HIV/AIDS Among Men Who Have Sex With Men and Inject Drugs—United States, 1985-1998

MEN WHO HAVE SEX WITH MEN AND INJECT DRUGS (MSM/IDU) pose unique challenges for human immunodeficiency virus (HIV) risk reduction efforts because they have multiple risks for HIV acquisition and transmission. This report presents (1) the demographic characteristics of MSM/IDU diagnosed with acquired immunodeficiency syndrome (AIDS) in 1998 and MSM/IDU living with AIDS as of December 31, 1998; (2) trends in AIDS incidence among MSM/IDU from 1985 to 1998; and (3) information on selected behaviors from interviews of MSM/IDU who had AIDS diagnosed from 1996 to 1998 in 12 states.* The findings indicate that (1) over half of MSM/IDU with AIDS were non-Hispanic blacks and Hispanics, and most MSM/IDU with AIDS were reported from large metropolitan statistical areas (MSAs); (2) AIDS incidence has declined since 1996; and (3) a high prevalence of drug-related and sexual risk behaviors occurred among MSM/IDU with AIDS.

Demographic and risk characteristics of MSM/IDU aged ≥13 years with AIDS reported to CDC were obtained from AIDS surveillance data in the 50 states, the District of Columbia, and all U.S. territories. Risk information for AIDS surveillance generally was obtained from medical records. For this analysis, only persons with the reported dual risk factors for HIV transmission of male-male sex and injecting-drug use were included. AIDS diagnoses were adjusted for reporting delays on the basis of cases reported to CDC through December 1999, and for the anticipated reclassification of cases initially reported without risk.1,2

Information on selected behavioral characteristics of MSM/IDU with AIDS was obtained from the Supplement to HIV/AIDS Surveillance (SHAS) project.3 SHAS is a cross-sectional interview study aimed at extending information routinely collected in AIDS surveillance. Persons aged ≥18 years recently reported with HIV/AIDS to the 12 health departments participating in SHAS were interviewed about their sexual and drug-related risk behaviors. Interview data are presented for men who were classified as MSM/IDU on the HIV/AIDS case report or who reported male-male sex and injecting-drug use in the SHAS interview.

Trends Among MSM/IDU

The proportion of all AIDS cases among MSM/IDU decreased from 8% in 1990 to 5% in 1998; 2161 MSM/IDU had AIDS diagnosed in 1998, and 18,133 MSM/IDU were living with AIDS as of December 1998. Most were diagnosed in large MSAs (greater than or equal to 1,000,000 persons) and in the South and West.† Non-Hispanic blacks and Hispanics accounted for more than half of each group.

AIDS incidence among MSM/IDU increased steadily from 1985 to 1992, and peaked during 1992-1993, corresponding with the 1993 expansion of the AIDS surveillance case definition. AIDS incidence declined 37% from 1996 to 1998.

Interviews of MSM/IDU

A total of 513 MSM/IDU who had AIDS diagnosed during 1996-1998 were interviewed for the SHAS project. Of these, 435 (85%) were aged 30-49 years. Non-Hispanic blacks, non-Hispanic whites, and Hispanics accounted for 36%, 42%, and 17%, respectively; Asians/Pacific Islanders and American Indians/Alaska Natives accounted for less than 2%. The South and the West accounted for 42% and 51% of respondents, respectively, reflecting the geographic distribution of SHAS sites.

MSM/IDU interviewed in SHAS had high rates of high-risk sexual and drug-related risk behaviors. Eighty-two percent of MSM/IDU had ever used noninjecting drugs, and 61% of MSM/IDU had ever used crack cocaine. Of those injecting drugs during the 5 years preceding the interview, 45% had shared needles. Seventy-six percent of MSM/IDU had sex with men during the 5 years preceding the interview, and 43% had sex with women. Nearly half of those who had sex during the year preceding the interview did not always use condoms. However, consistent condom use was higher when the steady sex partner was known to be uninfected: 61% who had vaginal intercourse, 57% who had insertive anal intercourse with a man, and 61% who had receptive anal intercourse with a man during the year preceding the interview said that they had always used condoms. During the 5 years preceding the interview, 18%-20% of MSM/IDU exchanged sex for money or drugs.

To assess the degree to which multiple risks are captured in AIDS surveillance, risk classification of the MSM/IDU interviewed in SHAS was examined in AIDS surveillance. Of the 513 MSM/IDU, 352 (69%) were classified as MSM/IDU in AIDS surveillance, 106 (21%) were classified as MSM, 50 (10%) were classified as IDU, and two (0.4%) were classified as having had heterosexual contact or contact with an adult with hemophilia.

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CDC Editorial Note: The findings in this report document continued declines in AIDS incidence among MSM/IDU.
IDU since 1996, which resulted in large part from increased use of antiretroviral therapies that delay disease progression and also reflect earlier decreases in HIV incidence among MSM/IDU. The supplemental interview information in a sample of MSM/IDU with AIDS indicates a high prevalence of drug-related and sexual risk behaviors, including sex with men and women. Previous studies have reported similar findings.

Differences in the racial/ethnic, age, and regional distribution of incident and prevalent AIDS cases reflect some differences in historical patterns of HIV incidence. Those include the later onset of the HIV epidemic in the South compared with the West and the Northeast, and the increasing impact on racial/ethnic minorities. In addition, differences in AIDS incidence and prevalence may reflect differential access to or use of effective antiretroviral treatments. Integrated surveillance for HIV infection and AIDS characterizes persons more recently infected with HIV.

Non-Hispanic black and Hispanic men were overrepresented among MSM/IDU, accounting for half of MSM/IDU living with AIDS but 22% of the general male population. Race/ethnicity is not a risk factor for HIV infection; social and economic factors associated with race/ethnicity, such as high poverty rates and unemployment and lack of access to health care, are associated with high rates of risk behavior.

Behavioral risk information for HIV is important to assure that state/local prevention programs are directed to appropriate populations. If providers do not elicit this information or are reluctant to question patients about their sexual and drug-using behaviors, then information in medical records may underrepresent true risks for HIV in the population. Data from the SHAS interviews show that the AIDS surveillance system may have underestimated the number of MSM/IDU and that the true proportion of AIDS cases attributable to MSM/IDU in 1998 may be 7%.

Because MSM/IDU have multiple risks for HIV infection, they are particularly vulnerable to infection and can transmit HIV across multiple populations, including MSM, IDU, and heterosexual women. Prevention strategies must provide the information, skills, and support necessary to reduce both sexual and drug-related risk behaviors among MSM/IDU, and include access to drug treatment and to prevention case management. Additional research is needed to determine whether risk reduction strategies that have been effective for groups with single risks also are effective for groups with multiple risks. HIV/AIDS disease surveillance supplemented with behavioral surveys will help in planning prevention, treatment, and other services needed to reduce transmission and to improve survival and quality of life for infected persons.

REFERENCES

1. Green TA. Using surveillance data to monitor trends in the AIDS epidemic. Statistics in Medicine 1998; 17:143-54.
2. Karon JM, Buehler JW, Byers RH, et al. Projections of the numbers of persons diagnosed with AIDS and of immunosuppressed HIV-infected persons, 1992-1994: statistical methods and parameter estimates. Atlanta, Georgia: US Department of Health and Human Services, 1993.
3. Buehler JW, Diaz T, Bradley SH, Chu SY. The supplemental HIV/AIDS surveillance project: an approach for monitoring HIV risk behaviors. Public Health Reports 1996; 11:133-7.
4. Fleming PL, Ward JW, Karon JM, Hanson DL, De Cock KM. Declines in AIDS incidence and deaths in the USA: a signal change in the epidemic. AIDS 1988; 12(suppl A):S55-S61.
5. CDC. HIV risk practices of male injecting-drug users who have sex with men—Dallas, Denver, and Long Beach, 1991-1994. MMWR 1995; 44:767-9.
6. Sullivan PS, Nakashima AK, Purcell D, Ward JW, and the Supplement to HIV/AIDS Surveillance Study Group. Geographic differences in noninjection and injection substance use among HIV-seropositive men who have sex with men: western United States versus other regions. J Acquir Immune Defic Syndr Hum Retrovirology 1998; 19:266-73.
7. Hu DJ, Fleming PL, Mays MA, Ward JW. The expanding regional diversity of the acquired immunodeficiency syndrome epidemic in the United States. Arch Intern Med 1994; 154:654-9.
8. CDC. HIV/AIDS among racial/ethnic minority men who have sex with men—United States, 1989-1999. MMWR 2000; 49:4-11.
9. CDC. Guidelines for national human immunodeficiency virus case surveillance, including monitoring for human immunodeficiency virus infection and acquired immunodeficiency syndrome. MMWR 1999; 48(no. RR-13).
10. National Commission on AIDS. The challenge of HIV/AIDS in communities of color. Washington, DC: National Commission on AIDS, December 1992.

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Adoption of Protective Behaviors Among Persons With Recent HIV Infection and Diagnosis—Alabama, New Jersey, and Tennessee, 1997-1998

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A comprehensive human immunodeficiency virus (HIV) prevention strategy includes knowledge of HIV status, counseling to reduce high-risk behavior, and referral for appropriate care. After diagnosis, a substantial percentage of HIV-infected persons reduce their high-risk sexual behaviors. This report presents data characterizing the sexual practices of persons with newly diagnosed HIV infection who have evidence of recently acquired infection. Characterizing these persons may assist in the development of risk-reduction efforts for HIV-infected populations to prevent further HIV transmission.

To examine risk behaviors (e.g., condom use and number of sex partners) after HIV diagnosis, CDC analyzed data on HIV testing history and sexual behavior of persons who may have recently acquired HIV infection as part of a CDC-sponsored study in Alabama, New Jersey, and Tennessee. For purposes of this study, criteria for recent HIV infection included persons with diagnosed and reported HIV infection with CD4 T-lymphocyte counts

Arizona, California, Colorado, Connecticut, Delaware, Florida, Georgia, Michigan, New Jersey, New Mexico, South Carolina, and Washington.

& South=Alabama, Arkansas, Delaware, District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia; and West=Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.

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>700 cells/µL or percentage >36, documented HIV seroconversion within 18 months of confirmed HIV infection diagnosis, or persons aged 13-24 years when diagnosed.3 Respondents were told that questions about behaviors before they learned of their HIV status concerned sexual activities after 1977 but before the first time respondents were told they were HIV-positive. Questions about behaviors since they learned of their HIV status concerned the period after a doctor, health-care provider, or counselor informed respondents that they were HIV-positive.

During January 1997-September 1998, 615 persons with HIV infection diagnosed and reported met the criteria for the study; these persons represented 15% of all persons with HIV infection diagnosed and reported during this period from Alabama, New Jersey, and Tennessee. Of the 543 persons determined eligible after follow-up by state health departments, 180 (33%) completed interviews, 127 (23%) refused to be interviewed, and 233 (43%) could not be located. Among persons with known dates, 148 (86%) of 173 were interviewed within 12 months of the self-reported date they learned they were HIV-infected (median: 6 months).

Among the 180 persons interviewed, 99 (55%) were female; 96 (53%) were age less than 25 years; and 105 (58%) were non-Hispanic black, 49 (27%) were non-Hispanic white, 24 (13%) were Hispanic, and two (1%) were self-reported as “other.” These demographic characteristics were similar for persons not interviewed. Twenty-three (28%) of 81 males and 69 (70%) of 99 females could not be classified as having recognized transmission risk or as having sexual contact with an HIV-infected partner or one with a documented transmission risk. All except one of these persons reported heterosexual activity but was unaware of the partner’s HIV status or risk for HIV infection.

Among 68 males stating a primary reason for being tested, the leading reasons were because a doctor or friend told them to be tested (28%) and because they were worried they might be infected even though they were not sick (22%). Among 90 females stating a primary reason for testing, the leading reasons were because of pregnancy care (33%) and because a doctor or friend told them to be tested (18%). Of 180 persons interviewed, 162 (90%) responded that they had changed their sexual behavior since learning of their HIV infection. Among these persons, 97 (60%) stated they used condoms more often, 80 (49%) did not have sex as often, 58 (36%) had not had sex, 16 (10%) had sex with persons they knew were infected, and eight (5%) had only oral sex. No differences were reported in these behavior changes by sex, except having only oral sex (9% among males and 1% among females).

Among 97 females reporting vaginal sex with males and among 45 males reporting anal sex with males, 25%, 69%, and 6% reported using condoms before diagnosis never, sometimes, and always, respectively. After diagnosis, 30% reported not having sex, and 6%, 11%, and 47% reported never, sometimes, and always using condoms, respectively. Self-reported condom use after learning of HIV infection among a subset of these persons who reported some unprotected sex before HIV diagnosis indicated that a high proportion of males and females adopted protective behaviors.

Fifty-two (79%) of 66 females having vaginal sex with men after diagnosis reported having one partner since learning of their HIV infection; 15 (50%) of 30 men having anal sex with men since diagnosis reported having one partner. Among males and females interviewed within 6 months of diagnosis, 41 (44%) of 94 reported not having sex; among males and females interviewed more than 6 months after diagnosis, 14 (18%) of 79 reported not having sex.

Of 180 persons interviewed, 151 (84%) reported receiving medical care for HIV infection since diagnosis. Among the 27 persons who responded that they had not received medical care for their HIV infection since diagnosis, 13 (48%) reported feeling well and not thinking it was important to seek medical care right away, and 12 (44%) reported not wanting to think about being HIV-positive as reasons for postponing seeking health care right away. Twenty-two (81%) of 27 respondents not receiving medical care reported changing their sexual behavior since learning of their HIV infection compared with 139 (93%) of 149 respondents receiving medical care.

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CDC Editorial Note: The findings in this study suggest that a high proportion of infected persons adopted safer sexual behaviors following diagnosis of HIV infection and are consistent with other studies showing adoption of safer behaviors after diagnosis in some groups.4 The findings also are consistent with a report describing an increase in reported safe behaviors 6 months after beginning HIV-related primary care.6 Because persons who have not had sex since their diagnosis may become sexually active later, sustained interventions must be available for maintenance and adoption of safe behaviors.

In this and other studies,7 most persons report receiving HIV-related medical care within 1 year of learning of their positive HIV status. These encounters provide an opportunity for behavioral risk-reduction counseling and intervention. Health-care providers should emphasize the need to sustain safe behaviors, especially because persons benefiting from antiretroviral therapy may be living longer, healthier lives and, therefore, may engage in risky sexual activity over time.

The findings in this report are subject to at least five limitations. First, the findings may be biased toward persons receiving medical treatment because this group was easier to locate and interview than those not in treatment.
ond, face-to-face interviews about sexual behavior may bias results toward socially desirable responses. Third, although this study included many young persons, some older persons may have been sexually active for many years and this analysis did not control for variation in length of time persons had been sexually active before diagnosis. Fourth, although knowledge of laws related to HIV is limited, local laws related to knowingly exposing persons may have influenced candid replies to condom-use questions. Finally, this study was conducted as a pilot project in only three states and these findings may not be generalizable.

Young persons and others with evidence of recent HIV infection can provide insights into prevention needs and failures. Areas conducting HIV and AIDS surveillance can characterize persons with recently acquired infection and therefore can describe recent patterns of transmission and risk behaviors. CDC recommends that all states adopt HIV case surveillance to assist in monitoring the epidemic.

Of the estimated 800,000-900,000 persons infected in the United States, approximately one third have yet to be diagnosed. Most women were unaware of their partner’s HIV status and a high percentage were tested related to pregnancy. HIV testing and counseling programs should encourage persons at high risk for HIV infection to seek knowledge of their status and should facilitate referrals to ongoing care and prevention services for persons found to be infected. Increasing the availability and improving access to testing in public and private settings early in the course of disease will increase opportunities for sustained prevention and treatment for all HIV-infected persons.

REFERENCES
1. CDC. HIV counseling, testing, and referral: standards and guidelines. Atlanta, Georgia: US Department of Health and Human Services, Public Health Service, CDC, May 1994.
2. Denning PH, Nakashima AK, Wortley P, et al. High-risk sexual behaviors among HIV-infected adolescents and young adults [Abstract]. Atlanta, Georgia: 1999 National HIV Prevention Conference, August 29-September 1, 1999; abstract no. 113.
3. Weinhardt LS, Carey MP, Johnson BT, Bickham NL. Effects of HIV counseling and testing on sexual risk behavior: a meta-analytic review of published research, 1985-1997. Am J Public Health 1999;89:1397-405.
4. Wolitski RJ, MacGowan RJ, Higgins DL, Jorgensen CM. The effects of HIV counseling and testing on risk-related practices and help-seeking behavior. AIDS Educ Prev 1997; suppl B:62-67.
5. CDC. Guidelines for national human immunodeficiency virus case surveillance, including monitoring for human immunodeficiency virus infection and acquired immunodeficiency syndrome. MMWR 1999;48(no. RR-13).
6. Samet J, Hingson R, Savetsky JB, Sullivan LM, Stein MD. Sexual practices of HIV-infected persons at initial primary care presentation and six months later [Abstract]. Geneva, Switzerland: XII International Conference on AIDS, June 28-July 3, 1998; abstract no. 1417B.
7. Osmond DH, Blandman AB, Vianikan K, et al. Name-based surveillance and public health interventions for persons with HIV infection. Ann Intern Med 1999; 131:775-9.
8. Hecht FM, Chesney M, Lehman JS, et al. Does HIV reporting by name deter testing? AIDS (in press).
9. CDC. Anonymous and confidential HIV counseling and voluntary testing in federally funded testing sites—United States, 1995-1997. MMWR 1999;49:509-13.

Gonorrhea—United States, 1998

MMWR. 2000;49:538-542

*1 figure, 1 table omitted*

NEISSERIA GONORRHOEAE INFECTIONS ARE A major cause of pelvic inflammatory disease, infertility, and ectopic pregnancy in women and facilitate the transmission of human immunodeficiency virus. To characterize the epidemiology of gonorrhea in the United States, CDC examined national surveillance data on gonorrhea cases reported to CDC through state health departments in 1998 and surveyed selected states with increases and decreases in gonorrhea rates since 1996. This report summarizes the results of this analysis, which indicate that following a 13-year decline, the number of gonorrhea cases in 1998 increased by 9% compared with 1997. Although changes in gonorrhea screening and surveillance practices may have contributed to the higher reported rates, reports from states suggest that true increases in gonorrhea cases also occurred in some populations.

Surveillance data from the 50 states were used to determine trends in gonorrhea cases. Thirty states provided individual-level gonorrhea case reports that included age, sex, race, and ethnicity. The remaining states provided aggregate data with information by age group, sex, and race/ethnicity. Crude incidence was calculated annually per 100,000 population. Rates were calculated using postcensal population estimates; rates for 1998 used population estimates for 1997. Sexually transmitted disease (STD) program staff from states with a greater than 10% increase in cases each year from 1996 to 1998 and those states with annual decreases during this period were interviewed about the trends in gonorrhea rates for their state. Questions addressed changes in gonorrhea screening policies, clinic testing volume, gonorrhea diagnostic test methods, and reporting practices.

In 1998, 335,131 gonorrhea cases were reported to CDC (132.9 cases per 100,000 population) compared with 325,861 cases (121.8) in 1997. From 1997 to 1998, the rate in the Midwest increased by 16.4% (from 120.0 to 139.7), in the South by 8.7% (from 186.4 to 202.7), and in the West by 6.5% (from 50.6 to 53.9). In the Northeast, the gonorrhea rate declined by 0.8% (from 87.8 to 87.1). From 1997 to 1998, gonorrhea rates increased in 34 states. In 1998 in 22 states, the rate was above the national health objective for 2000 of 100 cases per 100,000 population, and represented 79% of gonorrhea cases reported in 1998.

From 1997 to 1998, the gonorrhea rate increased 10.5% among women (from 119.2 to 131.7) and 7.4% among men (from 124.5 to 133.7). In 1998, the gonorrhea rate among non-Hispanic whites increased by 11.3% (from 18.6 to 20.7), among non-Hispanic blacks by 13.5% (from 593.1 to 673.1), among Hispanics by 15.9% (from 47.9 to 55.5), among American Indians/Alaska Natives by 17.0% (from 77.7 to 90.9), and among Asians/Pacific Islanders by 19.8% (from 13.1 to 15.7). Among women aged 15-19 years, the sex-age group with the highest rate of gonococcal infection, the rate increased by...
11.4% (from 683.2 to 761.4). Among men aged 20-24 years, the rate increased by 11.3% (from 506.7 to 564.0).

Idaho, Iowa, Louisiana, Mississippi, North Dakota, and Texas had annual increases of greater than 10% in gonorrhea from 1996 to 1998. STD program managers in each state reported that changes in screening and reporting practices may have contributed to the increases. Increased gonorrhea rates reported from Iowa and Mississippi were attributed partly to increases in the numbers of persons screened by family planning clinics. In Louisiana and Texas, the increases were attributed to targeted screening efforts and improved access to STD clinic services. In three states, publicly funded screening programs switched from gonorrhea culture to nonculture tests; health departments in Iowa and Mississippi switched to using nucleic acid probe assays, and in North Dakota to ligase chain reaction tests. Louisiana expanded its case definition from accepting only reports from clinicians to also accepting laboratory reports. However, two states reported that they had true increases in gonorrhea cases in some populations; in Iowa, increases appeared among methamphetamine users and their sex partners, and in Texas, increases in gonorrhea test positivity were seen among women attending family planning clinics, even without a change in diagnostic test type, screening criteria, or number tested.

Alaska, Arkansas, Kentucky, Maryland, and New Hampshire reported consecutive annual gonococcal infection decreases from 1996 to 1998. None of these states reported changes in testing methods or reporting practices. However, Kentucky reported that fewer women were attending family planning clinics, resulting in fewer screenings. In Alaska and New Hampshire, STD program managers attributed the declines in part to increases in presumptive treatment without laboratory testing. However, three states that reported declines had data on increases in gonococcal infections in specific populations, including men who have sex with men (MSM) (Alaska and New Hampshire) and drug users (Arkansas). In New Hampshire, 11.1% of gonorrhea cases were reported among MSM, compared with 6.6% in 1997 and 0% in 1996.

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**CDC Editorial Note:** The increase in the reported rate of gonorrhea in 1998 followed an overall decline of 64.2% from 1985 to 1997. A portion of the increase may be attributed to changes in screening and reporting practices. Data reported to the Regional Infertility Prevention Projects also showed that substantially more clinics were screening for gonorrhea during this period, and that they began to use nonculture methods for gonorrhea diagnosis (CDC, unpublished data, 1999). Under optimal conditions, the sensitivity of culture may be similar to nonculture methods; however, under field conditions, culture may be substantially less sensitive.

Changes in screening and reporting practices probably did not account for all of the reported increases across states in 1998. For example, an investigation of the increase in South Dakota found that increased screening volume and change in testing methods accounted for 14% of the 80% increase in reported gonorrhea cases from 1997 to 1998.[7] In addition to Alaska and New Hampshire, reported increases in gonorrhea and other STDs among MSM have been documented in other states, possibly as a result of an increase in unsafe sexual behavior related to the availability of highly active antiretroviral therapy.[8-9]

The findings in this report are subject to at least three limitations. First, the quality of surveillance varies at the local and state levels. Second, STD reporting may be incomplete. Finally, reporting of gonorrhea may be biased toward the overreporting of infections among persons of minority races/ethnicities who attend public STD clinics. The degree to which this bias influences reported rates of gonorrhea is unknown. Race and ethnicity are not risk factors for disease, but markers used to better understand risk factors, and therefore, should be viewed within public health surveillance as a sociologic phenomenon.[10]

Following a series of transitions in diagnostic testing, screening practices, and surveillance methods, the decline in gonorrhea rates from 1985 to 1997 could resume; preliminary data suggest that in 1999, the gonorrhea rate is again declining. However, the overall number of gonorrhea cases remains high and the increasing rates of gonorrhea in some populations in 1998 should guide public health efforts to prevent this disease.

**REFERENCES**

1. Cohen MS, Hoffman IF, Royce RA, et al. Reduction of concentration of HIV-1 in semen after treatment of urethritis: implications for prevention of sexual transmission of HIV-1. Lancet 1997;349:1608-73.

2. Bureau of the Census. 1991-1997 estimates of the population of counties by age, sex and race/Hispanic origin: 1990-1997. Washington, DC: US Department of Commerce, Economics and Statistics Administration, Bureau of the Census, 1997.

3. CDC. Sexually transmitted disease surveillance, 1997. Atlanta, Georgia: US Department of Health and Human Services, Public Health Service, CDC, September 1998.

4. Fox KK, Whittington WL, Levine WC, et al. Gonorrhea in the United States, 1981-1996: demographic and geographic trends. Sex Transm Dis 1998;25:386-93.

5. Schwebke JR, Zajaczkowski ME. Comparison of DNA probe (Gen-Probe) with culture for the detection of Neisseria gonorrhoeae in an urban STD program. Genitourin Med 1996;72:108-10.

6. Stary A, Ching SF, Teodorowicz L, et al. Comparison of ligase chain reaction and culture for detection of Neisseria gonorrhoeae in genital and extragenital specimens. J Clin Micro 1997;35:239-42.

7. Gust D, Finelli L, Morgan D, et al. Increasing gonorrhea in Minnehaha County, South Dakota: lab artifact or true outbreak? Presented at the XIII meeting of the International Society for Sexually Transmitted Diseases Research, Denver, Colorado, July 11-14, 1999 [Abstract 437].

8. CDC. Gonorrhea among men who have sex with men—selected sexually transmitted diseases clinics, 1993-1996. MMWR 1997;46:889-92.

9. CDC. Increases in unsafe sex and rectal gonorrhea among men who have sex with men—San Francisco, California, 1994-1997. MMWR 1999;48:45-8.

10. CDC. Use of race and ethnicity in public health surveillance—summary of the CDC/ATSDR Workshop. MMWR 1993;42(no. RR-10).

*Northeast=Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont; Midwest=Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin; South=Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia; and West=Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.