission of HIV to sex partners or needle-sharing partners.⁶⁻¹⁶ Diagnosis also is the first step toward entry into medical care for HIV-infected patients. Because antiretroviral therapy lowers viral load and also may reduce the risk of HIV transmission,¹⁷ early referral of a patient to medical care may prevent HIV transmission in the community at large.

Early diagnosis also may be advantageous to HIV-infected patients. Although the evidence is inconclusive, there may be a greater chance of immune system restoration or preservation when antiretroviral therapy is initiated during primary HIV infection than during chronic infection.¹⁸

PATIENTS WHO SHOULD BE TESTED

Because of the changing demographics of the HIV/AIDS epidemic, the CDC¹⁹ recently updated HIV testing recommendations. The CDC now recommends that physicians offer HIV testing as part of routine health care to all patients in high-prevalence settings (settings in which the prevalence of HIV infection exceeds 1 percent), all patients with risk factors for HIV infection in low-prevalence settings, and patients who request HIV testing.

Counseling for the prevention of HIV infection is encouraged, and the CDC¹⁹ also is promoting simplified testing procedures. Requirements for preventive counseling should not be a barrier to HIV testing. The CDC recommends routine HIV testing in all pregnant women regardless of risk and screening of infants if their mothers have not been tested. The CDC is developing guidelines for the use of rapid HIV tests during labor and delivery, or postpartum if the mothers

did not undergo prenatal testing. In addition, all persons with an acute or nonacute occupational exposure to HIV should be tested.¹⁹ Symptoms of HIV infection can vary in presentation and severity. However, primary HIV infection generally presents within two to four weeks after transmission as an acute influenza-like or mononucleosis-like illness in about 70 percent of newly infected patients.^{20,21} Any sexually active or needle-sharing patient presenting with such symptoms should be tested for HIV. Antibody tests may be negative or indeterminate during early infection, but a very high viral load establishes the diagnosis.²¹

IMPORTANCE OF EARLY DIAGNOSIS

Patients with established HIV infection still benefit from early diagnosis. Patients diagnosed in later stages of HIV infection may have advanced immune suppression that is not completely reversible. If diagnosed late, patients may develop opportunistic infections or other complications of advanced HIV disease. Furthermore, antiretroviral therapy may be less effective or less well tolerated in some patients who present with more advanced disease.

Data from the CDC^{1,2} indicate that 31 percent of persons who tested positive for HIV in 2000 did not return to learn of their HIV status. It is common for HIV-infected persons to delay testing until they have an illness.

AVAILABLE HIV TESTS

Several new rapid tests for HIV have been approved by the U.S. Food and Drug Administration (FDA). Results for the OraQuick rapid antibody test are available in 20 minutes. One study²² demonstrated 100 percent specificity and 96 percent sensitivity for this test, which can be performed outside the clinical setting. The test requires less than one drop of blood collected by fingerstick, and results are available in about 20 minutes.²³ However, positive test results must be confirmed by a Western blot test or an immunofluorescence assay.^{1,2,22} The FDA also has approved use of a new rapid oral HIV test kit, which provides results within

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20 minutes using material collected from an oral swab. Only FDA-approved HIV tests should be used.^{1,2}

A person is considered HIV positive only if preliminary and confirmatory tests are reactive. False-positive results are rare. If an HIV test is positive in a patient with no identifiable risk for HIV infection, the possibility of a mislabeled sample or laboratory error should be considered. A false-positive result also can occur because of an HIV-vaccine-induced antibody response that may be detected by the sensitive tests that are now available. Participants in vaccine trials whose HIV test results are positive should be encouraged to contact or return to their trial site for optimal counseling, testing, and referral.^{1,2}

Negative HIV test results likely indicate absence of HIV infection. Negative tests do not need to be repeated, except in patients who have been exposed to HIV within the previous three to six months and have not had time to develop detectable antibodies. In addition, patients with a negative test result for HIV-1 who have clinical symptoms highly consistent with HIV infection or AIDS should undergo additional testing for HIV-2 and HIV-1 group O, especially if they have a history of travel to an endemic area (e.g., west Africa) or high-risk contact with persons from an endemic area.^{1,2}

Most patients who are infected with HIV but have an initial indeterminate Western blot test result develop detectable HIV antibodies within one month of testing. Therefore, patients with an initial indeterminate test result should be retested for HIV infection at least one month after the first test. If Western blot test results continue to be indeterminate, HIV infection is unlikely.^{1,2}

Populations at Higher Risk for HIV Infection

The primary goal of HIV counseling is to reduce acquisition of the virus by providing information on HIV transmission, the meaning of the various tests, and the prevention of HIV infection. Computer-assisted interviews or face-to-face interviews using open-ended questions or a checklist of risky behaviors are

TABLE 1
Information Patients Should Receive During HIV Counseling

Testing allows the physician and patient to work together to control HIV infection and prevent transmission of HIV to others.
The risks of HIV transmission, including oral, vaginal, and anal sex, and needle sharing, should be discussed.
Condom use, sexual abstinence, and drug treatment programs should be discussed.
Information for specific populations:
Homosexual men and women need information about HIV transmission through oral and anal sex, and about effective use of condoms.
Women should be given information on latex and nonlatex condoms, and need to be aware of the possibility that male sex partners also may engage in drug use or high-risk sexual relations with other men.
Persons in some communities need to be reassured that testing is not harmful and that they will receive medical services if they test positive for HIV.
Drug users need to know that drug treatment provides a much greater chance of survival.
The importance of obtaining test results as soon as possible should be emphasized. Explicit procedures for testing, including rapid tests performed inside or outside the clinical setting, should be discussed, and the need for confirmation of positive test results should be explained.
The meaning of HIV test results should be explained in explicit, understandable language.*
Patients should be given information about where they can obtain further information, counseling about HIV prevention, or other services.
In certain settings where HIV testing is offered:
Descriptions of or demonstrations on how to use condoms correctly
Information on risk-free and safer sex options
Information on other sexually transmitted and blood-borne diseases
Descriptions of the effectiveness of using clean needles, syringes, cotton, and water, and other drug paraphernalia
Information about drug treatment programs
Information on the possible effect of HIV vaccines on test results in persons participating in HIV vaccine trials

HIV = human immunodeficiency virus.

*—For example, "A negative test result means no HIV was found. But if you were exposed to HIV recently—in the past one to two months—the test might not show the HIV yet."

Adapted from Centers for Disease Control and Prevention. Revised guidelines for HIV counseling, testing, and referral. *MMWR Recomm Rep* 2001;50(RR-19):1-57.

useful approaches. Information that patients should receive is reviewed in *Table 1*.¹ Counseling on prevention should focus on the patient's circumstances and needs, so that the patient can set realistic goals for reducing

TABLE 2

Open-Ended Questions in Patient-Centered Counseling for Preventing HIV Infection

- What, if anything, are you doing that you think may be putting you at risk for HIV infection?
- What are the riskiest things that you are doing?
- If your HIV test comes back positive, how do you think you may have become infected?
- When was the last time you put yourself at risk for HIV infection? What was happening then?
- How often do you use drugs or alcohol?
- How do you think drugs or alcohol influence your HIV risk?
- How often do you use condoms when you have sex?
- When and with whom do you have sex without a condom? When with a condom?
- What are you doing currently to protect yourself against HIV infection? How is that working?
- What kinds of things do you do to protect your sexual partner from becoming infected with HIV? (for HIV-infected patients)
- Tell me about specific situations when you have reduced your HIV risk. What was going on that made that possible?
- How risky are your sexual partners or needle-sharing partners? For example, have they been tested for HIV recently?

HIV = human immunodeficiency virus.

Adapted from Centers for Disease Control and Prevention. Revised guidelines for HIV counseling, testing, and referral. *MMWR Recomm Rep* 2001;50(RR-19):17.

risky behaviors (Table 2).¹ Although face-to-face counseling is preferred, other models have been successful.

The CDC guidelines^{1,2} recognize that “one size does not fit all” and that flexibility in any prevention and counseling process is important for encouraging patients to accept the process. In all preventive counseling efforts, the language should be clear and explicit.¹

YOUNG PERSONS

The World Health Organization has reviewed the literature on the effect of sex education on age of first intercourse, levels of sexual activity, and use of condoms and contraceptives. Sex education leads to a delay in the onset of sexual activity or a decrease in sexual activity and increases safer sex practices.²⁴ Although abstinence from sex is the only way to completely prevent sexual transmission of HIV infection, as well as other sexually transmitted diseases (STDs), some evidence shows that abstinence-only education increases the level of sexual activity in young persons.²⁴

Sex education should include information on condom use. Cost, inconvenience, and embarrassment can be barriers to condom use in younger persons. Making condoms available to populations at risk for HIV infection and other STDs has been shown to increase the use of these contraceptives.²⁵ Younger persons who participate in HIV prevention programs that include access to condoms are not more likely to start or increase sexual activity.^{24,25}

MEN WHO HAVE SEX WITH MEN

The prevalence of AIDS is highest in men who have sex with men. The number of AIDS cases is increasing in this group, especially in younger men. Preventive efforts that produced attitudinal and behavior changes in older men have not necessarily led to reduced risk in younger men. Some younger men may be taking more risks because of a perception that HIV is a treatable chronic disease.²⁶

Homophobia continues to complicate preventive efforts. Men in a heterosexual relationship who also are engaging in sex with other men may not identify themselves as bisexual or homosexual. The combination of racism and homophobia can create additional challenges to creating culturally sensitive programs for the prevention of HIV infection in the black and Hispanic communities.²⁷

Many men who have sex with men believe that oral sex is safe. However, one study²⁸ in San Francisco found that about 8 percent of a group of men with primary HIV infection likely became infected through oral sex.

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WOMEN

The proportion of AIDS cases in women has tripled since 1985.²⁹ Black and Hispanic women account for 80 percent of AIDS cases in women.²⁹ Heterosexual sex was the mode of HIV transmission in 38 percent of cases, and injection drug use accounted for 25 percent of cases. Many of the women infected with HIV through heterosexual sex acquired the virus by having sexual relations with a drug user.²⁹ Women who use noninjection drugs (e.g., “crack” cocaine, methamphetamine) are at greater risk of acquiring HIV sexually, especially if they trade sex for drugs or money.²⁹ Condoms, female condoms, sterile needle exchanges, and drug treatment are key preventive measures in women.

Noxonyl-9–impregnated condoms do not prevent acquisition of STDs and may cause lesions that can increase the risk of HIV transmission.^{30,31} Physicians should provide information to female patients on latex and non-latex condoms, because some women are allergic to latex.

Women who believe that they are in a monogamous heterosexual relationship may be unaware that their sex partner is engaging in high-risk behaviors. It is important to find out if the sex partner has been screened for HIV. In young people between 13 and 19 years of age, a much greater proportion of HIV infections was reported in females than in males.³² HIV prevalence in young black women is four times higher than in white women and eight times higher than in Hispanic women.³³

HISPANICS

Although race is not a risk factor for HIV infection, Hispanics have a higher prevalence of HIV than the general U.S. population. Men account for 81 percent of AIDS cases among Hispanics.³⁴ The most common risk factors in Hispanic men are homosexual sex (42 percent of cases), intravenous drug use (35 percent), and heterosexual contact (6 percent). Hispanic men who have sex with men might not consider themselves homosexual if they do not engage in receptive oral or anal intercourse. Among Hispanic women, heterosexual sex, especially with an

intravenous drug user, is the greatest risk factor (42 percent of cases), with intravenous drug use a close second (40 percent). Risks may be increased by preventive messages that do not account for language and cultural diversity, attitudes about sexuality, poverty, substance abuse, and limited access to health care.³⁴

PERINATAL HIV TRANSMISSION

As a result of better screening and antiviral treatments, the perinatal HIV transmission rate has declined dramatically. HIV can be transmitted during pregnancy, labor and delivery, or breastfeeding.

Because of the proven effectiveness of antiretroviral therapy in reducing the risk of perinatal transmission of HIV,^{35,36} the CDC² has updated its recommendations for the screening of pregnant women. According to treatment guidelines developed by the U.S. Department of Health and Human Services,³⁷ combination antiretroviral therapy should be recommended for and offered to pregnant women with an HIV RNA count higher than 1,000 copies per mL and is an acceptable option for pregnant women with an HIV RNA count below 1,000 copies per mL.

The major revisions of the CDC guidelines² for pregnant women emphasize HIV testing as a routine approach in the primary care environment and strengthen the recommendation that all pregnant women should be tested for HIV, regardless of their risk factors or the prevalence rates in their health care setting.

Another updated recommendation² includes exploring and addressing the reasons behind a woman’s refusal to be tested. Many women who initially refuse confidential testing may be willing to be tested anonymously. New recommendations also emphasize HIV testing and treatment at the time of labor and delivery in women who have not received prenatal testing or antiretroviral drugs. *Table 3* summarizes the information that should be provided to pregnant women before they undergo HIV testing.²

Requirements for preventive counseling should not be a barrier to HIV testing.

TABLE 3

Information for Pregnant Women Before They Undergo HIV Testing

HIV is the virus that causes AIDS. HIV is spread through unprotected sexual contact and injection drug use. Approximately 25 percent of HIV-infected pregnant women who are not treated during pregnancy transmit HIV to their infants during pregnancy, labor and delivery, or breastfeeding.

A woman might be at risk for HIV infection and not know it, even if she has had only one sexual partner.

Effective interventions (e.g., highly active combination antiretroviral drugs) for HIV-infected pregnant women can protect their infants from acquiring HIV and can prolong survival and improve the health of the mothers and their children.

Cesarean delivery might help prevent transmission of HIV.

HIV testing is recommended for all pregnant women.

Services are available to help women reduce their risk of HIV infection, and to provide medical care and other assistance to those who are infected.

Women who decline HIV testing will not be denied care for themselves or their infants.

HIV = human immunodeficiency virus; AIDS = acquired immunodeficiency syndrome.

Information from reference 2.

TABLE 4

Additional Resources on HIV Infection and AIDS

CDC HIV counseling, testing, and referral guidelines: <http://www.cdc.gov/hiv>

CDC's National Center for HIV, STD, and Tuberculosis Prevention: <http://www.cdc.gov/nchstp/od/nchstp.html>

CDC hotlines

AIDS Hotline in English: 800-342-2437

AIDS Hotline in Spanish: 800-344-7432

AIDS Hotline TTY (teletypewriter): 800-243-7889

STD Hotline: 800-227-8922

CDC National Prevention Information Network

Web site: <http://www.cdcnpin.org>

Telephone: 800-458-5231 (information available in English and Spanish)

AIDSinfo (treatment and clinical trials information)

Web site: <http://www.AIDSinfo.nih.gov>

Telephone: 800-448-0440 (information available in English and Spanish)

National Clinicians' Post-Exposure Prophylaxis Hotline

Web site: <http://www.ucsf.edu/hivcntr/>

Telephone: 888-448-4911

HIV Medicine Association (physicians who treat patients with AIDS/HIV; affiliated with Infectious Diseases Society of America): <http://www.hivma.org>

Health Resources and Services Administration HIV/AIDS Bureau: <http://www.hab.hrsa.gov>

CDC = Centers for Disease Control and Prevention; HIV = human immunodeficiency virus; AIDS = acquired immunodeficiency syndrome; STD = sexually transmitted disease.

Information from reference 1.

WOMEN WHO HAVE SEX WITH WOMEN

Woman-to-woman transmission of HIV is possible but rare. Many women who identify themselves as lesbian have had sex with a man in the past. Data from 1998 indicate that 2,220 of 109,311 women with HIV infection were reported to have had sexual relations with women.³⁸ Of the 347 women who had sex only with women, 98 percent also had another risk factor. Risk in this population may be reduced by the use of barrier methods (e.g., natural rubber latex sheets, dental dams, cut-open condoms, plastic wrap). One study of 1 million blood donors found no HIV infection in women whose only risk was sexual relations with other women.³⁸

Patient Referral

The CDC HIV guidelines^{1,2} emphasize that patients should be referred to services that can respond best to their most important needs and that are appropriate to their culture, language, sex, sexual orientation, age, and developmental level. At a minimum, a resource guide should be maintained in the office so that staff members can make appropriate referrals. Helpful information can be obtained from local, state, and national HIV/AIDS information hotlines and Web sites, as well as community-based health and human services providers. State and local public health departments can provide detailed, up-to-date information (Table 4).¹

Strength of Recommendations

Key clinical recommendation	Labels	References
Antiretroviral medication reduces vertical transmission of HIV from mother to infant.	A	32, 33
Nonoxynol-9 should not be used to prevent HIV infection.	A	29, 30
HIV testing should be offered to all persons in settings with an HIV prevalence higher than 1 percent, all persons with risk factors for HIV infection, all pregnant women, and all persons who request testing.	C	1, 2

HIV = human immunodeficiency virus.

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