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TEACHER BACKGROUND BOOKLET FOR THE EDUCATION OF OUR YOUTH
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Acknowledgments Materials for this background piece were based on or compiled from:

HIV/AIDS Program	Q & A About HIV and AIDS 1998 STDs Enhance Transmission of HIV November 1998 Positive Living HIV Treatment Update--(November 1998) HIV Testing Update (June 2000) HIV/AIDS Epidemiology Fact Sheet 2000 Facts About HIV Infection in King County
F.Hoffmann-La Roche Ltd	Interactive Life Cycle of HIV http://www.roche-hiv.com
Project Inform	Day One: After You've Tested Positive http://www.projinf.org
Centers for Disease Control	FAQ About HIV Transmission http://www.cdc.gov/hiv/pubs/faq/faq32.htm Condoms and Their Use in Preventing HIV Infection and Other STDs http://www.cdc.gov/hiv/pubs/facts/condoms.pdf
The Body	Treatment Basics http://www.thebody.com/treat/first.html#basics
HIV Insite	How Many People Have HIV/AIDS? http://hivinsite.ucsf.edu/topics/basics/2098.3e7f.html
UCSF Center for AIDS Prevention Studies (CAPS)	What Works in HIV Prevention Education?

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TEACHER BACKGROUND BOOKLET
FOR THE EDUCATION OF OUR YOUTH

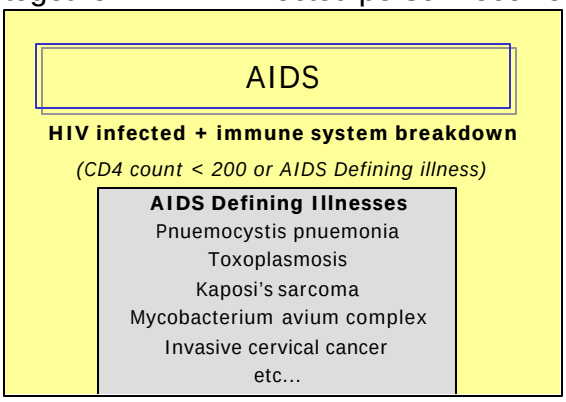
One in every four Americans newly infected with HIV is under the age of 22. Yet controversy still surrounds prevention efforts for young people. This ***Teacher Background Booklet*** is designed to give you, the educator, basic background information to enable you to give your students the information they need to make good decisions regarding their sexuality. It covers:

What is HIV/AIDS?
How does HIV work in the body?
What happens to me if I have HIV?
How is HIV treated?
How is HIV transmitted?
How is HIV transmission related to other STDs?
How do you find out if you are infected?
What is HIV Reporting?
How many people have HIV/AIDS?
How do you prevent HIV infection?
How effective are condoms?
What Works in HIV Prevention Education?

What is HIV/AIDS?

Human Immunodeficiency Virus (HIV) is the RNA-based virus that causes AIDS. It attacks the human immune system. Over time (and if effective treatment is not provided), HIV gradually destroys the body's defenses against certain diseases, leaving it vulnerable to what are called "opportunistic" infections and cancers that would not normally develop in healthy people.

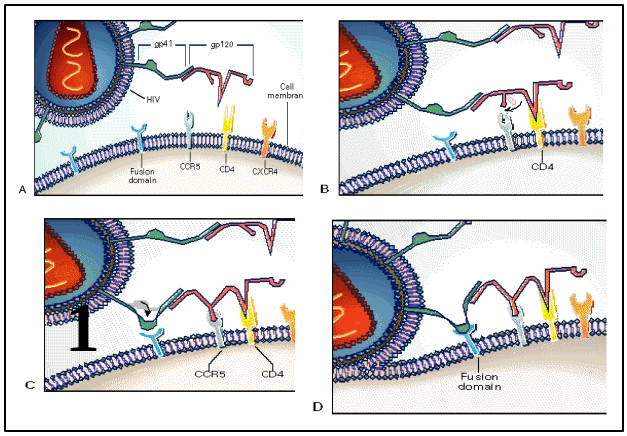
Acquired Immune Deficiency Syndrome (AIDS) is a late stage of HIV infection. A syndrome is a group of symptoms and signs of disease that indicate a certain disorder when they occur together. An HIV infected person receives an AIDS diagnosis when he or she has symptoms indicating severe immune system breakdown--either the person has fewer than 200 CD4 cells (a specific type of immune system cell which usually number 1,000 in most healthy people) or he/she has become ill or been diagnosed with one of 26 AIDS defining illnesses. Most AIDS-defining conditions are opportunistic cancers or infections.

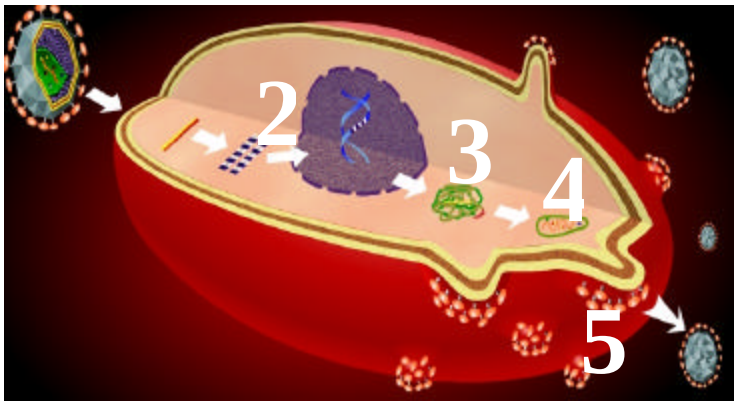


How does HIV work in the body?

HIV Virus Lifecycle

1. After a person is exposed to HIV (see transmission section), HIV attaches to the body's infection fighting cells (called CD4 or T cells) in the immune system. . The envelope proteins of the virus bind to two receptors on the surface of the CD4 cells. The interaction of the envelope proteins on the surface of HIV with the two receptors triggers fusion of the virus with the host cell, allowing the virus to enter the host cell.

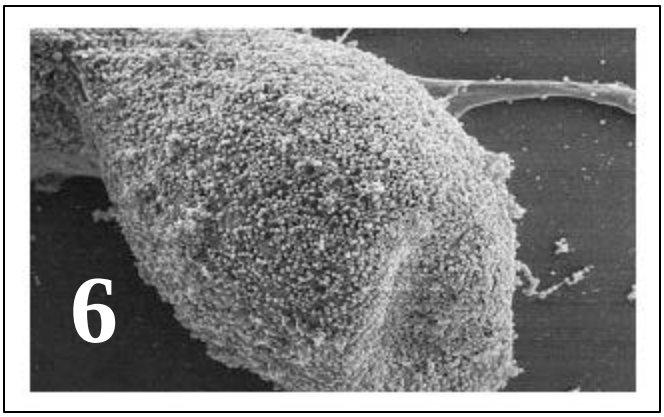




2. HIV stores its genetic material as a single strand of genetic code. Most other organisms have DNA, a double strand of genetic code, instead. When HIV infects a human cell, its RNA has to be converted to DNA through a process using an enzyme called "reverse transcriptase".

3. The resulting double-stranded viral DNA then enters the host cell nucleus through pores in the nuclear membrane. A viral enzyme, integrase, then inserts the double-stranded viral DNA into the DNA of the host. The viral DNA then becomes integrated into the human DNA, turning the host cell into a "factory" for manufacturing more virus.
4. The viral enzyme "protease" the cuts and structures the new viral proteins, which are produced like a long ribbon and need to be separated into individual viral particles.
5. The new viral components gather at the cell membrane. The cell membrane then begins to form mini-bubbles, which eventually bud out of the cell releasing new viruses that can then move to and infect other cells.

6. CD4 cells do not usually survive invasion by HIV. Either they disintegrate because of the large number of viruses budding off, or the body's immune system will recognize the viral envelope proteins in the cell membrane and destroy the infected and damaged cells.

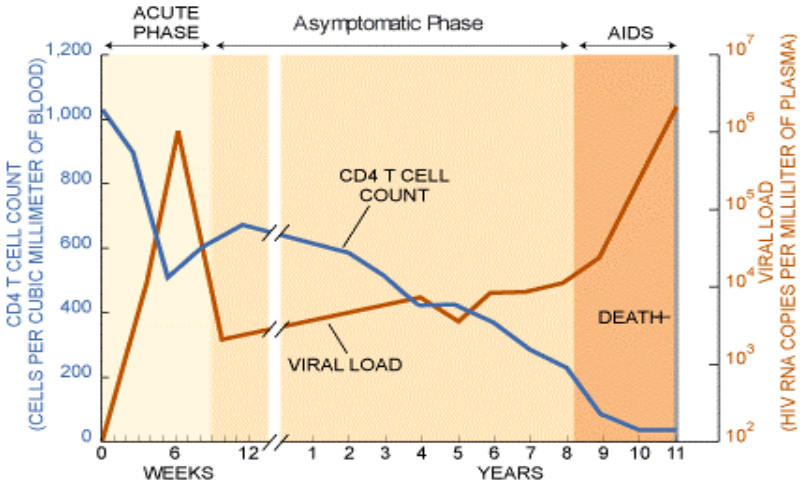


HIV and the Immune System

The body is protected by the skin and linings of the gut, and by an immune system, a collection of cells and proteins that works to protect the body from potentially harmful, infectious microorganisms (microscopic life-forms), such as bacteria, viruses, protozoa and fungi. For example, when a cold virus invades your body, your immune system sends special cells to fight it. You may sneeze, sniffle, and feel lousy for a few days. But finally your immune system works to kill or control the virus, and you feel fine again.

HIV is different from a cold virus because it directly attacks the infection fighting cells (called CD4 or T4 cells) and other cells in the immune system. Over time, HIV can destroy virtually all of an infected person's T cells. Often (as shown on the graph below) there is a big drop in cellular immunity in the early weeks of infection, then some recovery, then a more gradual decline.

Viral load is the amount of virus in the blood. As seen in the graph at the right, viral load is highest during the acute phase of infection (before antibodies are developed) and at end stage AIDS. Viral load tests indicate the effectiveness (or lack of effects) of treatment and the expected rate of disease progression—the higher the viral load, the faster the progression.



What happens to me if I have HIV?

Disease Progression

HIV is a "spectrum" illness: all who are infected have the same viral disease, but there are many different stages to it. AIDS is the name given only to the late and most serious stage of HIV disease. If left untreated, most of those who are infected generally gradually progress along the spectrum toward AIDS.

- **Exposed:** The person actually encounters HIV from sex, a dirty needle, on their mucous membranes, from a contaminated transfusion of blood or infected organ transplant, or a child is born to an infected mother. Except when someone gets an infected unit of blood or organ, most exposures don't result in HIV infection.
- **Infection:** Person becomes infected with HIV. Once infected, always infected.
- **Primary Infection/Antibody development:** Some people have no obvious symptoms immediately following HIV infection. However, within three to six weeks after infection, approximately 50-70% of persons develop acute HIV syndrome. The symptoms of HIV syndrome last for a week or two and generally include fever, sore throat, tiredness, loss of appetite, nausea, vomiting, and diarrhea. Individuals who experience these symptoms may be unaware that they have HIV because these

symptoms are commonly associated with influenza (the "flu"). Around this time, the immune system will begin to fight against the virus and the infected person will develop HIV antibodies, and the symptoms, if any, gradually subside.

- **Asymptomatic Period:** Most people do not experience many symptoms of HIV infection for up to 8-10 years (even longer with effective treatment).
  NOTE: Even without symptoms, a person continues to be infected and will still test positive on an HIV antibody test and can still transmit the virus.
- **Symptomatic HIV:** Some persons will experience a continuing series of non-life-threatening symptoms (rashes, fungal infections, diarrhea) as the virus gradually weakens their immune system.
- **AIDS:** By the time a diagnosis of AIDS is made (an average of 8 to 12 years after HIV infection--longer with treatment), HIV will already have seriously damaged the body's immune system. Often, a person with an AIDS diagnosis will already have had a life-threatening infection or cancer.

The Spectrum of HIV

How is HIV treated?

Important advances in understanding the biology and treatment of Human Immunodeficiency Virus (HIV) infection have occurred, especially since 1995. Anti-retroviral therapy is designed to attack HIV and prevent the virus from multiplying.

1. Effective anti-retroviral therapy has been proven to slow disease progression and extend life;
2. Anti-retroviral therapy does not eradicate the virus and is not a "cure;"
3. In order for anti-retroviral therapy to be effective, multiple drugs must be used very consistently and correctly;
4. The current treatments often have significant and occasionally life-threatening side effects; and
5. Anti-retroviral therapy fails to help a significant portion of patients.

Anti-retrovirals should only be used in combination (usually 3 drugs often from at least 2 classes). Currently, the three available drug classes are:

- **Nucleoside reverse transcriptase inhibitors (NRTI)** were the first anti- retrovirals used to treat HIV infections. They keep HIV from reproducing by interfering with an enzyme called reverse transcriptase which is required early in the replication process (see above). The first such drug (AZT or Retrovir) was approved in 1987.
- **Non-nucleoside reverse transcriptase inhibitors (NNRTI)** also interfere with reverse transcriptase and keep HIV from multiplying.
- **Protease inhibitors (PIs)** interfere with the enzyme "protease" (which cuts the long ribbons into viral pieces, see above) and keep HIV from budding out of the CD4 cells.

In order for anti-retroviral therapy to be effective, the drugs must be taken very consistently and correctly. Correct use means that the drugs must be taken at appropriate intervals (with or without food as indicated), at correct doses and in correct combinations. The goal of antiretroviral therapy

is to improve survival and decrease morbidity by suppressing viral replication and lowering the amount of virus in the body (also called viral load.) Sub-optimal therapy (therapy that does not sufficiently suppress HIV replication, such as taking less than 95% of doses correctly) often leads to viral resistance, treatment failure, and loss of effectiveness of an entire class of agents.

Preventive treatment (or prophylaxis) When a person's CD4 count gets low (<200), he or she should be given prophylaxis (e.g. antibiotics) to prevent serious illness. Preventive treatment exists for two of the most common and dangerous opportunistic infections: pneumocystis carinii pneumonia (PCP) and mycobacterium avium complex (MAC). In addition, some people take preventative therapy for fungal and other viral diseases (e.g. CMV), but these forms of treatment are more controversial.

Studies show that the use of anti-retroviral therapy and the prevention of specific HIV-related opportunistic infections, has been associated with dramatic decreases in the incidence of opportunistic infections, hospitalizations, and deaths among HIV-infected persons.

Problems with treatment:

1. Anti-retroviral therapy may fail in as many as 30 - 50 % of patients.
2. Currently available drugs often have inconvenient dosing schedules. Patients may be taking as many as 20 - 30 pills a day at different intervals and often with different rules (with or without food etc.)
3. Currently available drugs often have significant side effects. These may vary from one person to the next. Some people experience few or no side effects at all, while some experience mild and manageable side effects. Others have quite severe and even potentially lethal side effects. Some of the more common side effects include nausea, diarrhea, fever, rash, fatigue, liver toxicity, lipodistrophy, and peripheral neuropathy, and lactic acidosis.
4. Anti-retroviral therapy is very expensive. The cost of the pills alone (not including clinic visits and monitoring tests) can be up to $15,000 per year; however in WA state (and many other jurisdictions in the US and in developed countries) all HIV + persons have access to medical care. **We cannot stress enough that medical services are available, regardless of job, money or current insurance coverage.** Getting hooked up with medical care as early as possible greatly improves the chances of having a long and healthy life. Anyone in need of care should call the HIV/STD Hotline at (206) 205-7837 for a referral.
5. Despite medical services provided by WA state, many people avoid testing and/or care for a variety of reasons including lack of health insurance, family care burdens, language barriers, fear of the stigma of HIV/AIDS, fear of discrimination, and myths/fears about medical care.

There are several new treatments currently being studied. In the future, patients should have treatment regimens that cause fewer side effects, require fewer pills and have more

convenient dosing schedules. Public Health and community organizations are also working to reduce other barriers to health care.

Vaccines

An effective and widely available preventive vaccine for HIV would be our best long term hope to control the global pandemic. Currently, many companies, governments and community organizations are developing and testing different vaccine strategies. But the scientific challenges involved in developing an HIV vaccine are daunting, and many social, ethical and other issues make this goal difficult to reach. One of the major problems is money. Major pharmaceutical firms are not interested in investing the large amounts of money to develop a vaccine because vaccines (needed most by the poorest nations in the world) are not financially profitable.

Post Exposure Prophylaxis

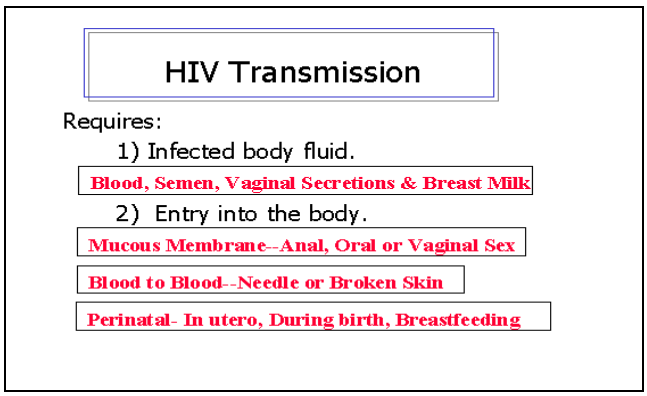
Post exposure prophylaxis or PEP, is a prevention intervention in which antiretroviral drugs are given to a person in the first few hours (or within 3 days) following a potentially high-risk exposure to HIV;

- Treatment must be started within 72 hours of an exposure and continued for a full 28 days.
- A study of healthcare workers exposed to the virus via needle sticks showed they had an 81 percent lower risk of seroconverting if they took AZT for four weeks.
- PEP for suspected HIV exposure through unprotected sexual or drug using exposure is controversial, but is available in most locales and being recommended in many high risk situations.

How is HIV transmitted?

HIV is transmitted when infected **blood, semen, vaginal fluids**, **organs,** or **breast milk** enter another person's body. This most often occurs during unprotected sex or during injection drug use (when needles are shared). Anyone who is infected with HIV can transmit it, whether or not they appear sick, have an AIDS diagnosis, or are taking effective treatment for their infection. Although effective treatment greatly reduces the amount of virus in a person's body, often virus remains in the semen and other sexual fluids, making the person still infectious. Infected women who become pregnant can transmit HIV to their newborns and are *much* more likely to do so if they are not treated effectively. Thus, it is now being recommended that every pregnant woman be tested for HIV, regardless of their risk profile.

HIV is spread in the following ways:



Unprotected sexual intercourse.

HIV can enter the body during sex through the mucous membranes of the anus, vagina, penis (urethra), or mouth; AND through cuts, sores, and abrasions on the skin. With each of these practices, the receptive partner (vagina, anus, mouth) is at somewhat greatest risk;

Oral Sex: The risk of becoming infected with HIV through unprotected oral sex (without a condom) is lower than that of unprotected anal or vaginal sex. However, even a lower risk activity

can become an important way people get infected if it is done often enough. A recent study found that 8% (8 of 102) of recently infected men who have sex with men in San Francisco were probably infected through oral sex. Oral sex is reported as a more frequent activity than anal sex and is almost never protected by condoms.

Injection drug use.
Using shared, unsterile needles and syringes carries a high risk of HIV transmission. Sharing drug injection equipment (such as cookers, cottons, and water for mixing) can also transmit HIV. After use, small amounts of blood remain in the used needles, syringes, cookers, and cottons. Blood may also remain in the water used for mixing drugs. This remaining blood can enter the body of the next user when any of these items are shared. If this blood is HIV infected, transmission can easily occur.

Sharing other types of needles also may transmit HIV and other germs. These types of needles include those used to inject steroids and those used for tattooing or piercing. Tattoos and piercings should be done by a qualified technician who uses only sterile equipment.

***From an infected mother to her infant*.**
HIV can be transmitted from mother to child during pregnancy, more often during birth, or through breast-feeding. Before treatment with AZT became a routine recommendation for women near the end of their pregnancy and children following birth, about 1 in 4 or 5 babies born to HIV-infected women became infected. Now, when treatment is taken, the HIV transmission rate from a mother to her baby is greatly reduced. Consequently, all pregnant women should see their doctor, be tested for HIV, and obtain recommended treatment.

HIV is rarely transmitted in the following ways:

Blood Transfusions and Organ Transplants
The risk of acquiring HIV from a blood transfusion today is estimated to be 1 out of 600,000 transfusions. The risk of acquiring HIV from an organ transplantation is probably similar; however, with newly effective treatments for HIV some people who might otherwise die from immediate lack of an organ may prefer an HIV-infected one. Before 1985, there were no tests to screen blood and organ donations for HIV. Today, blood and organ banks screen out most potential donors at risk for HIV infection in advance. They then do extensive testing on specimens of blood, blood products, and organs for HIV and other blood-borne germs.

The Health Care Setting
There is a very small, but real, risk of health care workers getting HIV from patients as a result of needle stick accidents and other substantial blood exposures. ***The risk of patients getting infected from health care workers*** is also ***very small***. A large series of studies of HIV-infected surgeons and dentists have not shown any transmissions to patients. Nonetheless, seven patients may have become infected from a dentist with AIDS in Florida, and several other transmissions of HIV (and of hepatitis B & C viruses) have been traced to surgeons.

HIV is NOT transmitted by Casual Contact:

HIV is **not** spread by casual contact. It dies quickly outside the body and is easily killed by soap and by common disinfectants such as bleach. Additionally, if the blood is dry, the virus is definitely dead.
There is no risk of HIV infection from:

- donating blood
- mosquito bites
- toilet seats
- shaking hands
- hugging
- sharing eating utensils food or objects handled by people with HIV or AIDS
- spending time in the same house, business, or public place with a person with HIV/AIDS.

Mosquitoes Do Not Transmit HIV:

- There is **no** evidence of HIV transmission through insects--even in areas where there are many cases of AIDS and large populations of insects such as mosquitoes.
- When an insect bites a person, it does not inject its own or a previous victim's blood into the new victim. Rather, it injects saliva. Such diseases as yellow fever and malaria are transmitted through the saliva of specific species of mosquitoes. However, HIV lives for only a short time inside an insect and, unlike organisms that are transmitted via insect bites, HIV does not reproduce (and, therefore, cannot survive) in insects.

How is HIV transmission related to other STDs?

Multiple studies demonstrate a strong causal relationship between the presence of other STDs and the transmission of HIV. STDs *(including those which cause ulcerative lesions (e.g. herpes) and those which cause inflammation (e.g. gonorrhea and chlamydia))* increase likelihood of HIV transmission many-fold. HIV and other STDs are connected in at least four ways.

1. Similar behaviors put people at risk for both HIV and other STDs;
2. The presence of an STD can make people more susceptible to infection with HIV;
3. People co-infected with HIV and another STD can more easily transmit HIV infection to others; and
4. People with HIV and other STDs may have more frequent and serious symptoms related to those infections.

How do you find out if you are infected?

After a person becomes infected with HIV, the body's immune system recognizes the virus as a foreign intruder and begins to make antibodies to the virus. Antibodies against HIV usually take 1-3 months to develop, rarely longer. Tests to determine if a person is infected with HIV check for the presence of these antibodies. The current HIV antibody blood tests detect antibodies 99% of the time within 3 months of infection.
NOTE: See ***Options for HIV Testing in King County*** for a testing referral.
NOTE: In WA State, youth over 14 years of age can receive HIV testing without parental consent.

Testing in most situations involves:

1. Giving informed consent, which may require signing a form.

2. Talking before testing with a test counselor about:
   one's sexual and drug using behaviors
   ways to reduce risks for HIV transmission
   the meaning of a positive or negative test result,
   the need for people at risk to learn their HIV serostatus,
   and any other questions that may come up about HIV.
3. Drawing a small amount of blood, or providing an oral or urine sample.
4. For regular antibody tests, results are given in about a week either by phone or in person. Rapid testing (in which preliminary results are provided within 30-40 minutes) is becoming increasingly available.

Positive HIV antibody tests results are over 99% accurate when confirmed. Negative HIV antibody tests are over 99% accurate if it has been at least three months after a exposure to a potentially HIV-infected partner. False negatives or false positives occur very rarely. (For more information on testing see the HIV/AIDS Program Testing Update at http://www.metrokc.gov/health/apu/infograms/testing.html)

The Window Period

The time period between a person's exposure and actual infection with HIV and until HIV antibodies become detectable in blood or other fluids is called the "window period". Most people will develop antibodies detectable with the latest blood tests within 1-3 months after infection with HIV. Some people may take longer; but nearly all (>99%) will have antibodies by 3 months following infection. Therefore, we recommend that people wait 3 months from the time of the possible infection with HIV (the date of latest exposure) before being tested for HIV antibodies, and in the meantime assume that they might possible be infected. The test may not give an accurate negative result if a person gets tested too soon after a potential exposure.

People waiting three months from the time of the exposure before testing will have a 99% accurate test result. Very rarely, cases have been reported of people taking longer than three months to develop antibodies to HIV.

What is HIV Reporting?

Licensed health care professionals have been required to report the names and other identifiers and risk information on cases of AIDS in every state since 1984. Since new treatments for HIV and AIDS became available in the later half of the 1990s, newly diagnosed AIDS cases have fortunately fallen greatly, leaving the monitoring of AIDS less useful; thus, HIV monitoring rules have increasingly been sought by states.

As of September 1st, 1999 healthcare providers and labs in Washington state are required to report all positive HIV tests their local public health department. Names are used to report HIV infection only to assure the completeness and non-duplication of case reports; and within 3 months after the case report is complete, all names are converted to a non-name code. The state and federal governments never receive case names.
For more information see the HIV/AIDS Epidemiology Fact Sheet (http://www.metrokc.gov/health/apu/namerep/reporting.htm) or call 206-296-4645.

The availability of anonymous testing is considered a vital part of testing options in King County and Washington State. Positive results obtained through anonymous testing are not reportable. However, when HIV positive patients are seen for health care, or HIV-related tests are obtained, the health care provider and labs must report the case. Sites offering anonymous testing can be located by calling the HIV/STD Hotline at 206-205-7837

Confidential Testing means that the clinic keeps the patient name in their records and must keep the medical record information (like all other recorded information) private. Providers are generally prohibited from releasing HIV information except by written permission. (Patients often sign a "consent to bill" form, which gives permission to release information to an insurance company. Patients can check this with their provider.)

Anonymous Testing means that the clinic keeps no record of the patient name; they use only a code to process records and blood specimens.

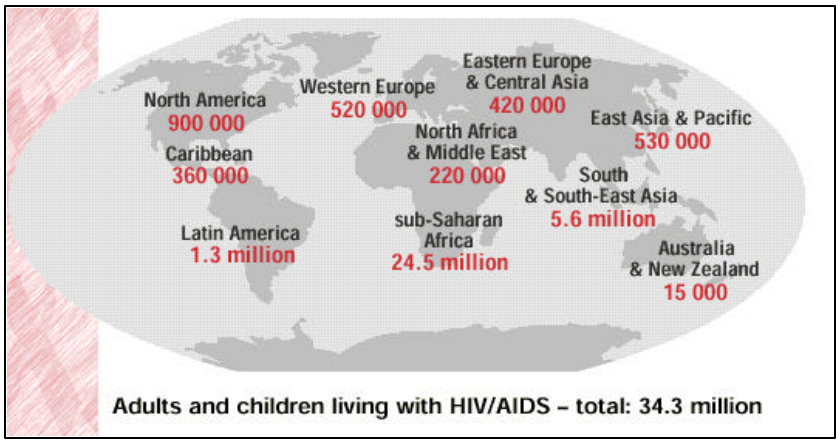
How many people have HIV/AIDS?

Throughout the World

Globally, 34.3 million adults and children were living with HIV/AIDS at the end of 1999. Of the 33 million adults living with HIV/AIDS, 15.7 million were women. About 95 percent of those infected with HIV live in developing countries, where the cost of combination therapies to stall HIV and AIDS progression is prohibitive. In 1999, 5.4 million people--of whom 2.3 million were women--were newly infected with HIV, and 2.8 million people died of AIDS. Since the beginning of the epidemic, there have been 18.8 million AIDS deaths and 13.2 million AIDS orphans.

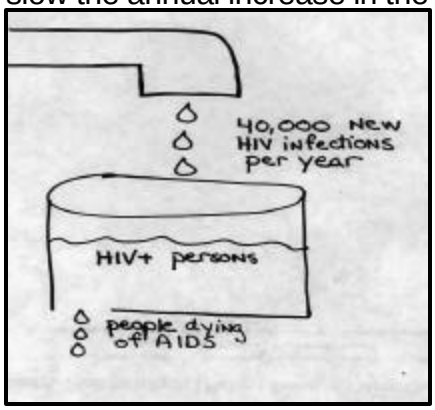
Sub-Saharan Africa is being devastated by AIDS with as many as 1 in 4 persons infected in some countries. In nine African countries, HIV/AIDS will erase 17 years of potential gains in life expectancy, meaning that instead of reaching 64 years, by 2010-2015 life expectancy in these countries will drop to an average of just 47 years. The next areas that are poised for disaster are SE Asia, India and Russia/Eastern Europe.

Adults and Children Estimated to Be Living with HIV/AIDS as of End 1999



In the United States

The CDC estimates that between 800,000 and 900,000 people in the U.S. are living with HIV/AIDS. Of them, a record (& increasing) number-–297,136-–are estimated to be living with AIDS. Public education and prevention efforts and newer, more effective therapies have helped slow the annual increase in the number of AIDS cases.



AIDS deaths have also declined in recent years, although this trend too has been slowing. Yet despite declining AIDS cases and deaths, the rate of new HIV infections has not declined, remaining steady at about 40,000 annually.

The picture on the left, illustrates that as the number of new infections in the United States stays at about 40,000 and the number of people dying of AIDS lessens, the number of HIV+ individuals in the U.S. is actually growing.

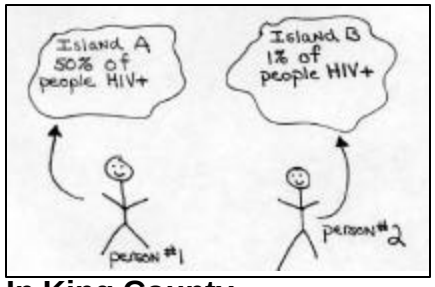
The disproportionate impact of the epidemic on racial and ethnic minorities has been increasing, and minority Americans now represent the majority of new HIV and AIDS cases, and of those living with AIDS. In 1998, African Americans represented 45 percent of new AIDS cases yet accounted for only 12 percent of the total population. Latino/a Americans represented 20 percent of new AIDS cases but only 13 percent of the population. African Americans and Latino/a Americans represent 40 and 20 percent, respectively, of those living with AIDS.

The proportion of AIDS cases reported among women each year has more than tripled, from 7 percent in 1986 to 23 percent in 1998. African American women account for 62 percent of AIDS cases reported among all women

HIV/AIDS is also increasingly becoming a disease of young adults. At least one-half of all new HIV infections are estimated to be among people under 25, and the majority of young people are infected heterosexually.

Why are homosexuals and people of color disproportionately affected by HIV?

Although we know that HIV transmission is caused by specific behavior, transmission is also much more complicated than individual behavior. Transmission does not occur in a vacuum; racism, sexism, homophobia, economic status and other socio-economic determinates all play a role in the spread of this epidemic.

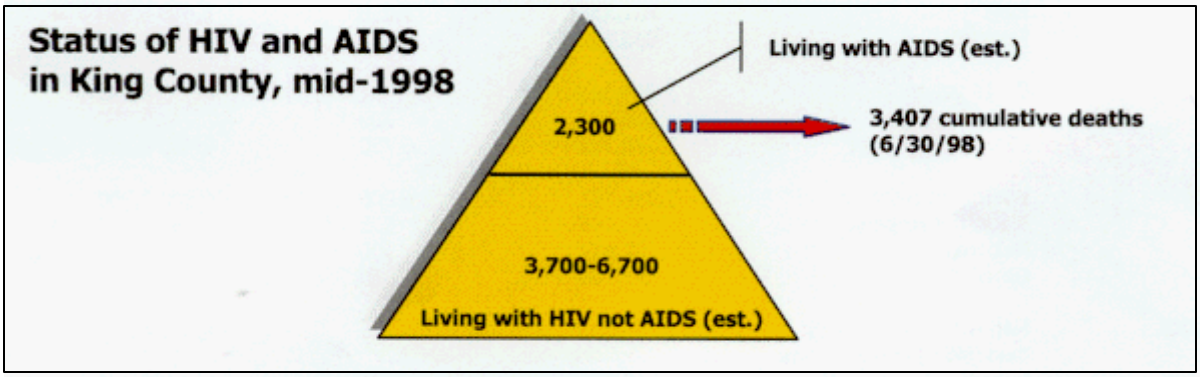


Taking the simplistic example on the left, if both persons have 4 unprotected sex acts, their individual behavior will be exactly the same, but their risk of infection will be very different. Person number 1 will have a high chance of becoming HIV infected and person 2 will have a low chance of becoming infected. The context changes their risk.

In King County

HIV is best thought of as many epidemics among population subgroups because of striking variations in infection rates. Gay and bisexual men in King County who are currently sexually active are at high risk, with an estimated 14% infected. Heterosexual injection drug users have a relatively low prevalence of infection (<3%). HIV infection also varies by race--higher rates are observed in African Americans, Native Americans, and Hispanics compared to Whites and Asians. HIV is not distributed uniformly in the county, with the majority of infections being in Seattle residents. These variations emphasize the need to tailor HIV prevention programs to specific populations at risk.

Public Health estimates that between 6,000 and 9,000 (midpoint=7,500) King County residents have HIV infection. This estimate is based on the CDC's national HIV prevalence estimate published in 1996.



- Men who have sex with men who are currently sexually active have a high prevalence of HIV infection, estimated at 14%.
- Men who have sex with men who also inject drugs have the highest HIV seroprevalence with about 40% infected.
- The prevalence of HIV among heterosexual drug injectors is estimated to be less than 3%.
- Estimated HIV prevalence is higher among African Americans, Hispanics, and Native Americans (each about 1%) than among Whites (0.5%) and Asian/Pacific Islanders (0.1%).
- Data from the survey of childbearing women through May, 1995 showed that one in about every 2,400 King County women giving birth was HIV infected (0.042%). This rate was stable between the start of the survey in 1989 and its conclusion in May, 1995.
- Data from the survey of childbearing women through May, 1995 showed that the percentage of African American women who tested HIV positive was 10 times that of White women (0.3% vs. 0.03%, respectively).
- AIDS case data indicate marked geographic variation within King County, and a similar distribution of HIV infection is likely. The AIDS rate in recent years in Seattle is 6 times that of the remainder of the county. Within Seattle, the Central and North Central areas have the highest rates.

How do you prevent HIV infection?

Abstain From Anal, Vaginal or Oral Sex
The surest way to avoid the sexual transmission of HIV infection is to abstain from sexual activity with other people. The next surest way is to have sex with only one partner who is known to be uninfected with HIV *AND* who only has sex with you.

For someone with an HIV positive partner, a partner who does not know their HIV status, or multiple sexual partners, touching, dry kissing, body rubbing, and mutual masturbation are the safest sexual activities. For any penetrative sex acts such as vaginal, anal, or oral sex, condoms are highly effective at reducing the risk of HIV transmission especially when used consistently and correctly.

For those with a new sex partner**,** abstain or use condoms for at least 3 months and then get tested for HIV antibodies. If you and your partner are both HIV negative and each of you are not engaging in other risk behaviors (e.g., sharing needles or having other sex partners), then you won't have to worry about HIV infection.

Abstain From Injection drug use The surest way to completely avoid HIV infection from injection drug use is to abstain. The next surest way is to use a brand new syringe every time you inject. If brand new syringes are not available, properly bleaching a used syringe may be an effective method of reducing HIV transmission.

Sharing drug injection equipment (such as cookers, cottons and water used for mixing/bleaching) also can transmit HIV. To avoid infection, these items must not be shared. Public Health-Seattle & King County operates Needle Exchange Programs in several locations. Needle Exchanges trade new needles/syringes for used ones free of charge. **For more information, call the HIV/STD Hotline at (206) 205-STDS (7837).**

Drugs -- injected or not -- can also increase a person's risk for HIV by impairing judgement, decision-making ability, and/or by increasing sexual drive. Studies have shown that - even when drunk or high - people can successfully use condoms and clean needles/syringes. Nonetheless, people who are drunk or high often take more risks than if they were sober.

How effective are condoms?

The proper and consistent use of latex or polyurethane condoms when engaging in sexual intercourse—vaginal, anal, or oral—can greatly reduce a person's risk of acquiring or transmitting sexually transmitted diseases, including HIV infection.

A latex condom wall is approximately .05 mm thick and has no pores. HIV is approximately .001 mm in size and thus would have to move through a barrier 500 times thicker than the virus itself. More-over, laboratory studies show that intact latex condoms do not allow air, water, viruses (e.g. Human Immunodeficiency Virus, Herpes Simplex Virus, Hepatitis B Virus), or other organisms such as bacteria to pass through. "Natural" condoms, made from animal intestinal tissue, do have pores, some of which are large enough that HIV and other viruses might pass through and thus are not recommended for HIV or other STD prevention.

Following these basic rules will further reduce the small chance of condom failure.

1) Use latex (rubber) or polyurethane condoms. These are preferable to "natural skin" condoms, which may have tiny holes through which HIV may pass.
1) Choose a condom that fits. Condoms come in different sizes, shapes, and styles. Experiment with different condoms and practice putting them on before intercourse. Also practice talking with a close friend about your desire and intention to use condoms.
1) Open and handle condoms carefully. Never use a condom in a damaged package or one that is past its expiration date. Do not store condoms in hot or sunny places (for example, in a wallet or by a window).
1) Use plenty of water-based lubricant to reduce the friction that can cause breakage. Never use oil-based lubricants like Vaseline, hand cream, Crisco, or mineral oil which can rapidly break down latex and allow the virus to pass through. Water-based lubricants include K-Y Jelly, Slippery stuff, ForPlay, and most contraceptive jellies.
1) Put the condom on after erection but before insertion. Leave some room at the tip for the discharged semen (some condoms have a reservoir tip for this). It is important to pinch the tip as you roll it down onto the penis to be sure that there are no air bubbles that could pop under pressure. If the penis is uncircumcised, pull back the foreskin before unrolling the condom all the way down to the base of the penis.
1) After intercourse, withdraw the penis while still erect, holding the base of the Condom to prevent it from slipping off or spilling semen.
1) Remove the condom and wash the penis with soap and water.
1) Use a condom only once and dispose of it in the garbage; do not flush condoms down the toilet. Never reuse a condom.
1) Use a condom EVERY TIME during sex when transmission or acquisition of HIV is possible.

No method of contraception or disease prevention is effective when practiced incorrectly or inconsistently. A 1988 National Survey of Family Growth found abstinence to have a contraceptive failure rate of 26% when not practiced consistently. So, in abstinence, as in condom use, consistency is key.

Most condom failures can be blamed on the user, not the condom. In order for condoms to provide maximum protection, they must be used consistently (every time) and correctly. Incorrect use contributes to the possibility that the condom could leak or break. When condoms are used reliably, they have been shown to prevent pregnancy up to 98 percent of the time among couples using them as their only method of contraception.

Similarly, numerous studies among sexually active people have demonstrated that a properly used latex condom provides a high degree of protection against a variety of sexually transmitted diseases, including HIV infection. In a two-year study in Europe among couples in which one partner was infected with HIV and the other uninfected (HIV sero-discordant couples), researchers demonstrated that consistent use of condoms significantly reduced the chance of passing HIV from the infected partner to the one not infected. Among 124 discordant couples who used condoms consistently over the study period, none of the uninfected partners became infected with HIV. In contrast, among 121 discordant couples who did not use condoms consistently, 12 (10%) of the uninfected partners became infected during the study period. Other researchers concluded that the per contact probability of transmission of HIV was reduced 90-95% by the use of condoms.

Condoms do not need to be 100% effective to be strongly promoted for two reasons: 1) at least 90% efficacy is significant protection; and 2) 100% efficacy is not now and has never been a criterion for promoting any safety device, (e.g. seatbelts, smoke alarms, helmets, or even vaccination).

Condoms are classified as medical devices and are regulated by the Food and Drug Administration. Condom manufacturers in the United States test each latex condom for defects, including holes, before it is packaged. Several studies of correct and consistent condom use clearly show that condom breakage rates in this country are less than 2 percent. Even when condoms do break, one study showed that more than half of such breaks occurred prior to ejaculation.

Condoms help prevent STDs and unwanted pregnancies and studies show that increasing availability of condoms through community campaigns and school availability programs does not increase sexual activity in targeted populations. Latex condoms are highly effective in preventing pregnancy and most sexually transmitted diseases, including HIV infection, but only if they are used consistently and correctly.

What Works in HIV Prevention Education?

A comprehensive approach including accessible and improved health services, improved socioeconomic conditions and quality education has the most promise of controlling HIV/STD in adolescents. Better diagnostic, treatment, and counseling services can enhance prevention efforts. Attention to improving overall health behavior, school performance, home and family life, and peer choice, for example, would be valuable.

Educational programs designed to increase adolescent self-efficacy in practicing HIV/STD prevention and risk reduction are an important key to overall control efforts. Schools, youth-serving organizations, and minority organizations must conduct HIV/STD prevention programs. Special attempts should be made to reach out-of-school youth and youth in high-risk situations, such as runaway, migrant, incarcerated and homeless adolescents. HIV and STD prevention messages should be combined into one program.

Research on specific, school adolescent HIV/STD and sexuality education programs have shown positive results, such as delaying onset of coitus, increasing the use of protection against HIV/STD and pregnancy, and reducing the frequency and number of sex partners. Research studies of sexuality and HIV/STD education programs revealed that such programs do not hasten the start of coitus in adolescents. The successful programs (1) had a specific focus on reducing specific sexual risk-taking behaviors, (2) emphasized the modeling and practice of prevention and risk reduction skills, (3) reinforced values and group norms against unprotected sex, and (4) discussed social pressures to have unprotected sexual activity.

The U.S. National Commission on AIDS recently made several recommendations concerning educational approaches for HIV prevention in adolescents, which are also applicable to a combined HIV/STD education program.

- HIV prevention programs should include information, examination of values and attitudes, skill building such as decision-making, negotiation, and refusal, and access to health care and social services.

- School-based HIV education should be presented as part of a comprehensive health science education curriculum that begins in elementary school, includes sexuality education and teaches general prevention skills.
- Schools and other youth-serving institutions should select curricula and teaching strategies that have been shown to be effective by evaluation.
- Parents and young people should be involved in the development of prevention programs.
- HIV prevention programs must be culturally and specific population sensitive, developmentally appropriate, nonjudgmental in approach, repeated, sustained over time, and complemented with efforts to change behavioral norms and to empower individuals.
- Utilizing peers as educators can be valuable if combined with other approaches in a comprehensive program.
- Prevention efforts limited to instilling fear or that omit important information will not facilitate wise health behavior or sustain risk reduction.
- Abstinence messages, such as postponing sexual activity, should be included, and adolescents that choose abstinence should be supported.
- Information and skill enhancement about methods of HIV/STD prevention other than abstinence, such as use of condoms, should be included. This information is needed immediately by the sexually active youth and by some who will be active in the future.
- Educational strategies dealing with prevention must be dealt with in a manner acceptable to the community. However, withholding complete prevention information can place adolescents at risk for HIV/STD.

Call the HIV/STD Hotline
(206) 205-7837 for more information

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