

Postexposure Prevention of HIV Infection

Should suspected occupational exposure to HIV occur (say, a paramedic is exposed to a blood splash to the eyes from a patient of unknown HIV status), seeking HIV testing of the source of exposure and/or postexposure prophylaxis with HIV medications should be considered. For victims of sexual assault, testing of the source of exposure may be a possibility and postexposure prophylaxis with antiretroviral medications may be offered in the context of sexual assault medical care. The issue of postexposure prophylaxis for individuals who have had unprotected sex and who seek such treatment is a logical extension of postexposure prophylaxis for occupational exposure or sexual assault, but it is a complex issue that is presently only in the discussion stage.

HIV/AIDS Treatments

HIV treatments that stop or slow down production of the virus and prevent progression from HIV infection to AIDS have been available since about 1996, in countries in which governments or individuals can afford the cost of treatment. These antiretroviral therapies may involve taking many pills per day and the burden of problematic side effects. Individuals must take all of their medication as prescribed—he or she must be highly adherent—or they may develop a strain of HIV that is resistant to antiretroviral therapy. HIV-infected individuals who are adherent to their medication often live healthy and relatively normal day-to-day lives. The challenges of providing antiretroviral medication and medical infrastructure to deliver it in resource-poor countries, and the challenges of adherence to complex and side-effect laden HIV medication, are formidable, as is the development of HIV that is resistant to therapy. In addition, in countries in which antiretroviral therapy is available, individuals with HIV are living long and relatively healthy lives, but they and their health care providers experience the additional challenge of maintaining and supporting safer sex among HIV-infected persons who—while relatively healthy—may still be infectious to others.

HIV/AIDS Prevention Education

Sexual scientists have worked for two decades and more to develop and test effective HIV prevention education methods. In general, research shows that effective HIV prevention education (and sex education in general) requires the delivery of information that provides a virtual script for how to prevent infection; motivation to encourage people to act on what they know; and behavioral skills so that individuals know how to act effectively. Thus, an education program may provide information about HIV risk and prevention and instruction on how to bring up and negotiate sexual limits or condom protection, and how effectively to acquire, carry, and use condoms. The education program should include motivational content to change attitudes and norms so that they favor prevention via limit setting, condom use, and testing. And the education program should role model and provide practice in the specific behavioral skills that are involved in pre-sex negotiation of safer sex, condom acquisition, and the seeking out of HIV antibody testing (see Figure 2). There is very good evidence that HIV prevention education that includes information, motivation, and behavioral skills elements works to promote safer sex; there is little or no good evidence that “abstinence only” education programs equip people to effectively avoid HIV infection.

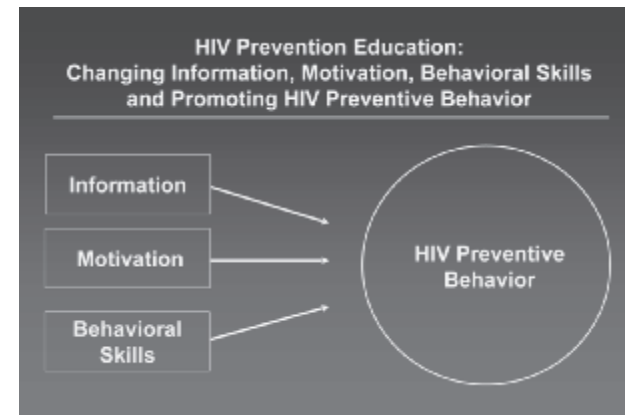


Figure 2. HIV Prevention Education Model.

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WHAT SEXUAL SCIENTISTS KNOW ABOUT...

HIV/AIDS



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HIV/AIDS Is a Sexually Transmitted Disease

Human immunodeficiency virus (HIV) is a sexually transmitted infection that results from unprotected vaginal, anal, or oral sexual intercourse in which bodily fluids such as semen and vaginal secretions are exchanged between an HIV-infected and an HIV-uninfected person. HIV can also be transmitted from an HIV-infected mother to her child (or from an HIV-infected father to an HIV-infected mother to her child) during childbirth or breastfeeding. HIV may be transmitted as well by other activities (such as sharing drug injection equipment, or the occupational exposure of health care workers) involving the transfer of bodily fluids from an HIV-infected to an HIV-uninfected individual.

When a person is infected with HIV, he or she may show no symptoms or may experience a brief, flu-like illness. Following infection with HIV, the virus eventually takes over and converts the body's immune system into a mechanism for the production of still more HIV. After a period of time, HIV also damages or destroys the individual's immune system.

At the time of HIV infection, individuals often produce a very high level of virus and at the same time may not know that they are infected and capable of transmitting HIV to others. HIV infection may then become asymptomatic for a period of years, but if left undetected and untreated, HIV infection almost always progresses to AIDS (acquired immune deficiency syndrome). AIDS is a condition in which the human immune system becomes very impaired and various opportunistic infections, which are regarded as AIDS defining conditions, take advantage of the immune system's weakness and attack the body. Although a number of individuals with HIV have become long-term survivors of infection and illness, if left untreated, AIDS is generally fatal.

HIV/AIDS Is Prevalent

HIV infection is common worldwide, and where treatment for HIV is not available, AIDS is a common result of HIV infection. Although first detected among gay men in the U.S. in the 1980s, HIV/AIDS is not a gay disease. HIV clearly began before the 1980s

and in nonhomosexual populations. Worldwide, HIV/AIDS is, in fact, a disease of heterosexuals; it is roughly as common among women as among men; and it is strongly associated with conditions of social marginalization including minority ethnic status, poverty, injection drug use, and social disorganization. HIV infection occurs as a joint results of HIV prevalence (how many people in a given setting have the virus) and HIV risk behavior (e.g., unprotected sex, sharing injection drug equipment). In an environment with many HIV-infected individuals (say, an inner-city setting with a number of injection drug equipment sharing individuals and many HIV-infected persons), even a little bit of risky behavior can result in infection with the virus.

As can be seen in Figure 1, some 40 million individuals (including 2.3 million children) were living with HIV infection in 2005. HIV "hot spots" might be said to include the U.S. (where an estimated 40,000 new HIV infections occurred in 2005), Eastern Europe (with an estimated 270,000 new HIV infections in 2005), South and Southeast Asia (with an estimated 990,000 new HIV infections in 2005), and sub-Saharan Africa (with an estimated 3.2 million new HIV infections in 2005

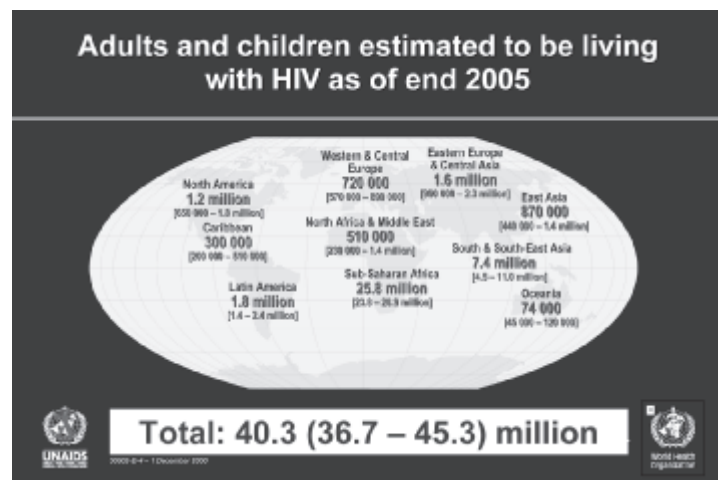


Figure 1. World-wide HIV infection rates; available from UNAIDS (2007).

HIV/AIDS Risk

As noted earlier, HIV/AIDS infection occurs when the bodily fluids of an HIV-infected person are

transmitted to an HIV-uninfected person. The most common routes of HIV infection are by way of unprotected (no condom) vaginal or anal intercourse, noting that anal intercourse is a relatively frequent practice not only among homosexual partners but also among heterosexual couples. Both vaginal and anal intercourse are considered "high risk" sexual behaviors if not protected with condoms. Sharing injection drug use equipment is also regarded as a high risk behavior. Oral sex is regarded as a "low risk" but not a "no risk" sexual behavior.

HIV Testing

A number of different tests for HIV infection are available. Most tests require a small blood sample (some require a saliva sample) and detect antibodies that the individual produces to fight HIV if he or she has been infected with this virus. Because the tests detect antibodies to HIV and not the virus itself—and because it takes some time for the body to produce these antibodies—most HIV tests (properly called HIV antibody tests) are not accurate until some time (e.g., 3 months) has passed since the individual's last possible exposure to HIV and the test itself. Until enough time has passed between an individual's last possible exposure to HIV and the test, the individual is said to be in a "window period" in which he or she may be infected, but the HIV antibody test will not detect the virus. There are tests that directly detect HIV in the individual, but these tests are only employed in select situations. Anonymous HIV testing is often available; home collection tests in which the individual collects a sample and sends it to a laboratory and home testing kits in which an individual tests him or herself and can get the results quickly may be available, and individuals may seek out these options. Note that "going to the hospital" for an operation, "getting a blood test," and "giving blood" are not regarded as HIV tests!

HIV/AIDS Prevention

There are many effective ways to prevent HIV/AIDS. First, consistent condom use in each and every sexual encounter, and applying the condom before any penetrative sexual activity, is a highly effective way of preventing HIV/AIDS. We know that condom use is a highly effective means of HIV/AIDS

prevention by observing that in couples in which one partner is HIV infected and the other is not, and condoms are consistently used, the HIV uninfected partner rarely becomes infected. Urban myths and misinformation about HIV passing through condoms are just that—urban myths and misinformation—and they interfere with prevention efforts. Another way to prevent HIV/AIDS, which is effective under the right circumstances, involves consistent condom use until the window period has passed—roughly 3 months—followed by mutual HIV antibody testing of the members of a stable couple—followed by mutual monogamy without condom use, assuming that the HIV antibody tests were negative and that the couple will truly remain monogamous or at least use condoms in all nonmonogamous sexual encounters. The later assumption, sexual scientists have learned, may often not be a tenable one.

Still other effective HIV/AIDS prevention methods are available for specific situations. For pregnant women, it is crucial that HIV antibody testing be routinely performed during pregnancy. If a woman tests HIV positive, she can be given medication prior to and during delivery that will reduce the chance of mother to child transmission of the virus to a very low level, but such treatment cannot be offered unless the mother has been tested. For injection drug users, complete avoidance of sharing of injection drug use equipment, or cleaning such equipment with bleach and rinsing with water, three times, are effective HIV prevention methods. For health care workers, the appropriate use of barrier precautions (masks, gloves, eye shields) are regarded as helpful in avoiding occupational exposure to HIV.

It should be noted that some commonly used methods do not effectively prevent HIV infection. For example, "taking your partner's sexual history" is not an effective way to prevent HIV infection. Partners may not know that they are HIV infected (nor may you), and your partner (and you) may well have no idea of the HIV status of any past partners. A good rule is that, if you or your partner have a sexual history that includes any risk factor for HIV (e.g., unprotected intercourse with a past partner, you need to practice prevention via consistent condom use, testing, or both.