



HIV Today

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The looped red ribbon became the universal symbol of AIDS awareness.



Courtesy of the National Institutes of Health.

About the Author

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Objectives

Upon completion of this course the learner will be able to:

- Identify current epidemiological trends in HIV infections.
- State the CDC recommendations for adult and adolescent HIV testing.
- Discuss HIV testing laws in Florida.
- Discuss effective methods for the prevention of HIV infection.
- Utilize case studies to illustrate HIV transmission and prevention.

Introduction

HIV continues to be a major public health problem both nationally and globally. When asked, many people think HIV has a cure since they rarely hear about it any more. Unfortunately this is not true, and the lack of HIV awareness may lead to risky behaviors and infection. There are about 56,000 new cases of HIV/AIDS reported each year in the US. Increasing HIV awareness and prevention messages are an important component to any strategy focused on decreasing this number.

HIV: the Basics

HIV was first identified in the US in 1981. Five cases of young gay men with unusual symptoms including weight loss and wasting, pneumonia, fevers, and diarrhea were reported in the MMWR (1981). Once identified, the men died within a short period of days or weeks. Fear grew because no clear route of infection or cure was known.

Eventually, scientists discovered that this disease is caused by an unidentified organism later named Human Immunodeficiency virus or HIV. The virus had originated as Simian Immunodeficiency virus (SIV) among primates in Africa. As can happen with zoonosis, the virus mutated when it jumped species. SIV does not cause a terminal illness in its hosts as HIV does. African natives were infected while using primitive hunting techniques and as they began to migrate to larger cities the disease spread.

Without treatment, HIV attacks the CD4 helper cells of the immune system limiting the body's natural defense against invasion by pathogens. Unable to defend themselves, patients develop severe immune suppression and opportunistic infections. As the disease progresses, Acquired Immune Deficiency Syndrome (AIDS) develops, followed by death.

The Centers for Disease Control and Prevention (CDC) set the criteria for an AIDS diagnosis as a CD4 count of 200 cells/ul or less and/or the diagnosis of an AIDS defining illness (MMWR, 2008). A partial list of these illnesses includes:

- Candidiasis of bronchi, trachea, esophagus or lungs
- Cervical cancer, invasive
- Cryptococcosis, extrapulmonary
- Kaposi sarcoma
- *Mycobacterium avium* complex or *Mycobacterium kansasii*, disseminated or extrapulmonary
- *Mycobacterium tuberculosis* of any site, pulmonary, disseminated, or extrapulmonary
- *Pneumocystis jirovecii* pneumonia
- Pneumonia, recurrent
- Progressive multifocal leukoencephalopathy
- Wasting syndrome attributed to HIV

The development of antiretroviral medications (ART) has had a significant impact on the prognosis of HIV/AIDS. Five classes of ART are commercially available in 2012 with several other novel classes in different stages of development and clinical trials. Today, a person with HIV on an efficacious medication regimen has the possibility of living to the normal life expectancy of someone who does not have HIV. Medication adherence is paramount to successful treatment since studies have shown that less than 95% adherence can lead to drug resistance and treatment failure.

There is still no cure for HIV. ART is designed to interrupt viral replication at one or more points of the replication cycle. Adherence with a resulting undetectable viral load (the number of copies of virus circulating in the blood) can reduce complications of HIV and infection with opportunistic infections by preventing immune depletion. Having an undetectable viral load also decreases the risk of transmission with exposure.

Global Epidemiology

According to the most recent estimates there are about 35 million cases of HIV/AIDS worldwide (Avert, 2012). The majority of these cases (about 68%) are located in Sub Saharan Africa, but numbers are quickly growing in other regions as well. While the most common risk factors for infection are reported as unprotected sex and intravenous drug abuse; other non-behavioral factors including poverty, gender inequality, lack of education and resources, and political unrest are just as important. In the US and other developed countries the greatest prevalence of HIV/AIDS continues to be among men who have sex with men (MSM). In poorer developing countries, women are equally infected. In 2010, for the first time since the beginning of the pandemic, women accounted for 50% of all infections globally (Avert, 2012).

Table 1. HIV/AIDS Prevalence by Region 2010 (Avert, 2012)			
Region	Adults and Children Living with HIV/AIDS	New Cases 2012	Adult Prevalence
Sub Saharan Africa	22.9 Million	1.9 Million	5.0%
South and South East Asia	4 Million	270,000	0.3%
Eastern Europe and Central Asia	1.5 Million	160,000	0.9%
Latin America	1.5 Million	100,000	0.4%
North America	1.3 Million	58,000	0.6%
Western and Central Europe	840,000	30,000	0.2%
Eastern Asia	790,000	88,000	0.1%
North Africa and the Middle East	470,000	59,000	0.2%
Caribbean	200,000	12,000	.09%

HIV/AIDS in the US

Based on the steady trend in HIV incidence (new cases), CDC issued guidelines for adults and adolescents in 2006 recommending that HIV testing be integrated into routine primary care regardless of the presence or absence of possible risk factors (in the same way that providers routinely recommend screening for colon cancer and diabetes) and that every person between the ages of 13 and 64 should be tested at least once in their lifetime (more regular screening is recommended for persons demonstrating high risk behaviors).

Streamlining of scripted pre and post HIV test counseling and eliminating the requirement for written informed consent was also recommended. Since these are recommendations, not laws or mandates, states responded in various ways from adopting the new recommendations in their entirety to adopting only a portion of the recommendations. For that reason, laws for HIV testing vary from state to state. Specific laws related to HIV testing and counseling in the state of Florida are covered in a later section of this course.

While some progress has been made to increase testing, CDC estimates that roughly 20% of the 1.2 million persons living with HIV/AIDS in the US are still not aware that they are infected. These estimates

are supported by surveillance data showing that almost 28% of all new infections in 2010 already met the CDC criteria for AIDS at time of diagnosis (CDC, 2012a, CDC, 2012b).

Racial Inequality

In the US, disparity continues between genders and races infected. Minority populations continue to report the greatest rate of people living with HIV/AIDS and cases of new infections, with Blacks/African Americans disproportionately infected. Black/African Americans made up just 14% of the total US population in 2009, but accounted for 48% of all people living with HIV/AIDS (CDC, 2012a, CDC, 2012b).

New cases of HIV/AIDS among males in this population were 6.5 times greater than among Whites and 2.5 times greater than among Hispanic/Latino males or Black/African Females. Black/African American female rates of HIV/AIDS were 15 times greater than among White women and 3 times greater than among Hispanic/Latino women. In 2010, the number of new cases of AIDS among Black/African Americas (16,188) remained almost double those among Whites (8,875) (CDC, 2012a). MSM remains the predominant risk category, while heterosexual sex now ranks second. The most significant rise of infections is among young Black/African American MSM. CDC estimates that one out of 16 Black/African American males and one out of 32 Black/African American females living in the US will be infected with HIV/AIDS during their lifetime (CDC, 2012a, CDC, 2012b).

HIV Prevention Efforts

Despite millions of dollars spent on HIV prevention, the yearly prevalence remains stable at 56,000 cases. Health and governmental agencies are looking for new ways to approach the problem. Treatment optimism has been blamed in part for the failure to change risky behaviors among some people. Media reports of major breakthroughs in HIV treatment and a national change in focus from HIV to other newer problems (for example, drug resistant organisms such as methacillin resistant staphylococcus aureus [MRSA], new strains of influenza, etc.) may have resulted in a false sense that HIV is no longer a major health problem since it can be managed with daily medications. Another factor contributing to new infections may be that sexually active young adults did not experience the fear and loss when HIV was first reported and may underestimate the impact of the virus.

Despite the dramatic increase in sexually transmitted infections and 30 years of HIV prevention messages, the use of barriers remains inconsistent among all age groups, thus contributing to the steady rate of new infections. Hock-Long et al. (2012) recently examined a sample of African American and Puerto Rican males and females ages 18- 25 years (N= 380) asking if the subjects had used condoms at their last sexual encounter. Subjects reported using condoms more frequently with casual partners (77.9%) than with serious partners (38.7%). The most common reason for use among causal partners was prevention of sexually transmitted infections (STIs) and to prevent pregnancy. Among serious partners the most common reason was to prevent pregnancy. In older age groups where pregnancy prevention is not a concern, condoms were used less frequently. Foster et al. (2012) reported that 67.9% of study participants ages 50 to 74 responded that they did not use condoms at every sexual encounter. In addition, more than one third of the adults in their study had multiple sexual partners.

Risk Category	New HIV/AIDS Infections	Living with HIV/AIDS	Cumulative HIV/AIDS Related Deaths	HIV/AIDS Related Deaths (2009)
MSM	61%	49%	300,000	6863
Heterosexual	27%	28%	80,000	4434
IVDU	9%	17%	175,000	4759

HIV and Persons 50+

Due in part to pharmaceutical advancements in antiretroviral treatments, the HIV population is aging. People who are infected are often able to return to productive lifestyles and be relatively healthy for years after their diagnosis with effective therapy and health care. In addition, people are aging better in general. Many people remain mentally and physically active into their 70s and 80s. They travel, work, and engage in sexual relationships. Unfortunately, they are often not aware of HIV risk factors. NYS estimates that by 2015 more than one-half of persons infected with HIV living in the state will be age 50+. For these reasons, this is an important population to target with HIV prevention programs and testing. Although providers are becoming more aware of risk factors among the elderly, the majority is tested at a later stage of the disease and often has AIDS at the time of diagnosis.

HIV Testing in Florida

The Florida Department of Health (2010) has provided a *Model Protocol for HIV Counseling and Testing for County Health Departments and Registered Testing Programs*.

This model protocol provides guidelines on performing anonymous and confidential HIV counseling and testing in accordance with statutory requirements and established public health policy. Florida law carefully structures the manner in which health care providers may perform HIV tests. The law requires those who perform HIV tests in county health departments and other registered testing sites to obtain the informed consent of the test subject, make private counseling available both before and after the test and confirm positive preliminary results with a supplemental test before informing the test subject of the result.

Per guidelines from the Centers for Disease Control, the goal of HIV counseling and testing is to assist individuals in assessing their risk and understanding their test results and to help them develop a personalized prevention plan.

Evaluating an individual's risk for HIV infection and offering HIV testing on a voluntary basis shall be a routine part of primary health care. Risk assessment should take place without regard to age, religion, sexual orientation, gender, race/ethnicity, marital status, economic status, social or other cultural factors.

1. Risk Assessment

Risk assessment involves asking the individual a series of open-ended questions to determine behaviors that may put them at risk for HIV infection. When conducting the risk assessment, it is important to assure the client that all information is confidential under Florida law. Questions should be asked in a professional, culturally sensitive, non-judgmental manner.

The following criteria should be used to help the test subject determine his or her level of risk:

- Sexual behavior
- Substance use/abuse
- Needle sharing
- Occupational exposure
- Blood/blood products/transplants
- Partners at risk for HIV
- History of sexually transmitted disease(s)
- Child of woman with HIV/AIDS
- History of sexual assault/domestic violence
- Sex for drugs/money

Appropriate referrals should be made based on information obtained in the risk assessment. The Florida Domestic Violence Hotline (1-800-500-1119) provides information and referrals in English, Spanish and Creole.

2. Pre-Test Counseling

Pre-test counseling shall include information on:

- Purpose of the HIV test;
- Indications for testing (medical indication and/or information obtained from the risk assessment);
- The possible need for retesting;
- Information on how to avoid contracting and transmitting HIV infection;
- Potential social, medical, and economic effects of a positive test result;
- Options for eliminating and/or reducing risk behavior;
- The availability of support services for those awaiting test results (e.g., hotlines, pre-test counselor's name and telephone number, county health department number); and,
- Scheduling a specific date for receiving test results.
- Each test subject shall be made aware of the benefits, availability and confidentiality of locating and counseling sex or needle sharing partners. Each test subject shall also be made aware of the availability of county health department staff in assisting with partner notification. It is important to note that the county health department never reveals the identity of the test subject when notifying partners of possible exposure.

3. Informed Consent

- No person shall perform an HIV test without first obtaining the informed consent of the test subject or his or her legal representative. The limited exceptions to obtaining informed consent can be found in s. 381.004 (3)(h), F.S.
- When obtaining informed consent, explain the right to confidential treatment of information identifying the subject of the test and the results of the test to the extent provided by law. Persons with knowledge of an individual's HIV test result have legal obligations to protect this information from unauthorized disclosure. Florida law imposes strict penalties for breaches of confidentiality.
- Registered Testing Programs do not need to obtain written consent provided that documentation is included in the medical record indicating that the test was explained and informed consent was obtained. [A few limited exceptions are included in Rule 64D-2.004(4), F.A.C.] County Health Departments must obtain written informed consent.
- In accordance with Administrative Rule 64D-2.004, Testing Requirements, an explanation of the following information represents a sound and reasonable standard for obtaining informed consent:

- a. An HIV test is a test to determine if an individual is infected with the virus which causes AIDS; The potential uses and limitations of the test (the reliability of the results and what positive, negative and indeterminate results do and do not mean);
 - b. The procedures to be followed; and,
 - c. HIV testing is voluntary and consent to be tested can be withdrawn at any time prior to testing.
- Persons who volunteer to be tested confidentially for HIV should be informed that positive test results will be reported to the local county health department so that health department staff may contact persons who test positive to offer follow-up activities. Examples of voluntary follow-up activities are post-test counseling for persons who do not return for test results, referrals for medical evaluation, case management services and voluntary partner notification. Persons who test positive anonymously should also be offered follow-up services. (Exemptions from HIV-reporting include persons tested anonymously at a registered anonymous test site, testing in the event of a significant exposure or university-based medical research protocols approved by the Department of Health.)
 - The test subject must also be given information on the availability and location of anonymous test sites. Each county health department shall maintain a list of available anonymous test sites to be disseminated to all persons and programs offering HIV testing within their service area.

4. Post-Test Counseling

The person ordering the test or that person's designee shall ensure that all reasonable efforts are made to notify the test subject of his or her test result. Post-test counseling should be offered to all test subjects and should be based on the test result and the individual's needs as determined during the risk assessment. Post-test counseling shall include:

- The meaning of the test results;
- The potential social, medical and economic effects of a positive test result;
- The possible need for retesting;
- A reassessment of risk;
- Availability of health care, mental health, social and support services;
- Options for eliminating and/or reducing the transmission of HIV infection to the individual and/or partners. Florida law imposes strict penalties upon those who knowingly transmit HIV infection to others;
- If positive, a discussion of past and present sex and/or needle-sharing partners who may have been exposed to HIV and a plan on how to notify those partners. A good faith effort must be made to notify all spouses from the past ten years of their potential exposure;
- If positive, a discussion of the increased risk for TB and appropriate referrals for TB testing and treatment; and,
- Other appropriate referrals (e.g., STD, primary care, psychosocial).

5. Release of Preliminary HIV Test Results

Pursuant to s. 381.004(3)(d), F.S., preliminary test results may be released to health care providers and to the person tested when decisions about medical care or treatment cannot await the results of confirmatory testing. Positive preliminary HIV test results shall not be characterized to the patient as a diagnosis of HIV infection. Justification for the use of preliminary test results must be documented in the medical record by the health care provider who ordered the test. This does not authorize the release of preliminary test results for the purpose of routine identification of HIV-infected individuals or when HIV testing is incidental to the preliminary diagnosis or care of a patient. Corroborating or confirmatory testing must be conducted as follow up to a positive preliminary test. Results shall be communicated to the patient according to statute regardless of outcome.

6. Pregnant Women/Special Provisions (This requirement was effective October 1, 1996)

Florida law (s. 384.31, F.S.) requires a health care provider who attends a pregnant woman for conditions relating to her pregnancy to offer testing for HIV and counsel her on the availability of treatment if she tests positive.

If the pregnant woman objects to HIV testing, a reasonable attempt must be made to obtain a written statement of objection, signed by the patient, which shall be placed in her medical record. (If a pregnant woman tests HIV negative, consideration should be given to offering the test again at a later date during her pregnancy because of the window period of up to 6 months between exposure to HIV and testing positive for antibodies and the risk of exposure during pregnancy through sex or needle sharing.)

When a pregnant woman tests HIV positive, in addition to the medical and support services listed above, she should also be referred to the Healthy Start Care Coordination System. For more information on the availability of services, contact the Family Health Line at 1-800-451-BABY or the Florida AIDS Hotline at 1-800-FLA-AIDS.

The National HIV/AIDS Strategy

The National HIV/AIDS strategy was released in 2010. This is the nation's first coordinated effort to provide a formalized plan to approach the problem of HIV/AIDS. The purpose is to evaluate what is and is not effective with current prevention efforts as well as to provide measurable goals to determine outcomes resulting in programs receiving governmental funding. According to the statement released,

"We are now experiencing a domestic epidemic that requires a renewed commitment, increased public attention and leadership. We have the knowledge and tools to slow the spread of HIV infection and improve the health of people living with HIV. Despite this potential, the public's sense of urgency associated with combating the epidemic seems to be declining. In 1995, 44% of the general public indicated that HIV/AIDS was the most urgent health problem facing the nation, compared to only 6% in 2009. While HIV transmission rates have been reduced substantially over time and people with HIV are living longer and more productive lives, approximately 56,000 people become infected each year and more Americans are living with HIV than ever before. Unless we take bold actions, we face a new era of rising infections, greater challenges in serving people living with HIV/AIDS and higher healthcare costs (p.1, National HIV/AIDS Strategy Fact Sheet, CDC, 2012e)"

Goals focus on fundamental public health strategies to impact disease outcomes, transmission and prevention (CDC, 2012e):

1. Reduce the number of new HIV infections by 2015
 - o Decrease the number of new infections by 25%
 - o Decrease the HIV transmission rate by 30%
 - o Increase the number of people who know their sero-status from 79% to 90%
2. Increase access to health care for all people infected with HIV by 2015
 - o Increase the percentage of persons with new infections to care within three months
 - o Increase the number of Ryan White clients who are in continuous care
 - o Increase the number of Ryan White clients with permanent housing
3. Reduce HIV health disparities
 - o Improve access to prevention and care services for all Americans
 - o Increase the proportion of gay and bisexual men with an undetectable viral load by 20%
 - o Increase the proportion of diagnosed Blacks with an undetectable viral load by 20%

- Increased the proportion of diagnosed Latinos with an undetectable viral load by 20%

Action steps accompanying the program include (CDC, 2012e):

- Target prevention efforts towards populations at highest risks
- Educate all Americans about the threat of HIV and how to prevent it
- Increase diversity among providers of services for people living with HIV/AIDS
- Increase safe and affordable housing options for persons living with HIV/AIDS
- Reduce HIV/AIDS related stigma and discrimination
- Increase coordination of services.

Regardless of the risk category, race or age, new strategies are definitely needed to bring HIV/AIDS back to the attention of the public in a way that will open their minds to effective prevention strategies and promote understanding of the continued threat of HIV/AIDS.

HIV Prevention: What works?

Routine Testing for HIV

Increased HIV testing is being promoted on the state and national level. CDC has recommended that HIV testing be incorporated as a routine part of health care rather than being based on identified risk factors. They estimate that as more than 20% of persons currently infected are not aware of their status. Because of this, they may continue to engage in risky behaviors and continue to infect new partners. The most common reasons for not being tested for HIV include lack of HIV education, no knowledge of possible risk, denial, stigma, being tested and not returning for results and fear of being diagnosed with HIV.

Treatment as Prevention

A new concept for preventing HIV infection is through optimizing treatment of already infected individuals. This makes sense in many ways. We know through Public Health principles of transmission the more infectious someone is the greater the risk of transmission. By maintaining an individual with HIV on effective ART the likelihood increases that they will be able to maintain viral suppression and an undetectable HIV viral load. Taking ART not only reduces the personal risk of developing HIV related illnesses, but has the additional benefit of significantly decreasing the risk of transmission. The lower the viral load the less risk of infection. That is not to say that someone with an undetectable viral load can't transmit the virus to someone else, but the risk is decreased. An HIV-positive person's viral load is the single biggest risk factor in the transmission of HIV. The idea of 'treatment as prevention' is to use treatment as a prevention strategy to protect sexual partners, or, on a large scale, to reduce HIV transmission among a population (Avert, 2012).

Harm Reduction

Avert (October 2012) reports that IVDU accounts for about 30% of all HIV infections outside of Sub Saharan Africa. In Central Asia and Eastern Europe the use of IVD has increased dramatically over the past decade, and is estimated to be responsible for 80% of all HIV/AIDS infections. Opiate substitution therapy (OST), predominately using methadone (an opioid agonist) and buprenorphine (a partial agonist), is now being used in over 70 countries. Many of the same countries also support needle exchange programs.

These programs have been shown to an effective tool to reduce the number of new HIV infections. A recent study in the British Medical Journal by McArthur, et. al (2012) reported the results of a meta

analysis of twelve published and three unpublished observational studies focused on OST and incidence of HIV infection. The authors reported an overall 54% decrease in HIV infection among persons engaged in these programs (CI 95% 0.32-0.67, $p = <0.001$).

Needle exchange programs have been shown to reduce incidence of both HIV and hepatitis c among IVDU. While still considered to be controversial by some, the Public Health community has shown that rather than increase IVDU, clean syringes along with other harm reduction interventions have helped to decrease blood borne infections in the US and globally (GMHC, 2009).

Pre Exposure Prophylaxis (PrEP)

Truvada is the first medication for HIV PrEP approved by the FDA to decrease the risk of HIV acquisition. It is a combination of two drugs, tenofovir and emtricitabine, both nucleoside analog HIV reverse transcriptase inhibitors. The medication itself is not new since it had been approved for the treatment of HIV for adults and children twelve years of age or older in August 2004. After numerous clinical trials it was approved in July 2012 as a medication that can be used for PrEP for persons at high risk for becoming infected with HIV. High risk individuals include persons who (Gilead, 2012):

- Have a partner(s) known to be HIV infected
- Engage in sexual activity within a high prevalence area or social network
- Practice inconsistent or no condom use
- Have a diagnosis of sexually transmitted infections
- Exchange sex for commodities (such as money, food, shelter, or drugs)
- Use illicit drugs or are alcohol dependent
- Have been incarcerated
- Have partner(s) of unknown HIV status with any of the factors listed above.

Truvada, taken one tablet daily, is recommended to be used as part of a comprehensive prevention strategy along with safe sex practices including barriers. In pre-approval studies, condoms were used by all subjects. Before initiating PrEP, the individual is screened for active HIV infection and must be negative. Once Truvada is initiated, providers stress the importance of adherence to the medication and screen for HIV infection every three months. Heterosexual couples are counseled that, although no adverse effects have been found among infants exposed to Truvada during pregnancy and breastfeeding, these data are incomplete for women in HIV-discordant couples using Truvada to prevent acquisition of HIV (MMWR, 2012).

Male Circumcision

Male circumcision is the surgical removal of some or the entire foreskin from the penis. In comparison to the outside surface of the skin found on the penis, the inner mucosal surfaces contain more target cells for HIV. Male circumcision has been shown to dramatically reduce the risk of HIV infection in Sub Saharan countries and, based on these findings, has been made a recommendation for all countries where heterosexual transmission is prevalent (CDC, 2012c).

When examining the role of adult male circumcision in the US the CDC warns that several other factors should be considered. The majority of evidence collected has shown circumcision to be effective in reducing male to female vaginal transmission. In the US, MSM account for the majority of cases of HIV. Male circumcision is more prevalent in the US than in developing countries, and increasing the emphasis might not result in a significant decline of HIV infections. Finally, the risks and benefits of adult male circumcision should be weighed since adverse outcomes such as pain, bleeding and infection can occur (CDC, 2012c).

Prenatal HIV Screening and ART

Prevention for maternal/fetal transmissions has been very successful in the US. Prenatal screening for HIV promotes early identification of infection and allows the mother to start ART earlier in the pregnancy and prior to delivery. Many antiretrovirals are proved to be effective in reducing infection, although several are toxic and must be avoided. In 2010, only 217 children under the age of thirteen in the US were reported to have HIV, and these cases were almost exclusively related to maternal/fetal transmission (CDC, 2012b). This is a significant improvement from earlier years.

HIV: What Doesn't Work?

Abstinence Only Programs

While abstinence is the only fool proof way to avoid HIV infection, research has shown that few people choose it. There is evidence that about 7% of students are sexually active before the age of thirteen, with almost 70% active by age eighteen (Cavaos-Rehg et al., 2009). Older adults are also sexually active at an older age, some with multiple partners (Foster et al., 2010).

Risky behaviors for HIV are not the only health warnings we in the US choose to ignore. For example, an estimated 47 million people currently use tobacco products in the US, including 23% of adults and 30% of adolescents. Tobacco is the cause of about 400,000 preventable premature deaths each year. This data underscores the reality that people choose to ignore health risks everyday. While abstinence may be an ideal form of prevention, it should be only one component in a more comprehensive program providing numerous options for behavior change and prevention.

Vaccines

Historically, vaccine administration has promoted the development of antibodies in the human immune system allowing us to mount an effective defense against infections. HIV is a difficult target and has to date eluded any attempts at effective vaccine development. The first HIV vaccine clinical trail opened at the National Institutes of Health in 1987 with discouraging results (NIH, 2012). While vaccine remains an elusive option for HIV prevention, once developed many obstacles will still need to be overcome before it is available to the majority of people in developing countries where the epidemic is the most prevalent.

Stigma and Discrimination

According to Erving Goffman (1963), stigma is an attribute assigned by society to separate "normal" from "abnormal" or "us" from "them." Stigma can be attributed to a behavior or attribute considered deviant by society. People infected with HIV/AIDS have been stigmatized since the beginning of the epidemic. Once considered a "gay men's disease," the stigma continues even now when it has affected people in all walks of life.

Stigma and discrimination hurt those who are targeted. When asked why people at known risk for HIV refuse testing, the most common answer is that they fear the stigma associated with the disease. Some people do not want their insurance companies to know they are concerned about being infected with HIV so avoid testing for fear that doing so would result in being dropped from their health care coverage. Others fear the reaction of family and friends or loss of employment or housing.

When HIV was first discovered caution was understandable since neither the cause or treatment of the deadly disease was known. Today our knowledge is more complete regarding routes of transmission and treatment. We know we can't be infected by casual contact, sneezing, sharing utensils, mosquito bites or

sharing toilets. HIV infection only occurs after exposure to blood or bodily fluids of someone who is infected or by maternal/fetal transmission.

Mahajan et al. (2009) conducted a literature review of HIV related stigma. They concluded that stigma continues to be a major barrier to effective responses to the HIV/AIDS epidemic, yet stigma reduction efforts are relegated to the bottom of AIDS program priorities locally, nationally and globally.

Case Studies

PrEP and Harm Reduction

Mr. K. has a long history of using recreational drugs. He identifies as a gay man who enjoys clubbing and denies being in a stable relationship. He has partners that he sees regularly, but he also meets new partners at clubs, in chat rooms, and at bars. His condom use is not consistent. In the past year he was diagnosed with syphilis, but could not identify the source. He has been counseled many times by his health care provider about safe sex, but he prefers to keep his sexual activities “more spontaneous.” He admits that he may have had sex with partners who have HIV, but he hopes that “they would be truthful about it up front.” He was tested for HIV six months ago and the test was negative.

Today Mr. K asks his provider about PrEP. He has heard about it in the news, from friends, and looked into it on the internet. His provider informs him that PrEP should be considered as only one component of HIV prevention. Mr. K is tested and his results are negative. The correct medication dosing schedule is explained, the rationale for HIV testing every three months and possible adverse side effects for the medication. His provider stresses that PrEP is not an absolute guarantee that he will not get infected with HIV or other STDs and strongly encourages him to consistently use condoms.

By using the Harm Reduction Model the healthcare provider decreases Mr. K’s risk of HIV infection by providing PrEP. Mr. K will also have more frequent follow up visits with his provider for HIV testing and these visits can be used to reinforce HIV prevention education and risk reduction strategies. Hopefully over time, Mr. K. will begin to use condoms more consistently and become more careful when choosing sexual partners.

HIV Testing

Mrs. R. is a healthy 56 year old woman. She has been married to her current spouse for twelve years. Both she and her spouse were divorced when they were introduced by a mutual friend, and were married several months later. They both have grown children from a previous marriage. She works full time in the cafeteria of a local school, and her husband is a construction worker. They both drink a few beers at night after work, at times more than they should, and smoke cigarettes.

At her recent primary care visit her provider suggested an HIV test explaining that it is now a recommended part of routine health care. She had been tested once before after her divorce and was negative. At first she was offended at the suggestion, but her health care provider assured her that she was offering the test to every one of her patients. She asked why she would not know if she has HIV since she has routine labs yearly. The provider explained that only a test specifically for HIV will yield those results. She finally agreed, had the test along with other lab work and went home, not thinking about it again.

Several weeks later she was contacted by her primary care provider requesting that she make a follow up appointment to review lab results. At the appointment Mrs. R was informed that her HIV test results were positive. She was understandably upset and confronted her spouse that night after work. He finally

admitted that despite the fact that he identifies as a heterosexual he occasionally has sex with men. He also tested positive for HIV and both were started on ART and referred for counseling. Because HIV infection was detected early both Mrs. R. and her husband began treatment before they had severe immune suppression and their prognosis is very good.

Summary

Despite over thirty years of HIV prevention and education programs, HIV remains a major public health issue in the US and globally. CDC has changed the previous HIV testing recommendations and now supports making HIV testing a routine part of health maintenance for people between the ages of thirteen and 64. Additional funding has been earmarked for this initiative and states have taken various steps to increase testing. With the rise of other national health problems and as the result of new effective treatments for HIV, the public's focus has shifted to topics such as influenza prevention, obesity and MRSA. The current economic crisis has forced cuts in health education programs nationally as well as to services provided for those infected. To date, no cure has been found for HIV infection and vaccines have not been effective to prevent infection. To ensure continued improvement, HIV must again be promoted to the attention of the public and effective novel prevention strategies identified. Government agencies can't be held exclusively accountable for these efforts making it necessary for each of us to play a part in HIV prevention and education.

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Test

***If you have downloaded the course off the Internet and wish to submit your test online you must return to our website (www.accesscontinuingeducation.com) to do so.**

1. For the first time, in 2010, HIV infections indentified which of the following:
 - A. The US has the highest rate of infections worldwide.
 - B. The rate of infection in Sub-Saharan Africa has sharply dropped by 50%.
 - C. Women accounted for 50% of HIV infections globally.
 - D. Factors such as poverty, gender inequality and lack of education play no role in HIV infections.

2. CDC guidelines recommend HIV testing be integrated into routine primary care regardless of the presence or absence of possible risk factors and that every person between the ages of 13 and 64 should be tested at least once in their lifetime.
 - A. True.
 - B. False.

3. Surveillance data suggest that which of the following is true:
 - A. Over 50% of the more than 1 million people living with HIV/AIDS do not know that they are infected.
 - B. In 2010, 28% of all new infections already met the CDC criteria for AIDS at time of diagnosis.
 - C. Neither A or B.
 - D. Both A and B.

4. In the US, almost 30% of new and existing HIV infections are among heterosexual persons.
 - A. True.
 - B. False.

5. Florida law requires those who perform HIV tests in county health departments and other registered testing sites to obtain the informed consent of the test subject, make private counseling available both before and after the test and confirm positive preliminary results with a supplemental test before informing the test subject of the result.
 - A. True.
 - B. False.

6. All the following have been shown to reduce the number of new HIV infections EXCEPT:
 - A. Abstinence only programs.
 - B. Opioid substitution therapies such as the use of methadone and buprenorphine for intravenous drug users.
 - C. Needle exchange programs for intravenous drug users.
 - D. Optimizing treatment for already HIV infected individuals.

7. Truvada, a combination of 2 nucleoside analog HIV reverse transcriptase inhibitors medications, has been approved in 2012 for pre-exposure prophylaxis for persons at high risk for becoming infected with HIV.

A. True.

B. False.

8. An effective HIV vaccine has been available since 1987, but stigma keeps people from obtaining it.

A. True.

B. False.