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HIV

Co-Lead Agencies: Centers for Disease Control and Prevention
Health Resources and Services Administration

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Goal

Prevent human immunodeficiency virus (HIV) infection and its related illness and death.

Overview

In 1981, a new infectious disease, AIDS, or acquired immunodeficiency syndrome, was identified in the United States.¹ Several years later, the causative agent of AIDS—human immunodeficiency virus (HIV)—was discovered. This discovery coincided with the growing recognition of AIDS in the United States as part of a global infectious disease pandemic.

Currently, HIV/AIDS has been reported in virtually every racial and ethnic population, every age group, and every socioeconomic group in every State and most large cities in the United States.² Initially identified among men who have sex with men on the East and West Coasts,³ the AIDS epidemic is composed of diverse multiple subepidemics that vary by region and community. By the end of 1998, more than 680,000 cases of AIDS had been reported, and nearly 410,800 people had died from HIV disease or AIDS.²

Issues

Estimates of the number of people infected with HIV in the United States range from 800,000 to 900,000.⁴ The HIV/AIDS subepidemics not only vary by region and community but also may vary by population, risk behavior, and geography. Elimination of disparities in the rate of infection among certain racial and ethnic groups, particularly African American and Hispanic populations, remains a challenge. Recently introduced therapies for HIV/AIDS have reduced illness, disability, and death due to HIV/AIDS; however, access to culturally and linguistically appropriate testing and care may limit progress in this area.

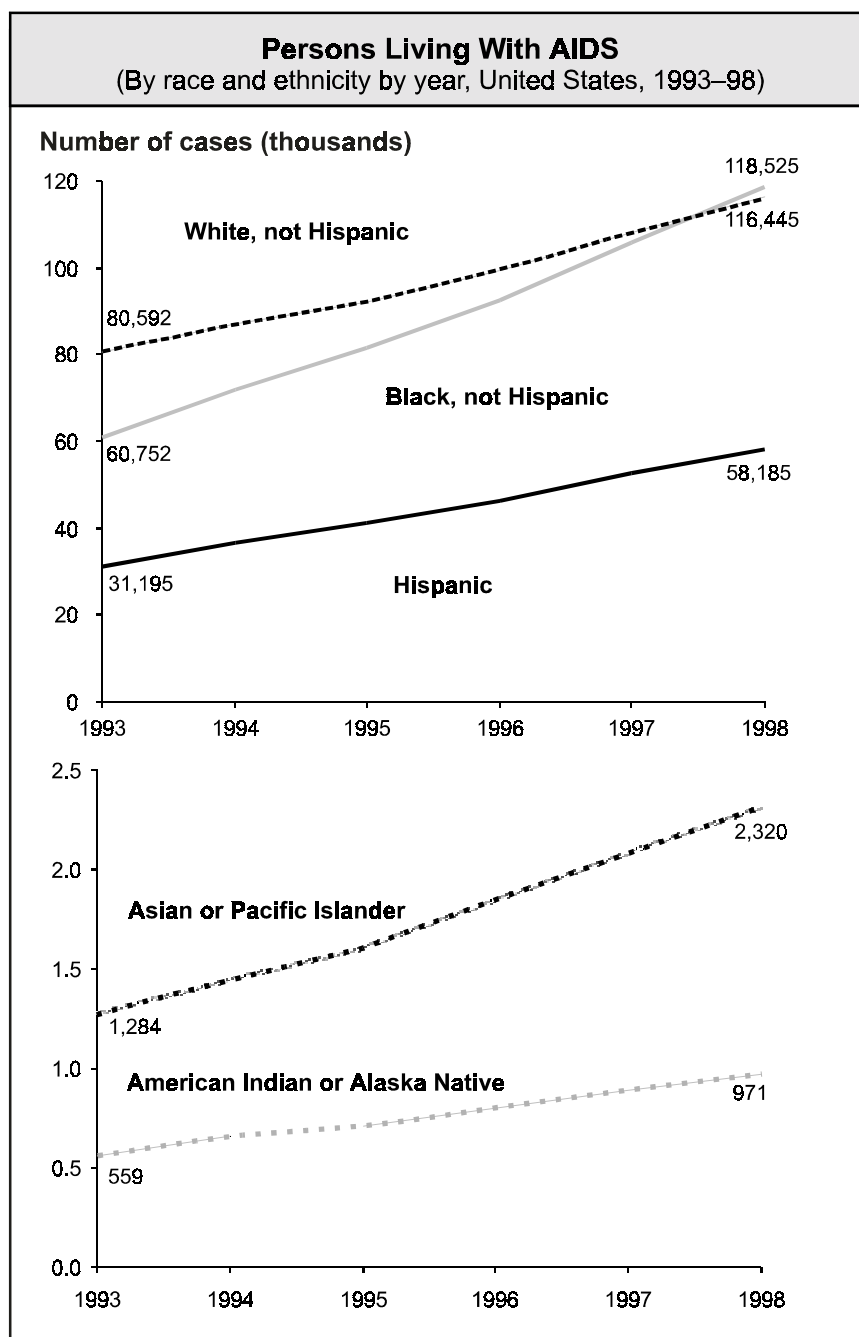
In the United States, HIV/AIDS remains a significant cause of illness, disability, and death, despite declines in 1996 and 1997.^{5,6} Current surveillance provides population-based HIV/AIDS data for tracking trends in the epidemic, targeting and allocating resources for prevention and treatment services, and planning and conducting program evaluation activities. Since the early 1980s, surveillance studies have identified four distinct populations and issues that have affected the epidemic in these populations:

- Men who have sex with men, facilitated by frequent changes of sex partners in highly infected sexual networks and by high-risk sexual practices.

- Injection drug users, facilitated by the shared use of needles and syringes contaminated with HIV-infected blood.
- Heterosexual persons (principally in certain racial and ethnic populations), facilitated by (1) a high rate of HIV among drug-using populations that resulted in heterosexual transmission to some partners, (2) high rates of other sexually transmitted diseases (STDs) that can increase both susceptibility to and transmissibility of HIV infection, (3) high-risk sexual practices (mainly unprotected sex) associated with certain addictive substances, such as crack cocaine, and (4) sex in exchange for drugs.
- Perinatal transmission among infants, caused by undetected or untreated HIV infection in pregnant females (although the number of perinatally infected infants has declined dramatically since the mid-1990s to a point where elimination of perinatal transmission in the United States may be possible).

The proportion of different population groups affected by HIV/AIDS has changed over time. By 1998, 83 percent of the cumulative AIDS cases had occurred in males, 16 percent in females, and 1 percent in children.³ The response to the epidemic reflects these changes:

- Comparing the 1980s to the 1990s, the proportion of AIDS cases in white men who have sex with men declined, whereas the proportion in females and males in other racial and ethnic populations increased, particularly among African Americans and Hispanics (see Disparities section). AIDS cases also appeared to be increasing among injection drug users and their sexual partners.⁵
- Increases among women have occurred over time. By the mid-1980s, the majority of AIDS cases had been reported among males, with only 7 percent reported among females in 1983.⁷ Reported AIDS cases in females have increased steadily since then and accounted for nearly 23 percent of the cases reported in 1998.³
- Monitoring and tracking of the current HIV/AIDS epidemic remains a challenge. Even though AIDS may occur much later than infection with HIV, only AIDS cases are currently reported by all State health departments. Because tracking HIV is more accurate for tracking the status of the epidemic and because States are making progress in reporting HIV infection, it is anticipated that key baseline data about HIV will be available by the early 2000s.⁴
- Although a test for HIV was developed and made widely available in the early to mid-1980s, the lack of available treatment until 1995, negative implications of treatment (including concerns about lack of confidentiality), and possible discrimination and stigmatization resulted in barriers to the reporting of HIV infection.



Source: CDC. *HIV/AIDS Surveillance Report*. Vol. 11, No. 1, 1999.

The lifetime costs of health care associated with HIV, in light of recent advances in diagnostics and therapeutics, have grown from \$55,000 to \$155,000 or more per person.⁸ These costs mean that HIV prevention efforts may be even more cost-effective and even cost-saving to society. Prevention efforts include availability of culturally and linguistically appropriate HIV counseling and testing, partner counseling, and referral systems for individuals at high risk for HIV infection; needle and syringe exchange programs; and information, education, treatment and counseling for injection drug users.

The true extent of the epidemic remains difficult to assess for several reasons, including the following:

- Because of the long period of time from initial HIV infection to AIDS and because highly active antiretroviral therapy (HAART) has slowed the progression to AIDS, new cases of AIDS no longer provide accurate information about the current HIV epidemic in the United States.⁴
- Because of a lack of awareness of HIV serostatus as well as delays in accessing counseling, testing, and care services by individuals who may be infected or are at risk of infection, some populations do not perceive themselves to be at risk. As a result, some HIV-infected persons are not identified and provided care until late in the course of their infection.⁹

Trends

HIV infection rates appear to have stabilized since the early 1990s at about 40,000 new infections per year, which represents a slowing from growth rates experienced in the mid-1980s.¹⁰ At least 800,000 persons are estimated to be infected with HIV, with over 200,000 to 250,000 persons who are not aware of their infection.¹¹ About 335,000 persons are estimated to be in treatment with new antiretroviral treatment therapies, and another 215,000 are not currently in treatment.^{5, 9, 12}

Significant changes in the epidemic have occurred over time. In 1992, AIDS became a leading cause of death among persons aged 25 to 44 years, but by 1997 had dropped to the eighth leading cause of death in this age group. In 1997, however, HIV/AIDS remained the leading cause of death only for African Americans among persons in this age group.^{13, 14} Between 1992 and 1997, the number of persons reported living with AIDS increased in all groups as a result of the 1993 expanded AIDS case definition and, more recently, improved survival rates due to new HAART treatment.

Some of these changes are reflected in the following:

- Women accounted for just under 14 percent of persons over age 13 years living with AIDS in 1992, compared with 20 percent in 1998.^{2, 15}
- By the end of 1998, the number of African Americans living with AIDS, which increased from 33 percent of the AIDS population in 1992 to 40 percent in 1998, was almost identical to the number of whites living with AIDS.²
- Persons living in the South accounted for 34 percent of AIDS cases in 1992 and 39 percent in 1998. Persons living in the Northeast accounted for 28 percent in 1992 and 31 percent in 1998. The proportion living in the West declined from 24 percent to 21 percent.^{2, 16}

- By December 1998, approximately 297,136 persons were reported to be living with AIDS, compared with 269,775 in 1997.^{2,6}

In late 1982, cases of AIDS attributed to blood transfusions were first reported in the United States.^{17,18} The publication, dissemination, and implementation of specific guidelines and recommendations to prevent HIV infection among health care workers and to test donated blood for HIV^{19,20,21,22} have resulted in a reduction in transfusion-related AIDS and increases in safety among health workers.

Another prevention success has been the 66 percent decline in perinatal transmission from 1992 to 1997.²³ With the finding that perinatal HIV transmission rates could be reduced substantially with zidovudine therapy during pregnancy, the U.S. Public Health Service issued guidelines recommending that HIV counseling and voluntary testing become a part of routine prenatal care for all pregnant women.²³ This policy ensures that HIV-infected pregnant women have access to important health care for themselves and also have the opportunity to reduce the risk of HIV transmission to their infants. Subsequent declines in new cases of AIDS among children demonstrate that these strategies are showing success in reducing mother-to-infant HIV transmission.^{24,25}

However, initial declines in deaths from AIDS after the availability of treatments have slowed. Deaths from AIDS continued to decline throughout 1997 and 1998 (down 42 percent and 20 percent, respectively, compared to 1996), and the number of persons living with AIDS (AIDS prevalence) in 1997 and 1998 increased by 12 percent and 10 percent, respectively.^{2,16} If declines continue in newly diagnosed AIDS cases in the coming years, an increasing number of persons will be living with HIV infection. As HIV surveillance extends to additional States, so will the ability to monitor HIV cases and to direct prevention and treatment services to people with asymptomatic infection or mild illness.

Principal health determinants. Behaviors (sexual practices, substance abuse, and accessing prenatal care) and biomedical status (having other STDs) are major determinants of HIV transmission. Unprotected sexual contact, whether homosexual or heterosexual, with a person infected with HIV and sharing drug-injection equipment with an HIV-infected individual account for most HIV transmission in the United States.^{26,27} Increasing the number of people who know their HIV serostatus is an important component of a national program to slow or halt the transmission of HIV in the United States.

For persons infected with HIV, behavioral determinants also play an important role in health maintenance. Although drugs are available specifically to prevent and treat a number of opportunistic infections, HIV-infected individuals also need to make lifestyle-related behavioral changes to avoid many of these infections. The new HIV antiretroviral drug therapies for HIV infection bring with them difficulties in adhering to complex, expensive, and demanding medication schedules, posing a significant challenge for many persons infected with HIV.

Because HIV infection weakens the immune system, people with tuberculosis (TB) infection and HIV infection are at very high risk of developing active TB disease.²⁸

Interventions. Interventions for combating HIV are behavioral as well as biomedical. Recent advances in antiretroviral therapy have been credited with dramatic declines in deaths associated with HIV/AIDS. However, declines in overall AIDS cases, particularly in the early epicenters of the epidemic such as San Francisco and New York City, predate the advent of antiretroviral therapies and support the belief that behavior-based prevention programs are effective. In San Francisco, for example, new cases of AIDS among men who have sex with men began dropping in 1992, suggesting that sustained, comprehensive prevention activities begun in the 1980s succeeded in reducing HIV transmission in this group.²⁹

Behavioral interventions to prevent HIV vary depending on the audience for whom the program is designed, who designed it, and funds available. Effective community-level prevention strategies in the United States have included social marketing interventions to increase condom use and messages about safer sex and needle-sharing that rely on popular opinion leaders and role model stories. Effective small and large group interventions have aimed at increasing safer sex practices for high-risk HIV-infected men and women and have tended to employ cognitive behavioral and skill-building methods.²⁹

Several effective individual counseling or education interventions have focused on increasing condom use and other safer sex practices for HIV-infected persons. For example, at the individual level, client-centered HIV counseling and testing appear to be effective in preventing high-risk uninfected persons from becoming infected and in helping HIV-infected persons prevent transmission to uninfected partners. Intervention venues vary and include STD clinic waiting rooms, drug treatment centers, schools, community agencies, street settings, and community settings where HIV-infected and high-risk uninfected persons congregate.²⁹

While HIV testing in STD clinics is an important intervention, detection and treatment of other STDs are also an important biomedical component of an HIV prevention program that should include both behavioral and biomedical interventions. STD prevention programs must address STD concerns and their cofactor role in HIV transmission. Early STD detection and treatment are a biomedical tool for lowering the risk for sexual transmission of HIV infection. Behavioral interventions emphasize reducing the number of sex partners, knowing the serostatus of one's partner, using condoms consistently and correctly, and avoiding risky sexual behaviors.^{26, 30, 31}

Disparities

In the United States, African Americans and Hispanics have been affected disproportionately by HIV and AIDS, compared to other racial and ethnic groups.

Through December 1998, 688,200 cases of AIDS had been reported among persons of all ages and racial and ethnic groups, including 304,094 cases among whites, 251,408 cases among African Americans, and 124,841 cases among Hispanics. Although 55 percent of the reported AIDS cases occurred among African Americans and Hispanics, these two population groups represent an estimated 13 percent and 12 percent, respectively, of the total U.S. population.²

In 1997, AIDS remained the leading cause of death for all African Americans aged 25 to 44 years—the second leading cause among African American females and the leading cause among African American males.¹³ In 1996, for the first time, African Americans accounted for a larger proportion of AIDS cases than whites, and this trend has continued. The AIDS case rate among African Americans in calendar year 1998 was 66.4 per 100,000 persons, or eight times the rate for whites (8.2 per 100,000) and over twice the rate for Hispanics (28.1 per 100,000).²

Among women with AIDS, African Americans and Hispanics have been especially affected, accounting for nearly 77 percent of cumulative cases reported among women by 1998. Of the 109,311 AIDS cases in women reported through December 1998, 61,874 cases occurred in African American women and 21,937 occurred in Hispanic women.²

For young adults aged 20 to 24 years, 24,437 cumulative AIDS cases were reported through December 1998. Of this total, 10,107 (41 percent) occurred among African Americans, 8,804 (36 percent) among whites, and 5,203 (21 percent) among Hispanics. Overall, 73 percent (17,797) of the AIDS cases in this age group occurred among males and 27 (6,640) percent among females. Among African Americans in this age group, 63 percent were male, and 37 percent were female. Among Hispanics, 74 percent were male, and 26 percent were female. Because the time from initial infection with HIV to the development of AIDS is long and variable (often 8 to 10 years or more), many of these young adults likely acquired their infections while in their teens.²

Among teenagers aged 13 to 19 years, 3,423 cumulative AIDS cases had been reported through December 1998.² In this age group, 1,047 cases (31 percent) occurred among whites, 1,654 (48 percent) among African Americans, and 668 (20 percent) among Hispanics. Overall, males accounted for 61 percent of the AIDS cases in this age group, and females accounted for 39 percent. Among African American teenagers with AIDS, 46 percent were male, and 54 percent were female. Among Hispanic teens, 67 percent of those with AIDS were male, and 33 percent were female. Among white teenagers with AIDS, 79 percent were male, and 21 percent were female.²

The disproportionate impact of HIV/AIDS on African Americans and Hispanics underscores the importance of implementing and sustaining effective prevention efforts for these racial and ethnic populations. HIV prevention efforts must take into account not only the multiracial and multicultural nature of society, but also

other social and economic factors—such as poverty, underemployment, and poor access to the health care system. These factors affect health status and disproportionately affect African American, Hispanic, Alaska Native, and American Indian populations.

Opportunities

In the 21st century, strategies for reducing HIV transmission will continue to evolve and will require shifts from current efforts.³² Future strategies should focus on:

- Continuing to address the disproportionate impact of HIV/AIDS among certain racial and ethnic groups.
- Enhancing prevention strategies for populations that are particularly high risk, such as injection drug users, homeless persons, runaway youth, mentally ill persons, and incarcerated persons. Some of these populations are also difficult to reach.
- Increasing the number of people who learn their HIV status in order to detect HIV infection when the potential for transmission is greatest and the need for prevention, care, and treatment, including HAART, is greatest.
- Reaching high-risk seronegative people to help them to stay uninfected.
- Improving access to HAART, thereby reducing deaths and HIV-associated illness and, possibly, infection of others.
- Increasing efforts and opportunities to provide counseling to prevent transmission and reinfection for all HIV-infected individuals who are receiving medical and supportive care.
- Detecting and treating ulcerative and inflammatory STDs, especially in groups at risk for HIV infection.
- Setting the discovery of a safe and effective HIV vaccine as a reachable goal, as a result of ongoing HIV vaccine testing. The development and testing of candidate microbicides may be important in enhancing prevention efforts until a vaccine is available.

Interim Progress Toward Year 2000 Objectives

Data to assess progress are available for 13 of the 17 Healthy People 2000 HIV objectives. Two objectives have met or exceeded the year 2000 targets. The objective to lower the risk of transfusion-transmitted HIV infection exceeded its target, and the objective to protect workers from exposure to bloodborne infections was met with the Occupational Safety and Health Administration's bloodborne pathogens standard in December 1991. Data show progress toward the year 2000 targets for objectives to slow the rise in the rate of new AIDS cases, contain the rate of

HIV infection, and increase the proportion of sexually active females whose partners used condoms at last sexual intercourse. The objective to increase the proportion of HIV-positive people who know their serostatus is moving away from its target, as are objectives for counseling, outreach, and school-based AIDS education.

Note: Unless otherwise noted, data are from the Centers for Disease Control and Prevention, National Center for Health Statistics, *Healthy People 2000 Review, 1998–99*.

Healthy People 2010—Summary of Objectives

HIV

Goal: Prevent HIV infection and its related illness and death.

Number	Objective Short Title
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13-1	New AIDS cases
13-2	AIDS among men who have sex with men
13-3	AIDS among persons who inject drugs
13-4	AIDS among men who have sex with men and who inject drugs
13-5	New HIV cases
13-6	Condom use
13-7	Knowledge of serostatus
13-8	HIV counseling and education for persons in substance abuse treatment
13-9	HIV/AIDS, STD, and TB education in State prisons
13-10	HIV counseling and testing in State prisons
13-11	HIV testing in TB patients
13-12	Screening for STDs and immunization for hepatitis B
13-13	Treatment according to guidelines
13-14	HIV-infection deaths
13-15	Interval between HIV infection and AIDS diagnosis
13-16	Interval between AIDS diagnosis and death from AIDS
13-17	Perinatally acquired HIV infection

Healthy People 2010 Objectives

13-1. Reduce AIDS among adolescents and adults.

Target: 1.0 new case per 100,000 persons.

Baseline: 19.5 cases of AIDS per 100,000 persons aged 13 years and older in 1998. Data are estimated; adjusted for delays in reporting.

Target setting method: Better than the best.

Data source: HIV/AIDS Surveillance System, CDC, NCHSTP.

Persons Aged 13 Years and Older, 1998	New AIDS Cases		
	13-1. Both Genders	Females*	Males*
	Rate per 100,000		
TOTAL	19.5	8.8	30.8
Race and ethnicity			
American Indian or Alaska Native	9.4	4.5	14.5
Asian or Pacific Islander	4.3	1.2	7.8
Asian	DNC	DNC	DNC
Native Hawaiian and other Pacific Islander	DNC	DNC	DNC
Black or African American	DNC	DNC	DNC
White	DNC	DNC	DNC
Hispanic or Latino	33.0	13.8	52.2
Not Hispanic or Latino	DNC	DNC	DNC
Black or African American	82.9	48.5	122.9
White	8.5	2.2	15.2
Family income level			
Poor	DNC	DNC	DNC
Near poor	DNC	DNC	DNC
Middle/high income	DNC	DNC	DNC
Sexual orientation	DNC	DNC	DNC

DNA = Data have not been analyzed. DNC = Data are not collected. DSU = Data are statistically unreliable.

*Data for females and males are displayed to further characterize the issue.

Historically, AIDS incidence data have served as the basis for assessing needs for prevention and treatment programs. However, because of the effect of potent anti-

retroviral therapies, AIDS incidence no longer can provide unbiased information on HIV incidence patterns; it is hoped that AIDS will not develop in the growing number of HIV-infected persons as they benefit from these new therapies. Persons reported with AIDS will increasingly represent persons who were diagnosed too late for them to benefit from treatments, persons who either did not seek or had no access to care, or persons who failed treatment. This objective will be modified to track HIV cases as additional States implement HIV surveillance programs as an extension of their current AIDS case surveillance systems.

13-2. Reduce the number of new AIDS cases among adolescent and adult men who have sex with men.

Target: 13,385 new cases.

Baseline: 17,847 new cases of AIDS in 1998 among males aged 13 years and older. Data are estimated; risk is redistributed; adjusted for delays in reporting.

Target setting method: 25 percent improvement.

Data source: HIV/AIDS Surveillance System, CDC, NCHSTP.

In 1998, an estimated 17,847 AIDS cases were diagnosed among men having sex with men. This was a decrease from 1997 and part of a continuing trend. The decline is a result of prevention activities and the impact of and access to potent antiretroviral therapies that are delaying progression to AIDS in many HIV-infected individuals.

However, men who have sex with men (MSM) remains a population at risk for HIV infection, and continued efforts to promote behavioral risk reduction among at-risk youth are needed. Prevention programs for adolescent and adult MSM need to focus on both HIV-infected and uninfected populations. Challenges to HIV prevention programs for MSM include (1) reaching MSM who may not identify themselves as homosexual or bisexual, (2) representing MSM from certain racial and ethnic groups in HIV prevention planning, (3) increasing knowledge about HIV risk, and (4) improving access to HIV testing and health care.³³ Serologic surveys, HIV/AIDS case surveillance, and supplemental research and evaluation studies of MSM from certain racial and ethnic groups and other HIV-infected and at-risk populations also are needed to target intervention programs.⁴ This objective will be modified when additional States implement HIV infection surveillance as an extension of their current AIDS case surveillance systems.

13-3. Reduce the number of new AIDS cases among females and males who inject drugs.

Target: 9,075 cases.

Baseline: 12,099 new cases of AIDS among injection drug users aged 13 years and older (females, 3,667; males, 8,432) in 1998. Data are point estimates; risk redistributed; adjusted for delays in reporting.

Target setting method: 25 percent improvement.

Data source: HIV/AIDS Surveillance System, CDC, NCHSTP.

In 1998, an estimated 12,099 cases were diagnosed among adult men and women who injected drugs. This was a decrease from the previous year and part of a continuing trend. The decline is a result of prevention activities and the impact of potent antiretroviral therapies that are delaying progression to AIDS in many HIV-infected individuals.

Prevention measures for reducing the occurrence of AIDS associated with injection drug users (IDUs) included: (1) preventing the initiation of injecting-drug use, (2) increasing the number of IDUs in drug treatment, (3) encouraging safer injecting practices among IDUs, and (4) promoting safer sexual behavior among IDUs and their sex partners.^{34, 35, 36} Persons who continue to inject drugs should be screened periodically for HIV infection and advised of measures that may reduce risks for infection.

13-4. Reduce the number of new AIDS cases among adolescent and adult men who have sex with men and inject drugs.

Target: 1,592 cases.

Baseline: 2,122 new cases of AIDS among males aged 13 years and older in 1998. Data are point estimates; risk redistributed; adjusted for delays in reporting.

Target setting method: 25 percent improvement.

Data source: HIV/AIDS Surveillance System, CDC, NCHSTP.

In 1998, an estimated 2,122 AIDS cases were diagnosed among adult and adolescent men who have sex with men and who inject drugs. This was a decrease from 1997 and part of a continuing trend. The decline is a result of prevention activities and the impact of potent antiretroviral therapies which are delaying progression to AIDS in many HIV-infected individuals.

Prevention programs for adolescent and adult MSM and IDUs need to focus on both HIV-infected and uninfected populations. Challenges to the design and implementation of HIV prevention programs among MSM and IDUs include: (1) reaching MSM who may not identify themselves as homosexual or bisexual, (2) representing MSM from certain racial and ethnic groups in HIV prevention planning, (3) increasing knowledge about HIV risk, (4) improving access to HIV testing and health care, (5) preventing the initiation of injecting-drug use, (6) increasing the number of IDUs in drug treatment, (7) encouraging safer injecting practices among IDUs, and (8) promoting safer sexual behaviors among IDUs and their sex partners.^{33, 34, 35, 36} This objective will be modified when additional States implement HIV infection surveillance as an extension of their current AIDS case surveillance systems.

13-5. (Developmental) Reduce the number of cases of HIV infection among adolescents and adults.

Potential data source: HIV/AIDS Surveillance System, CDC, NCHSTP.

Recent advances in HIV treatment have slowed the progression of HIV disease for infected persons on treatment and contributed to a decline in AIDS incidence. These advances in treatment have diminished the ability of AIDS surveillance data to represent trends in HIV incidence or to represent the impact of the epidemic on the health care system. Once HIV case surveillance is implemented nationwide by 2001, the Centers for Disease Control and Prevention (CDC) will be able to report baseline data and progress toward the objective of “reducing the annual incidence of HIV infection.”

13-6. Increase the proportion of sexually active persons who use condoms.

Target and baseline:

Objective	Increase in Sexually Active Persons Using Condoms	1995 Baseline	2010 Target
		<i>Percent</i>	
13-6a.	Females aged 18 to 44 years	23	50
13-6b.	Males aged 18 to 49 years	Developmental	

Target setting method: Better than the best.

Data source: National Survey of Family Growth (NSFG), CDC, NCHS.

NOTE: THE TABLE BELOW MAY CONTINUE TO THE FOLLOWING PAGE.

Unmarried Females 18 to 44 years, 1995	13-6a. Reported Condom Use by Partners*
	Percent
TOTAL	23
Race and ethnicity	
American Indian or Alaska Native	DSU
Asian or Pacific Islander	DSU
Asian	DNC
Native Hawaiian and other Pacific Islander	DNC
Black or African American	22
White	23

Unmarried Females 18 to 44 years, 1995	13-6a. Reported Condom Use by Partners*
	Percent
Hispanic or Latino	17
Aged 18 to 19 years	16
Aged 20 to 24 years	18
Aged 25 to 29 years	19
Aged 30 to 34 years	22
Aged 35 to 44 years	9
Not Hispanic or Latino	24
Black or African American	22
Aged 18 to 19 years	31
Aged 20 to 24 years	35
Aged 25 to 29 years	23
Aged 30 to 34 years	17
Aged 35 to 44 years	12
White	24
Aged 18 to 19 years	39
Aged 20 to 24 years	29
Aged 25 to 29 years	24
Aged 30 to 34 years	14
Aged 35 to 44 years	18
Family income level	
Poor	16
Near poor	21
Middle/high income	27
Education level (aged 25 to 44 years)	
Less than high school	7
High school	15
At least some college	25
Geographic location	
Urban	24
Rural	18
Sexual orientation	DNC

DNA = Data have not been analyzed. DNC = Data are not collected. DSU = Data are statistically unreliable.

*Data for both genders and for males currently are not collected.

NOTE: THE TABLE ABOVE MAY HAVE CONTINUED FROM THE PREVIOUS PAGE.

When used consistently and correctly, latex condoms are highly effective in preventing HIV transmission. Increased use of latex condoms is essential for slowing the spread of HIV infection. Carefully designed studies among heterosexual couples in which one partner is HIV positive and the other is not demonstrate that latex condoms provide a high level of protection against HIV.^{9, 26}

Persons in some populations, especially sexually active young persons, may experience problems in obtaining access to condoms because of several factors, including cost, convenience, and embarrassment.^{37, 38} The lack of readily accessible condoms may also be a significant barrier to consistent use. To eliminate this barrier, many local communities actively support programs that make condoms available to populations most vulnerable to HIV infection, including sexually active young persons.^{37, 38} Research shows that providing access to condoms can increase their use among sexually active young persons.^{37, 38} Research also clearly demonstrates that—despite fears to the contrary—young persons who participate in comprehensive HIV prevention programs that include approaches to ensure access to condoms are no more likely to initiate or increase sexual activity than other young persons.^{37, 38}

In addition to access, the correct and consistent use of condoms is an issue for many young females, some of whom are having intercourse with older males. Young females often are limited by intimidation or threats of mistrust by their partners if they suggest condom use.³⁸ Knowledge of effective negotiating skills is another critical element of increased condom use.³⁸

13-7. (Developmental) Increase the number of HIV-positive persons who know their serostatus.

Potential data source: HIV/AIDS Surveillance System, CDC, NCHSTP.

Advances in HIV prevention and treatment increase the importance of persons learning their HIV status.⁹ Estimates are that approximately 250,000 persons in the United States are unaware they were infected with HIV in 1998.¹¹ HIV testing provides a critical avenue to reach persons at risk with prevention counseling and services as well as to link infected individuals with needed care and treatment services. Clearly, infected persons should be counseled about ways they can protect their own health and keep from infecting others. New treatments offer infected persons the promise of a longer, healthier life. For HIV-infected pregnant females, therapy is available to reduce the chance of transmitting HIV to their babies. Although the evidence still is not entirely clear, persons who are being treated successfully for HIV may be less likely to transmit the virus. Because the science is evolving, communicating the continuing need for infected persons, even those in treatment, to take steps to protect their partners is essential.⁴

13-8. Increase the proportion of substance abuse treatment facilities that offer HIV/AIDS education, counseling, and support.

Target: 70 percent.

Baseline: 58 percent of substance abuse treatment facilities offered HIV/AIDS education, counseling, and support in 1997.

Target setting method: 21 percent improvement.

Data source: Uniform Facility Data Set (UFDS), SAMHSA.

To date, more than one-third of all reported AIDS cases in the United States have occurred among injection drug users, their heterosexual sex partners, and children whose mothers were injection drug users or sex partners of injection drug users.²

Preventing drug use and providing treatment to stop drug use among persons already using drugs are the best ways to prevent drug-associated transmission of HIV. Among persons who inject drugs, reusing or sharing blood-contaminated injection equipment (particularly syringes) continues to play a substantial role in HIV transmission, as well as the transmission of hepatitis B and C and other bloodborne infections.²⁷

Needle and syringe exchange programs (NSEPs) can be an effective component of comprehensive community-based HIV prevention efforts.²⁷ Additionally, NSEPs can provide a pathway for linking injection drug users to other important services, such as risk-reduction counseling, drug treatment, and support services.

13-9. (Developmental) Increase the number of State prison systems that provide comprehensive HIV/AIDS, sexually transmitted diseases, and tuberculosis (TB) education.

Potential data source: Survey of HIV, STD, and TB Prevention in Correctional Facilities, CDC/National Institute of Justice.

Incarceration provides an environment in which early interventions and risk-reduction behaviors can be taught and reinforced over time. It also represents an opportunity to provide the education, support, and continuity of care needed when incarcerated persons are released and return to their home communities.

13-10. (Developmental) Increase the proportion of inmates in State prison systems who receive voluntary HIV counseling and testing during incarceration.

Potential data source: Survey of HIV, STD, and TB Prevention in Correctional Facilities, CDC and National Institute of Justice.

Although not standardized, State prison systems can provide access to treatment and care for persons infected with HIV. Early access to care reduces both immedi-

ate and long-term health care costs for correctional institutions and the community. This objective focuses on State systems because, in accordance with the Federal Bureau of Prisons guidance, all Federal correctional facilities are required to provide HIV testing to all inmates at some time prior to discharge.³⁹ Continuing this practice is important. It is also important to provide HIV testing to inmates upon intake to allow for sufficient medical care and necessary followup. In addition, discharge planning and formal linkages with community-based HIV care should be offered to all HIV-positive inmates just prior to or upon release.

13-11. Increase the proportion of adults with tuberculosis (TB) who have been tested for HIV.

Target: 85 percent.

Baseline: 55 percent of adults aged 25 to 44 years with TB were tested for HIV in 1998.

Target setting method: Better than the best.

Data source: National TB Surveillance System, CDC, DTBE.

NOTE: THE TABLE BELOW MAY CONTINUE TO THE FOLLOWING PAGE.

Adults Aged 25 to 44 Years With TB, 1998	Tested for HIV
	Percent
TOTAL	55
Race and ethnicity	
American Indian or Alaska Native	39
Asian or Pacific Islander	29
Asian	DNC
Native Hawaiian and other Pacific Islander	DNC
Black or African American	76
White	50
Hispanic or Latino	46
Not Hispanic or Latino	58
Black or African American	76
White	58
Gender	
Female	51
Male	58

Adults Aged 25 to 44 Years With TB, 1998	Tested for HIV
	Percent
Family income level	
Poor	DNC
Near poor	DNC
Middle/high income	DNC

DNA = Data have not been analyzed. DNC = Data are not collected. DSU = Data are statistically unreliable.

NOTE: THE TABLE ABOVE MAY HAVE CONTINUED FROM THE PREVIOUS PAGE.

The rapid rate of progression from infection with TB bacteria to active TB disease among HIV-positive patients with *Mycobacterium tuberculosis* has been well documented.^{40, 41} When State health departments compared their TB and AIDS registries, 27 percent of the TB cases reported in 1993–94 in adults aged 25 to 44 years had a match in the AIDS registry. However, estimates based on registry matches provide only a minimum estimate of coinfection.²⁸

Early detection of HIV in TB patients also allows for early intervention and treatment that may prevent or delay the development of other HIV-related illnesses and AIDS. It is possible that many persons diagnosed with TB have immune system problems caused by HIV and are unaware of their HIV status. In 1998, 55 percent of TB case reports for persons aged 15 to 44 years included information about HIV status. Among the States with information for 75 percent or more of the cases in this age group, the proportion of TB cases in HIV-infected patients ranged from 0 to 47 percent.⁴² Because testing is voluntary, some patients may decline HIV testing.

13-12. (Developmental) Increase the proportion of adults in publicly funded HIV counseling and testing sites who are screened for common bacterial sexually transmitted diseases (STDs) (chlamydia, gonorrhea, and syphilis) and are immunized against hepatitis B virus.

Potential data source: HIV Counseling and Testing Data System (CTS), CDC, NCHSTP.

Data indicate that the presence of other STDs substantially increases the risk of HIV transmission by making it easier both to get and to give HIV infection.^{31, 43} Treating other STDs reduces the spread of HIV. STD rates in the United States are high, and STD clinical services are inadequate in the face of a changing HIV epidemic.⁴⁴

STD vaccines can minimize the probability of infection. While vaccines for some STDs are in various stages of development, an effective vaccine for hepatitis B is widely available. Unfortunately, hepatitis B vaccine coverage remains low, espe-

cially in high-risk groups. The main reasons are a lack of awareness among health care providers, limited opportunity to reach high-risk youth in traditional health care settings, and limited financial support for widescale implementation of this intervention.⁴⁵ Many persons requesting HIV counseling and testing, although not HIV infected, are nonetheless at high risk for acquiring sexually transmitted infections.^{41, 45} Offering hepatitis B vaccine at sites screening for common STDs would take advantage of reaching high-risk persons who otherwise may not have access to immunization services.

13-13. Increase the proportion of HIV-infected adolescents and adults who receive testing, treatment, and prophylaxis consistent with current Public Health Service treatment guidelines.

Target and baseline:

Objective	Increase in HIV-Infected Persons Aged 13 Years and Older Receiving Testing, Treatment, and Prophylaxis Consistent With Current Public Health Service Guidelines	1997 Baseline	2010 Target
		<i>Percent</i>	
	Testing		
13-13a.	Viral load testing	Developmental	
13-13b.	Tuberculin skin testing (TST)	Developmental	
	Treatment		
13-13c.	Any antiretroviral therapy	80	95
13-13d.	Highly active antiretroviral therapy (HAART)	40	95
	Prophylaxis		
13-13e.	<i>Pneumocystis carinii</i> pneumonia (PCP) prophylaxis	80	95
13-13f.	<i>Mycobacterium avium</i> complex (MAC) prophylaxis	44	95

Note: Data from 11 cities and 9 States.

Target setting method: An improvement to the same percentage as that projected for *Pneumocystis carinii* pneumonia prophylaxis.

Data source: Adult Spectrum of Disease (ASD) Surveillance Project, CDC, NCHSTP.

Data for population groups currently are not collected.

Estimated new cases of AIDS in adults and adolescents declined by 15 percent from 1996 to 1997.⁴⁶ As new therapies continue to be developed and as people with HIV/AIDS live longer, HIV-infected persons need access to these life-

enhancing treatments. Once individuals access care, they need to receive the most beneficial treatment possible. The survival benefits of antiretroviral therapy, *Pneumocystis carinii* pneumonia (PCP) and *Mycobacterium avium* complex (MAC) prophylaxis, and TB prophylaxis have been demonstrated for persons with HIV/AIDS who meet the criteria for these preventive therapies. (CD4+ testing is included as a standard of care in the Public Health Service treatment guidelines but is not included here because it already is provided to nearly 100 percent of individuals measured by this objective.)⁴⁶

Data from HIV and AIDS case surveillance continue to reflect the disproportionate impact of the epidemic on select populations, especially females, youth, and children. Everyone needs equal access to appropriate care and treatment services necessary to maintain a healthy life.

13-14. Reduce deaths from HIV infection.

Target: 0.7 deaths per 100,000 persons.

Baseline: 4.9 deaths from HIV infection per 100,000 persons in 1998 (age adjusted to the year 2000 population).

Target setting method: Better than the best.

Data source: National Vital Statistics System, CDC, NCHS.

NOTE: THE TABLE BELOW MAY CONTINUE TO THE FOLLOWING PAGE.

Total Population, 1998	Deaths Due to HIV Infection		
	13-14. Both Genders	Females*	Males*
	Rate per 100,000		
TOTAL	4.9	2.3	7.7
Race and ethnicity			
American Indian or Alaska Native	2.3	DSU	4.0
Asian or Pacific Islander	0.8	DSU	1.4
Asian	DNC	DNC	DNC
Native Hawaiian and other Pacific Islander	DNC	DNC	DNC
Black or African American	22.1	12.2	34.0
White	2.7	0.8	4.6
Hispanic or Latino	6.7	2.8	10.7
Not Hispanic or Latino	4.7	2.2	7.3
Black or African American	22.8	12.6	35.1
White	2.1	0.5	3.8

Total Population, 1998	Deaths Due to HIV Infection		
	13-14. Both Genders	Females*	Males*
	Rate per 100,000		
Education level (aged 25 to 64 years)			
Less than high school	17.3	10.6	23.4
High school graduate	11.7	5.6	18.3
At least some college	4.3	1.1	7.5

DNA = Data have not been analyzed. DNC = Data are not collected. DSU = Data are statistically unreliable.

Note: Age adjusted to the year 2000 standard population.

*Data for females and males are displayed to further characterize the issue.

NOTE: THE TABLE ABOVE MAY HAVE CONTINUED FROM THE PREVIOUS PAGE.

The impact of new combination drug therapies first was reported in 1997 when deaths attributable to HIV infection were down 44 percent from the first 6 months of 1996, compared with the first 6 months of 1997.^{4, 5, 46, 47, 48} These surveillance data suggest that not only are new therapies delaying progression from AIDS to death, but, with early diagnosis and treatment, these therapies also are helping to delay the progression from HIV infection to an AIDS diagnosis for many persons.

13-15. (Developmental) Extend the interval of time between an initial diagnosis of HIV infection and AIDS diagnosis in order to increase years of life of an individual infected with HIV.

Potential data source: HIV/AIDS Surveillance System, CDC, NCHSTP.

This objective is meant to identify which populations are not benefiting from current treatment therapies and where to direct resources. HIV-infected persons should be identified at the earliest possible opportunity and referred to appropriate medical, social, and preventive services that may preserve their health, help them avoid opportunistic illnesses, reduce sexual and drug-use behaviors that may spread HIV, and generally extend the quality of their lives. For HIV-infected persons to benefit from treatment advances, HIV counseling and testing programs must facilitate an early diagnosis of HIV infection. All persons should have equal access to appropriate care and treatment services necessary for maintaining a healthy life.

13-16. (Developmental) Increase years of life of an HIV-infected person by extending the interval of time between an AIDS diagnosis and death.

Potential data source: HIV/AIDS Surveillance System, CDC, NCHSTP.

This objective provides insight into which population groups lack or fail to respond to treatment. To sustain reductions in deaths due to HIV infection, access to treatment and care is necessary. Targeting prevention efforts at groups disproportionately affected also is important.

13-17. (Developmental) Reduce new cases of perinatally acquired HIV infection.

Potential data source: HIV/AIDS Surveillance System, CDC, NCHSTP.

Perinatal transmission of HIV accounts for virtually all new HIV infections in children. Through 1993, an estimated 15,000 HIV-infected children were born to HIV-positive women in the United States. As of June 1998, 8,280 AIDS cases had been reported in children under age 13 years in the United States. Perinatally acquired AIDS cases have been reported from 48 States, the District of Columbia, Puerto Rico, and the U.S. Virgin Islands.^{2, 25}

The National Institutes of Health sponsored an AIDS clinical trial, ACTG-076, after demonstrating that the risk of perinatal HIV transmission could be reduced by as much as two-thirds with the use of zidovudine therapy. This therapy was given to HIV-positive pregnant females during pregnancy and childbirth and to their newborns for 6 weeks after birth.²⁴ Additional research confirmed that routine and universal counseling and voluntary testing, combined with zidovudine therapy, are highly effective in preventing HIV.²⁴ In addition, recently completed and ongoing research suggests that other antiretroviral agents also can reduce significantly maternal-infant HIV transmission. These additional therapeutic options should increase the opportunity to intervene to reduce perinatal HIV transmission. Substantial declines in perinatal AIDS cases have been reported. Estimated new cases of pediatric AIDS declined from 947 in 1992 to 225 in 1998.²

Even though these prevention efforts are proving to be effective in reducing perinatal HIV transmission, the continued number of new cases of perinatally acquired HIV infection among infants indicates an ongoing risk of perinatal transmission and underscores the need for strategies to ensure that HIV-infected females have access to and receive adequate prenatal care, timely HIV counseling, and voluntary testing; gain access to HIV-related care and services; receive chemoprophylaxis to reduce perinatal transmission; and avoid breastfeeding. In 1998, the Institute of Medicine (IOM) completed a study to assess the impact of current approaches for reducing perinatal HIV transmission. IOM recommended that the United States adopt a national policy of universal HIV testing, with patient notification, as a routine component of prenatal care.⁴⁹ The U.S. Public Health Service currently is revising its guidelines to assure voluntary screening of all pregnant women. This objective will remain developmental until all States extend their surveillance systems to include HIV.

Related Objectives From Other Focus Areas

- 7. **Educational and Community-Based Programs**
 - 7-2. School health education
- 9. **Family Planning**
 - 9-10. Pregnancy prevention and sexually transmitted disease (STD) protection
- 14. **Immunization and Infectious Diseases**
 - 14-11. Tuberculosis
 - 14-13. Treatment for high-risk persons with latent tuberculosis infection
- 20. **Occupational Safety and Health**
 - 20-10. Needlestick injuries
- 25. **Sexually Transmitted Diseases**
 - 25-8. Heterosexually transmitted HIV infection in women
 - 25-11. Responsible adolescent sexual behavior
 - 25-17. Screening of pregnant women

Terminology

(A listing of acronyms and abbreviations used in this publication appears in Appendix H.)

AIDS: Acquired immunodeficiency syndrome, the most severe phase of infection with the human immunodeficiency virus (HIV). Persons infected with HIV are said to have AIDS when they get certain opportunistic infections or when their CD4+ cell count drops below 200.

CD4+ cell (also known as T helper cell): A type of T cell found in the blood that is involved in protecting the body against infections. CD4+ cells normally orchestrate the immune response, signaling other cells in the immune system to perform their special disease-fighting functions.

CD4+ cell count: A measure of the number of CD4+ cells present in the blood. Because HIV infection kills CD4+ cells, CD4+ cell count is used to track the progress of HIV infection.

Cost-effective: Indicates that the cost of a particular intervention compares favorably to life-saving interventions associated with other diseases.

Cost-saving: Indicates that a particular intervention averts health care costs in excess of the cost of the intervention.

HAART (highly active antiretroviral therapy): Aggressive anti-HIV treatment usually including a combination of drugs called protease inhibitors and reverse transcriptase inhibitors whose purpose is to reduce viral load infection to undetectable levels.

HIV (human immunodeficiency virus): A virus that infects and takes over certain cells of the immune system that are important in fighting disease.

HIV antiretrovirals: Drugs, such as zidovudine (AZT) and saquinavir, designed to attack HIV and prevent it from multiplying.

Mycobacterium avium complex (MAC): Bacteria that cause disease in individuals who have weakened immune systems and one of the opportunistic infections that define AIDS.

Opportunistic infections: Infections that take advantage of the opportunity offered when a person's immune system has been weakened by HIV infection. At least 25 medical

conditions, including bacterial, fungal, and viral infections and certain types of cancer, are associated with HIV infection.

Pandemic: An epidemic over a large area or country.

***Pneumocystis carinii* pneumonia (PCP):** A type of pneumonia that strikes individuals who have weakened immune systems.

Prevalence: A proportion of persons in a population who are infected, at a specified point in time or over a specified period of time, with HIV.

Prophylactic: Something that guards against or prevents disease.

Prophylaxis: Measures designed to prevent the spread of disease and preserve health; protective or preventive treatment.

Protease: An enzyme that triggers the breakdown of proteins in the body. HIV's protease enzyme breaks apart long strands of viral protein into the separate proteins constituting the viral core and the enzymes it contains. HIV protease acts as new virus particles are budding off a cell membrane.

Protease inhibitor: A drug that binds to and blocks HIV protease from working, thus preventing the production of new functional viral particles.

Serostatus: The result of a blood test for the antibodies that the immune system creates to fight specific diseases.

Seronegative: Indicates that a person's blood lacks antibodies to a specific infectious agent, such as HIV.

Seropositive: Indicates that a person's blood contains antibodies to infections, such as HIV.

Subepidemic: The morbidity that occurs within a proportion of the population infected by the epidemic.

Universal infection control precautions: Guidelines and procedures to protect health care workers from exposure to infection from blood and other body fluids.

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