National HIV Prevalence Surveys

1997 Summary

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES Public Health Service

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National HIV Prevalence Surveys, 1997 Summary

Background

The Centers for Disease Control and Prevention (CDC), in collaboration with other public health agencies and institutions, conducts standardized unlinked prevalence surveys of human immunodeficiency virus (HIV) infection in designated subgroups of the population as part of a sentinel surveillance system to monitor the HIV epidemic in the United States. This system also includes systematically collected national data from ongoing mass HIV screening programs, which are periodically sent without personal identifiers to CDC. These complementary surveys provide standardized information to local and national public health officials on the extent of HIV infection in geographic areas and population subgroups so that education and prevention programs can be developed and evaluated. The information can also be used to estimate the number of people who may benefit from HIV-related care and treatment.

Of persons who know or suspect that they are infected with HIV or who are at high risk for HIV infection, some may be more likely to participate in studies of HIV prevalence and others may be less likely to do so. Unlinked surveys are conducted to obtain estimates of HIV prevalence that are unbiased by self-selection. Residual blood from specimens originally collected for routine diagnostic purposes are tested for HIV antibodies after all personal identifying information has been permanently removed. Neither HIV test results nor risk information routinely obtained from medical records can be linked to individuals. Thus, no interaction with survey participants can take place solely for the purpose of the unlinked surveys. All clinic sites that conduct unlinked surveys either provide or offer referral for voluntary HIV counseling and testing.

In 1987, CDC began providing technical and financial assistance to state and local health departments to conduct unlinked HIV prevalence surveys in selected clinics serving populations at high risk for HIV infection. Surveys were supported in 17 metropolitan areas during 1997 (Figure 1). Settings included sexually transmitted disease (STD) clinics, drug treatment centers, and adolescent medicine clinics. Clinics were chosen for participation in the surveys by state and local health department personnel on the basis

of projected sample size, client demographic and behavioral characteristics, and the ability and willingness of the staff to conduct surveys in accordance with standardized protocols.

In addition to the unlinked surveys, CDC monitors results from HIV-antibody mass screening programs. Since 1987, the U.S. Department of Labor has provided CDC with HIV screening results for entrants to the Job Corps, a federally funded job training program for economically and educationally disadvantaged youth. The U.S. Department of Defense has provided CDC with HIV screening results for civilian applicants to the military service since 1985. Personal identifiers are not sent to CDC.

This report summarizes 1997 data from unlinked prevalence surveys in selected STD clinics, drug treatment centers, and adolescent medicine clinics, as well as screening results for entrants to the Job Corps and applicants for military service in the United States and Puerto Rico. The appendix contains 1994 and 1995 summary data from the Survey of Childbearing Women and the Sentinel Hospital Surveillance System for HIV Infection (both of these surveys were concluded at the end of 1995).

Summary of Findings

Data from the surveys provide estimates of HIV prevalence for populations surveyed in 1997. Because the results of each survey reflect different biases, the reader is encouraged to read the Technical Notes and consult the Suggested Readings for effective interpretation of the data. When considered with their respective biases, data from the surveys can contribute to an overall picture of HIV infection in the United States.

In STD clinics, prevalence rates were highest among the population of men who reported having sex with men. The median clinic prevalence rate in this population was 19.3%; rates among black men who have sex with men (MSM) were approximately twice that of white MSM. The median clinic prevalence rate was 4.8% among injection drug users (IDUs) attending STD clinics. Among heterosexuals attending STD clinics and reporting no other behavioral risk category, prevalence rates were higher for males than for females in nearly all metropolitan areas (Table 1 and Figures 2-5).

Prevalence surveys conducted at drug treatment centers during 1997 continue to reflect a wide range of estimated HIV prevalence among IDUs. The overall median clinic prevalence rate for IDUs attending drug treatment centers was 14.8%. The highest rates were in the Northeast and the South . In the Northeast, South, and West, prevalence rates were highest among black IDUs (Table 2; Figures 6 and 7).

National patterns of HIV prevalence among youth are provided by the CDC unlinked adolescent surveys and the screening programs of Job Corps entrants and applicants for military service. During 1997, HIV prevalence ranged from 0.0% to 1.0% in the six adolescent medicine clinics, with no consistent geographic pattern of prevalence (Table 3). Statewide prevalence rates ranged from 0.0% to 0.8% among Job Corps entrants and from 0.0% to 0.1% among applicants for military service. Prevalence rates were substantially higher among black Job Corps entrants and black military applicants than among other racial/ethnic groups. Rates were particularly high among black female entrants to the Job Corps and among black male military applicants (Figures 8-11).

Technical Notes

Principles of Unlinked Surveys

Methods. Unlinked surveys are conducted by using residual specimens collected from eligible survey participants for routine clinical purposes. There is no contact between persons in the surveys and the investigators conducting the surveys. Before HIV testing, demographic and risk information abstracted from routine medical records and intake forms are linked to the residual specimens through a unique study number. The specimens, which otherwise would be discarded, are anonymously tested for antibodies to HIV after the permanent removal of all personal identifiers. Neither the HIV test results nor the information obtained from medical records and intake forms can be linked to individuals. The results of HIV testing provide prevalence data that are unbiased by test-seeking behavior. This information is used to track HIV infection in the population but gives no information on individuals. The surveys are conducted in settings that either provide or offer referral for voluntary counseling and testing so that each person included in the survey has the opportunity to learn his or her HIV status and receive appropriate services for care and counseling for behavior changes.

Ethical considerations. The Office for Protection from Research Risks (OPRR), to which the Secretary of Health and Human Services has delegated the protection of the rights and welfare of human research subjects, has determined that anonymous unlinked surveys are ethical if (1) no interaction takes place with the survey participant solely for the purpose of the surveys and (2) information that may inadvertently identify a person is not retained. In June 1998, the Office of the Director of CDC and the Division of HIV/ AIDS Prevention-Surveillance and Epidemiology, National Center for HIV, STD, and TB Prevention, convened an external panel to conduct an ethical review of anonymous unlinked surveys for HIV in order to address questions that have arisen in recent years concerning the ethics of these surveys. The members of the panel felt that the unlinked surveys are ethical and are necessary to provide unbiased, accurate data on the current status and direction of the HIV epidemic in specific populations and also to provide reliable information for prevention planning and the allocation of resources.

CDC protocols for unlinked surveys are submitted to the CDC Institutional Review Board (IRB) for review and approval. State and local health departments consult with, and submit their protocols for approval to, their local IRBs before conducting the surveys.

Collection and Interpretation of Data

Standardized protocols and laboratory procedures are used for each of the surveys. Data are summarized by geographic area, sex, age, race/ethnicity, and, when possible, by major behavioral risk groups. The participating states and the District of Columbia are divided into four geographic regions as defined by the United States Bureau of the Census: Northeast, Midwest, South, and West. Data for Puerto Rico are included in the state and territory analyses, but not in the regional analyses. All rates in this report are reported as percentages.

Because participating clinics represent a convenience sample rather than a probability sample, clinic data are presented as medians. Ranges of rates are given for each clinic type. Prevalence data from a single site should be interpreted with caution because persons who attended participating clinics and hospitals may not be representative of all persons attending clinics and hospitals in the area. However, the collective data from these surveys suggest geographic patterns of HIV infection.

Laboratory methods. In the unlinked surveys, residual specimens collected for routine medical purposes are tested for HIV type 1 (HIV-1) antibodies by using an HIV-1 or HIV-1/HIV-2 enzyme immunoassay (EIA) screening kit licensed by the Food and Drug Administration (FDA) after all personal identifiers have been removed. Sera that are reactive according to the manufacturer's instructions are retested in duplicate by using fresh samples from the original unlinked specimen. Repeatedly reactive sera are tested with an FDA-licensed Western blot assay. Software provided to the sites by CDC automatically generates Western blot interpretations from recorded band patterns according to the recommendations of the Association of Public Health Laboratories and CDC.

Behavioral risk categories. Limited information on demographic characteristics and major behavioral risk categories is abstracted from client medical records and intake forms only. For the purpose of this report, behavioral risk groups for HIV infection are classified into three mutually exclusive categories. Men whose medical records indicate that they have had homosexual or bisexual contact are categorized as MSM. Clients who are not MSM and whose medical records indicate that they have ever injected drugs are categorized as IDUs. Persons for whom neither of the previous risk categories is recorded are classified as "others."

STD Clinics

STD clinics serve large numbers of persons at increased risk for HIV infection due to unprotected sex and other high-risk behaviors, such as having multiple sex partners or using drugs. They are important sites for evaluating HIV prevention programs and for monitoring emerging patterns and trends in the epidemic. These STD clinic surveys provide comprehensive HIV prevalence data for MSM and high-risk heterosexuals in the United States. Persons at greatest risk for the sexual transmission of HIV are likely to be those also at risk of acquiring other STDs; thus, surveys in STD clinics provide useful information on the sexual transmission of HIV infection.

Patients are eligible for inclusion in the survey if they have not visited the clinic since initiation of the survey during the current calendar year and if blood is drawn for routine syphilis testing. The annual survey period in each clinic ranged from 3 months to 1 year, depending on clinic size. To ensure statistical validity, Table 1 includes only data from clinics that reported at least 500 eligible specimens collected and tested

according to CDC protocol or the clinics that reported at least 200 MSM. Subgroups were analyzed for clinics that collected and tested at least 50 specimens per group. Median percentage positive is reported for each metropolitan area, and ranges are included for those areas with more than one clinic.

Persons attending STD clinics may not be representative of all persons with STDs. Because the prevalence of HIV is very high among MSM and IDUs, the misclassification of only a few of these patients could greatly elevate the measured prevalence among patients who reported heterosexual contact as their only risk. Therefore, prevalence rates among heterosexual persons who reported no other risk must be interpreted with caution.

Drug Treatment Centers

The HIV transmission associated with injection drug use occurs either directly through the sharing of drug injection equipment or indirectly through sexual and perinatal transmission from IDUs. Drug users entering treatment are a subgroup of all drug users that is easily accessible for unlinked prevalence surveys because blood specimens are routinely obtained as part of the medical assessment. Of the 21 drug treatment centers in this analysis, 18 were primarily methadone maintenance or methadone detoxification centers, and 3 were primarily drug-free programs.

Clients eligible for the unlinked prevalence surveys are those entering treatment for illicit drug use who have a routine blood test for purposes other than for HIV testing and who have used illicit drugs at least once during the past 12 months. The data in Table 2 are for eligible clients who reported having ever injected drugs. Only data from centers that reported at least 100 eligible specimens collected and tested according to the CDC protocol are included in the tables. Subgroups were analyzed for centers that collected and tested at least 25 specimens per group. Median percentage positive is reported for each metropolitan area, and ranges are included for those areas with more than one center.

Although the prevalence rates obtained from this survey may represent HIV infection rates within the population of IDUs in treatment, they may not reflect HIV prevalence among all IDUs. If IDUs who are not in treatment programs engage in high-risk behaviors more frequently than those who enter treatment, the prevalence rates obtained from this survey may be an underestimate of HIV in the entire population of IDUs.

However, because in-treatment IDUs are in general older than IDUs who are not in treatment, the prevalence rates could be an overestimate of HIV prevalence among all drug users.

Adolescent Medicine Clinics

The HIV prevalence rates among adolescents likely reflect recent infections. Clinics specifically for adolescents and young adults are of special interest because they serve a population that may not be seen at other health-care facilities. These clinics offer a wide range of services, including general primary care, family planning, prenatal care, counseling, STD treatment, and sports physicals. Of the six adolescent clinics in four metropolitan areas that participated in the 1997 survey, three were hospital-based and three were community-based.

Eligible clients are those 13 through 24 years of age who initially visit the clinic during the survey year and from whom a blood specimen is drawn as part of routine clinic procedures. Clients who visit the clinic for HIV testing, for evaluation or treatment of HIV infection, or for follow-up visits are excluded from the survey.

Data from these surveys provide important prevalence information for selected clients in a given clinic. However, it is not possible to generalize those prevalence rates to all adolescents and young adults in the surrounding areas.

Job Corps Entrants

The Job Corps, administered by the U.S. Department of Labor, is an occupational training program for socially and economically disadvantaged youth from rural and urban areas of all 50 states and U.S. territories. Data sent to CDC from the Job Corps provide a system for monitoring the HIV epidemic in this population, which may be at increased risk for HIV infection.

The Job Corps recruits high school dropouts or high school graduates in need of additional education or training in order to obtain and hold meaningful jobs. The results in this report are for Job Corps entrants in the United States and Puerto Rico who were 16 through 21 years of age. All entrants residing at Job Corps

centers during their training are counseled and tested for HIV within the first 2 days of residency. Those who test positive for HIV are allowed to continue as residential trainees and receive both medical care and social support. The entrant's reported home state is the basis of the state-specific rates in this report.

Job Corps entrants may not fully represent the larger population of disadvantaged youth. Although sexual orientation or history of illicit drug use does not constitute a basis for exclusions, current illicit drug users, persons with severe medical or behavioral problems, and persons on supervised probation or parole or incarcerated are excluded. Because HIV testing is mandatory, self-selection for enrollment in the program could either decrease or increase the number of HIV-infected entrants.

Military Applicants

CDC monitors HIV prevalence data provided by the U.S. Department of Defense (DOD) from their screening program for military applicants. Because of the large number of male and female applicants from all areas of the country, this population provides valuable information about the HIV epidemic.

All persons applying for active duty or reserve military service, the service academies, or the Reserve Officer Training Corps must have high school diplomas or the equivalent. Applicants are screened for HIV infection as part of their entrance examinations. HIV-positive applicants are informed of their test results and counseled by a physician and are excluded from military service. On a quarterly basis, DOD sends CDC HIV test results and limited demographic information on all applicants tested. No information is available on behavioral risk factors for HIV infection. The applicant's reported home state is the basis for the state-specific rates.

In July 1993, the military ended the screening exclusion of MSM. However, because HIV-positive applicants and drug users are not accepted into the military, associated self-selection bias among persons in highrisk categories may occur. Therefore, MSM, IDUs, and others who were already aware or suspected that they were infected with HIV are likely to be underrepresented in the population of military applicants.

Table 1. HIV prevalence among patients at sexually transmitted disease clinics, by metropolitan area, exposure category, and sex, 1997

Median % positive²

		Clinics Specimens analyzed ¹ tested			Others		All Clinics	
			MSM	IDUs	Male	Female	Median ³	Range
Northeast								
Boston	1	985	19.7	_	3.2	2.9	4.4	_
New York City	5	7,771	24.0	16.4	4.9	2.4	6.3	3.3-6.6
Newark	1	2,352	19.6	_	4.3	3.8	4.8	_
Midwest								
Chicago	1	2,393	18.6	4.8	1.8	1.5	3.8	_
Detroit	1	3,302	17.0	_	0.5	0.3	0.8	_
South								
Atlanta	2	3,086	35.6	_	2.5	1.7	4.0	2.9-5.1
Baltimore	2	3,167	_	15.4	3.2	3.6	6.0	4.9-7.1
Houston	4	6,614	18.0	5.3	2.1	1.3	2.2	2.0-9.7
Miami	2	1,862	_	_	5.8	6.4	7.3	5.6-9.1
New Orleans	1	2,034	19.0	_	1.3	1.1	1.8	_
Washington, D.C.	2	1,835	8.2	_	5.9	3.3	8.3	5.2–11.4
West								
Denver	1	3,020	13.9	2.3	0.3	0.1	1.3	_
Los Angeles	4	11,234	17.9	0.0	1.1	0.5	1.7	0.8-3.9
Phoenix	1	2,362	20.2	_	0.6	0.2	2.2	_
San Francisco⁴	_	_	_		_		_	_
Seattle	1	1,639	3.6	0.0	0.1	0.2	0.5	_
Total	29	53,656	19.3	4.8	2.7	1.6	3.9	0.5-11.4

¹ Includes only clinics reporting at least 500 eligible specimens collected and tested according to CDC protocol or clinics reporting at least 200 MSM.

² Subgroups analyzed for clinics reporting at least 50 specimens per group. IDU subgroup does not include MSM. Others subgroup does not include MSM or IDUs.

³ Median rate for clinics in the metropolitan area.

⁴ Data not available.

Table 2. HIV prevalence among injection drug users entering drug treatment centers, by metropolitan area and sex, 1997

Median % positive² All centers Centers **Specimens** analyzed1 tested Male **Female** Median³ Range Northeast 2 Boston 340 11.5 9.8 10.6 6.4-14.8 5 New York City 25.4-33.0 2,302 29.5 27.9 28.8 Newark 191 33.9 43.9 37.7 Midwest Chicago 1 301 18.0 14.4 16.6 Detroit 1 406 5.7 5.5 5.7 South 19.7 22.0 20.7 **Baltimore** 1 135 Washington, D.C. 1 157 15.1 18.9 15.9 West 2 352 0.0 0.0 0.0 0.0 - 0.0Denver Los Angeles 3 777 0.7 1.0 8.0 0.7 - 1.9San Francisco 1 444 8.3 9.6 8.8 Seattle 2 524 1.9 1.8 1.8 1.5 - 2.2Other 1 500 20.0 San Juan 19.5 23.7 Total 21 6,429 15.1 11.6 14.8 0.0 - 37.7

¹ Includes only centers reporting at least 100 eligible specimens collected and tested according to CDC protocol.

² Subgroups analyzed for centers reporting at least 25 specimens per group.

³ Median rate for centers in the metropolitan area.

Table 3. Summary of HIV prevalence among youth at adolescent medicine clinics, by metropolitan area, 1997

			% Positive
	Clinics analyzed	Specimens tested	Median Range
Northeast New York City	1	2,552	0.3 —
South Baltimore Houston	1 3	932 1,907	0.3 — 0.1 0.0–0.4
West Los Angeles	1	207	1.0 —

Figure 1. Metropolitan areas participating in CDC's national unlinked HIV prevalence surveys in clinics, 1997

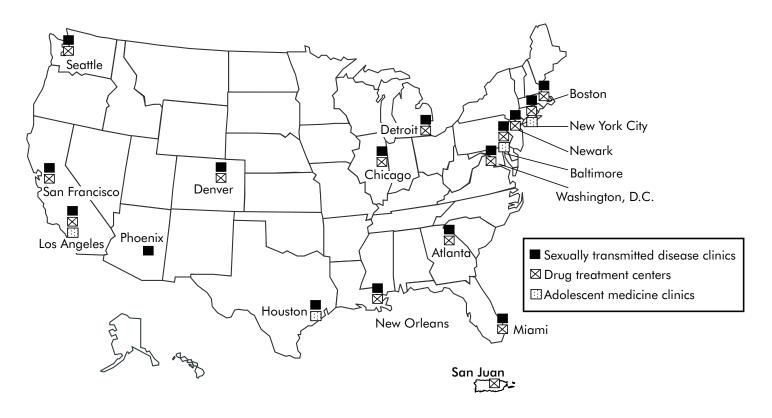


Figure 2. HIV prevalence among men who have sex with men, sexually transmitted disease clinic surveys, 1997

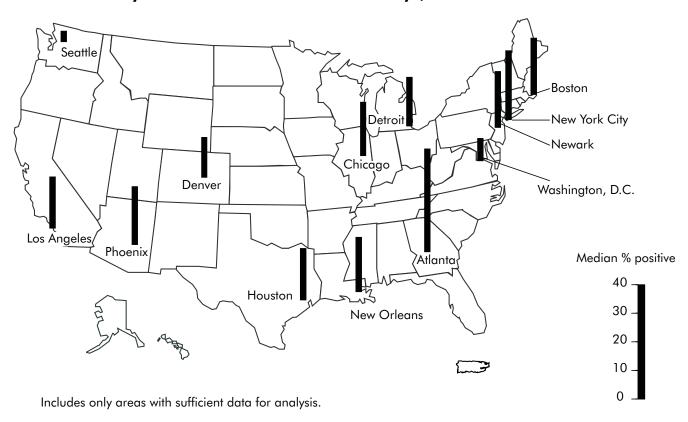


Figure 3. HIV prevalence among men who have sex with men, sexually transmitted disease clinic surveys, by race/ethnicity and region, 1997

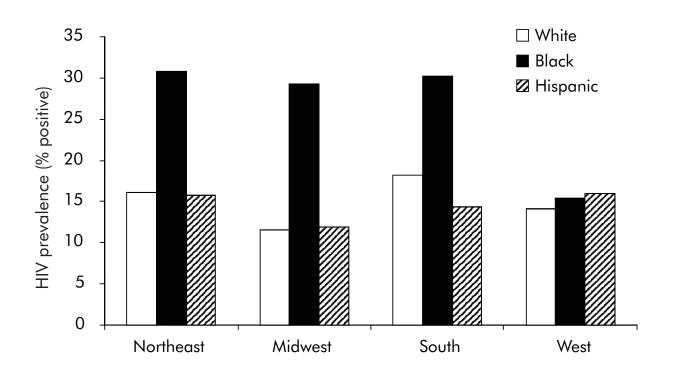


Figure 4. HIV prevalence among females, sexually transmitted disease clinic surveys, 1997

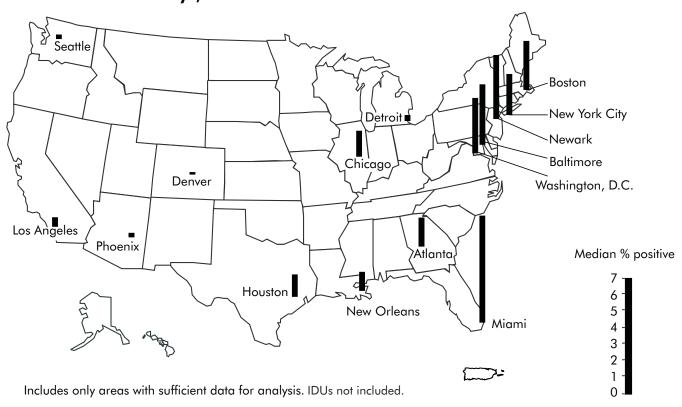


Figure 5. HIV prevalence among females, sexually transmitted disease clinic surveys, by race/ethnicity and region, 1997

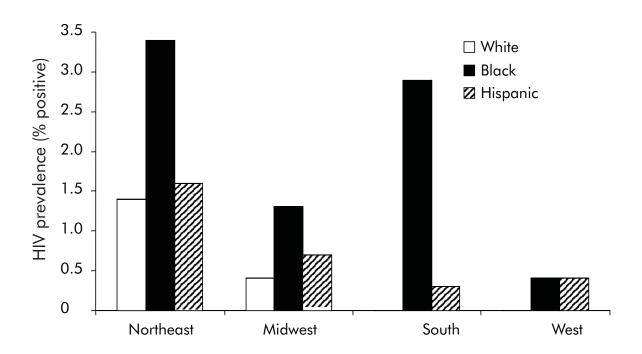


Figure 6. HIV prevalence among injection drug users, drug treatment center surveys, 1997

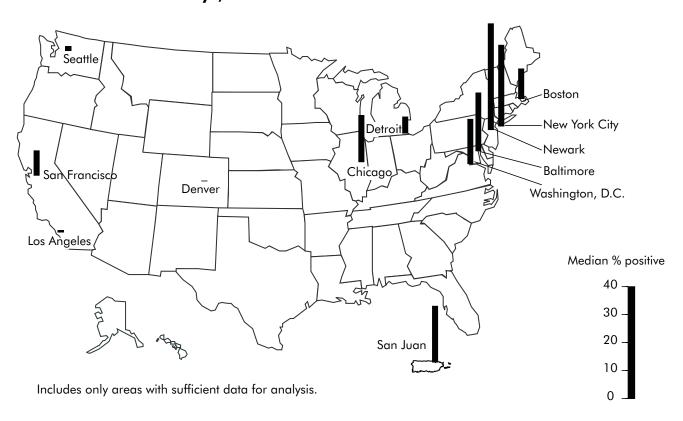
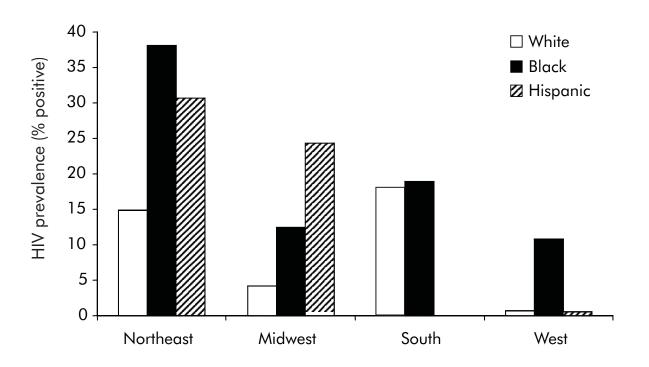


Figure 7. HIV prevalence among injection drug users, drug treatment center surveys, by race/ethnicity and region, 1997



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Figure 8. HIV prevalence among Job Corps entrants, by sex and race/ethnicity, 1997

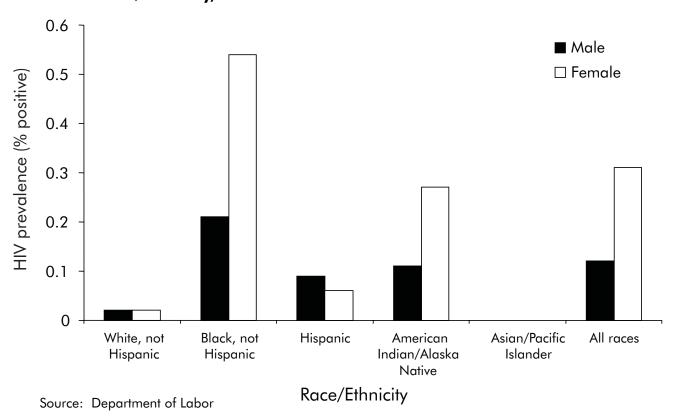
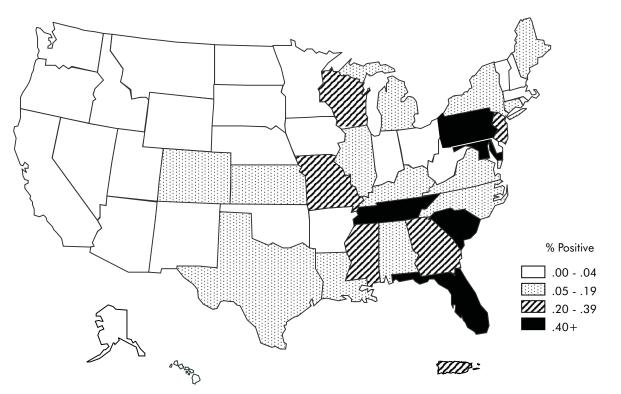
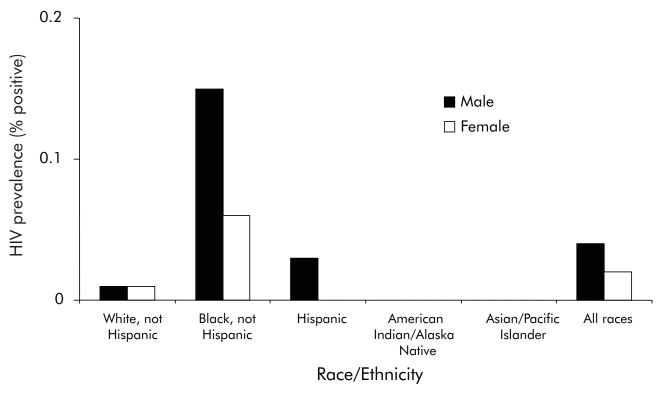


Figure 9. HIV prevalence among Job Corps entrants, by state of residence, 1997



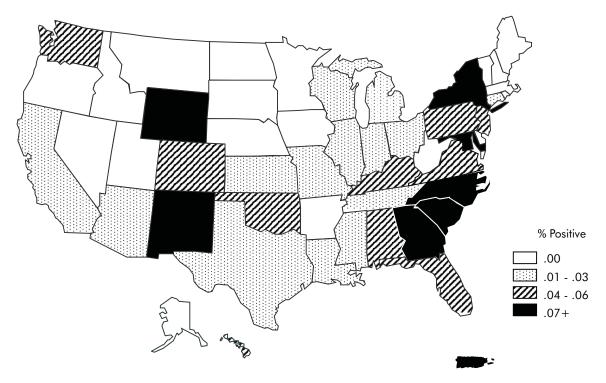
Source: Department of Labor

Figure 10. HIV prevalence among applicants for military service by sex and race/ethnicity, 1997



Source: Department of Defense

Figure 11. HIV prevalence among applicants for military service, by state of residence, 1997



Source: Department of Defense

Suggested Readings

General

Bayer R. The ethics of blinded HIV surveillance testing. *Am J Public Health* 1993;83(4):496-7.

CDC. *HIV/AIDS Surveillance Report*. Atlanta, GA:CDC,1998:10(No.1):1-40.

CDC. *National HIV Serosurveillance Summary: Update–1993*. Vol. 3. Atlanta, GA: CDC, 1995. Publication HIV/DHAP/6-95-051.

CDC. *National HIV Serosurveillance Summary*– *Results through 1992.* Vol. 3. Atlanta, GA: CDC, 1994. Publication HIV/NCID/11-93/036.

CDC. Interpretation and use of the Western blot assay for serodiagnosis of human immunodeficiency virus type 1 infections. *MMWR* 1989;83(No. S-7):1-7.

Dondero TJ, Gill ON. Large-scale HIV serologic surveys: what has been learned? *AIDS* 1991;5 (suppl 2):S63-S69.

Dondero T, Pappaioanou M, Curran JW. Monitoring the levels and trends of HIV infection: the Public Health Service's HIV Surveillance Program. *Public Health Rep* 1988;103:213-20.

Karon JM, Rosenberg PS, McQuillan G, Khare M, Gwinn M, Petersen LR. Prevalence of HIV infection in the United States, 1984 to 1992. *JAMA* 1996;276: 126-31.

National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research. Belmont Report: Ethical Principles and Guidelines for the Protection of Human Subjects of Research. Washington DC, Government Printing Office, 1988. Publication GPO 887-890.

Pappaioanou M, Dondero TJ, Petersen LR, Onorato IM, Sanchez CD, Curran JW. The family of HIV seroprevalence surveys: objectives, methods, and uses of sentinel surveillance for HIV in the United States. *Public Health Rep* 1990;105:113-9.

Sexually Transmitted Disease Clinics

McCray E, Onorato IM. Sentinel surveillance of human immunodeficiency virus infection in sexually transmitted disease clinics in the United States. *J Sex Transm Dis* 1992;19:235-41.

Onorato IM, McCray E, Pappaioanou M, et al. HIV seroprevalence surveys in sexually transmitted disease clinics. *Public Health Rep* 1990;105:119-24.

Weinstock HS, Sidhu J, Gwinn M, Karon J, Petersen LR. Trends in HIV seroprevalence among persons attending sexually transmitted disease clinics in the United States, 1988-1992. *J Acquir Immune Defic Syndr Hum Retrovirol* 1995;9:514-22.

Drug Treatment Centers

Allen DM, Onorato IM, Green TA. HIV infection in intravenous drug users entering drug treatment, United States, 1988 to 1989. *Am J Public Health* 1992;82: 541-6.

Jones TS, Allen DM, Onorato IM, Petersen LR, Dondero TJ, Pappaioanou M. HIV seroprevalence surveys in drug treatment centers. *Public Health Rep* 1990;105:125-30.

Prevots DR, Allen DM, Lehman JS, Green TA, Petersen LR, Gwinn M. Trends in human immunodeficiency virus seroprevalence among injecting drug users entering drug treatment centers, United States, 1988-93. *Am J Epidemiol* 1996; 143:733-42.

Adolescent Medicine Clinics

Lindegren ML, Hansen C, Miller K, Byers RH, Onorato IM. Epidemiology of human immunodeficiency virus infection in adolescents, United States. *Pediatr Infect Dis J* 1994;13:525-35.

Sweeney P, Lindegren ML, Buehler JW, Onorato IM, Janssen RS. Teenagers at risk of human immunodeficiency virus type 1 infection. *Arch Pediatr Adolesc Med* 1995;149:521-8.

Wendell DA, Onorato IM, McCray E, Allen DM, Sweeney PA. Youth at risk: sex, drugs, and human immunodeficiency virus. *Am J Dis Child* 1992;146: 76-81.

Job Corps Entrants

Conway GA, Epstein MR, Hayman CR, et al. Trends in HIV prevalence among disadvantaged youth: survey results from a national job training program, 1988 through 1992. *JAMA* 1993;269:2887-9.

St. Louis ME, Conway GA, Hayman CR, Miller C, Petersen LR, Dondero TJ. Human immunodeficiency virus infection in disadvantaged adolescents: findings from the US Job Corps. *JAMA* 1991;266:2387-91.

Valleroy LA, MacKellar DA, Karon JM, Janssen RS, Hayman CR. HIV infection in disadvantaged out-of-school youth: prevalence for U.S. Job Corps entrants, 1990 through 1996. *J Acquired Immune Defic Syndr Hum Retrovirol* 1998;19:67-73.

Applicants for Military Service

Burke DS, Brundage JF, Goldenbaum M, et al. Human immunodeficiency virus infections in teenagers: seroprevalence among applicants for military service. *JAMA* 1990;263:2074-7.

Brundage JF, Burke DS, Gardner LI, et al. Tracking the spread of the HIV infection epidemic among young adults in the US: results of the first four years of screening among civilian applicants for military service. *J Acquir Immune Defic Syndr* 1990;3:1168-80.

Appendix

Survey of Childbearing Women

The Survey of Childbearing Women (SCBW) was conducted from 1988 through 1995 in collaboration with CDC, the National Institute of Child Health and Human Development, and state and territorial health departments. This unlinked survey, which was concluded at the end of 1995, measured the prevalence of HIV infection among women who gave birth to live infants in participating states and territories of the United States.

Maternal antibodies, including antibodies to HIV, cross the placenta during pregnancy and are present in the blood of a newborn at approximately the same concentration as in the mother. In the SCBW, residual dried blood specimens that are routinely collected on filter paper from newborn infants for metabolic screening programs were tested for HIV antibody after the removal of all personal identifiers. Data from the population-based SCBW can be compared with other national health data, such as acquired immune deficiency syndrome (AIDS) surveillance data, to describe the dynamics of the HIV epidemic among women of reproductive age.

The last full year of data collection for the SCBW was 1994; partial data were available for 1995. Prevalence rates were generally higher in the Northeast and in the South for both years (Tables 4 and 5; Figures 12 and 13). The collection of race/ethnicity data differed by state. For states that reported race/ethnicity data for 1994, prevalence rates were consistently higher among blacks than among whites or Hispanics (Figure 14).

Table 4. Survey of Childbearing Women: number of specimens tested and HIV prevalence, by state or territory, 1994

State of birth	Months data collected	Specimens tested	% Positive
Alabama	12	57,710	0.12
Alaska	12	10,255	0.01
Arizona	12	64,758	0.04
Arkansas	12	32,682	0.06
California	3	141,983	0.07
Colorado	12	52,195	0.05
Connecticut	12	44,201	0.21
Delaware	12	10,807	0.26
District of Columbia ¹	12	14,184	0.75
Florida	6	85,026	0.46
Georgia	12	126,248	0.20
Hawaii	12	15,406	0.06
Idaho ²	_	_	_
Illinois	3	46,195	0.10
Indiana	6	39,564	0.05
lowa	12	36,062	0.03
Kansas	12	36,096	0.03
	12	48,949	0.04
Kentucky Louisiana	12		0.24
Maine	12	62,153 14,299	0.02
	12		0.35
Maryland	12	68,576	
Massachusetts		81,511	0.20
Michigan	12	134,486	0.04
Minnesota	12	62,626	0.04
Mississippi	12	37,061	0.15
Missouri	12	74,902	0.05
Montana	12	10,634	0.02
Nebraska ²			
Nevada	12	23,603	0.05
New Hampshire	12	13,983	0.07
New Jersey	4	28,390	0.35
New Mexico	12	26,990	0.01
New York	12	272,058	0.52
North Carolina	12	95,123	0.16
North Dakota ²	_	· —	_
Ohio	6	78,976	0.08
Oklahoma	12	43,963	0.02
Oregon	12	43,194	0.03
Pennsylvania	6	72,234	0.16
Puerto Rico	12	61,179	0.47
Rhode Island	12	14,096	0.09
South Carolina	12	48,236	0.22
South Dakota ²		40,200	——————————————————————————————————————
			0.10
Tennessee			
Texas	9	213,241	0.11
Utah	12	36,631	0.02
Vermont ²			_
Virginia	12	88,283	0.12
Washington	12	70,442	0.04
West Virginia	12	21,509	0.05
Wisconsin	12	65,100	0.04
Wyoming	12	5,670	0.00
, 5.11119	1 4	5,570	0.50

¹ Data for fourth quarter of 1994 are incomplete.

² Not in Survey of Childbearing Women.

Table 5. Survey of Childbearing Women: number of specimens tested and HIV prevalence, by state or territory, 1995

State of birth ¹	Months data collected	Specimens tested	% Positive
Alabama	4	18,248	0.09
Alaska	12	8,798	0.02
Arizona	12	74,541	0.03
Arkansas	12	32,241	0.07
California	3	135,991	0.07
Colorado	12	48,062	0.05
Connecticut	9	32,432	0.18
Delaware	12	10,809	0.25
District of Columbia	0	—	—
Florida	6	65,220	0.41
Georgia	5	45,070	0.19
Hawaii	8	8,494	0.06
Idaho ²	—	—	—
Illinois	3	45,468	0.13
Indiana	6	41,272	0.06
lowa	12	34,611	0.01
Kansas	3	8,570	0.05
Kentucky	12	45,761	0.02
Louisiana	12	51,257	0.25
Maine	12	10,634	0.02
Maryland	12	63,751	0.30
Massachusetts	8	46,087	0.15
Michigan	4	65,689	0.04
Minnesota	12	61,243	0.04
Mississippi	7	16,001	0.15
Missouri Montana Nebraska ² Nevada New Hampshire	2 12 — 12 12	10,529 — 22,081 13,906	0.01 0.05 0.01
New Jersey New Mexico New York North Carolina North Dakota ²	4 0 12 2	28,562 — 265,347 —	0.30 — 0.46 —
Ohio	6	75,239	0.07
Oklahoma	3	10,478	0.04
Oregon	12	39,393	0.05
Pennsylvania	3	33,664	0.15
Puerto Rico	5	22,975	0.34
Rhode Island	12	13,430	0.12
South Carolina	12	49,276	0.22
South Dakota ²	—	—	—
Tennessee	7	30,441	0.14
Texas	4	88,658	0.09
Utah	3	8,621	0.01
Vermont ²	—	—	
Virginia	8	58,708	0.10
Washington	6	23,505	0.05
West Virginia	4	6,725	0.00
Wisconsin	6	18,454	0.04
Wyoming	5	2,297	0.00

 $^{^{\}scriptsize 1}$ States with less than 3 months of collected data not analyzed.

² Not in Survey of Childbearing Women.

Figure 12. HIV prevalence among childbearing women, 1994

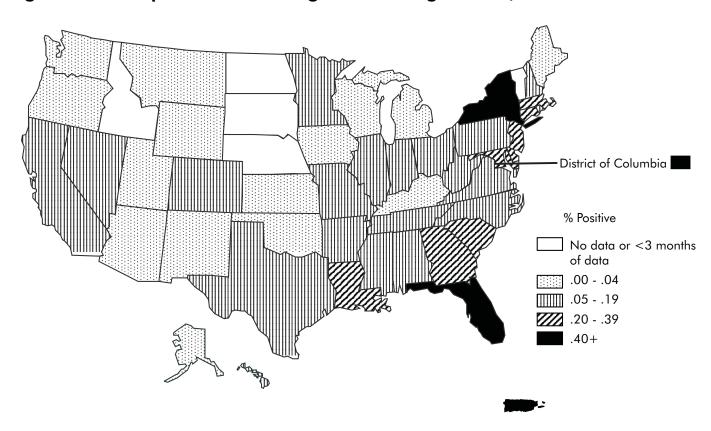


Figure 13. HIV prevalence among childbearing women, 1995

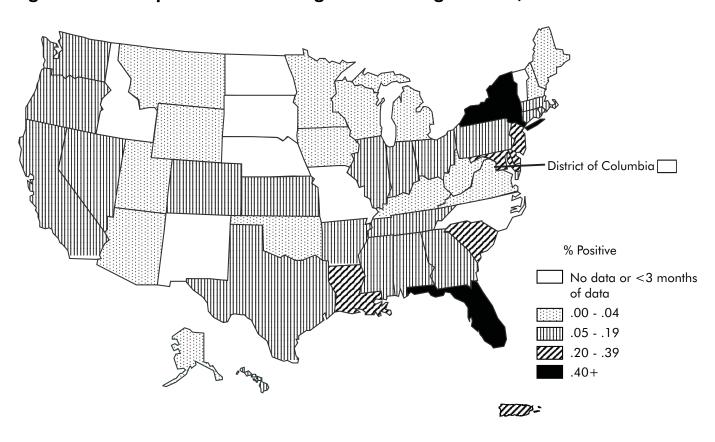
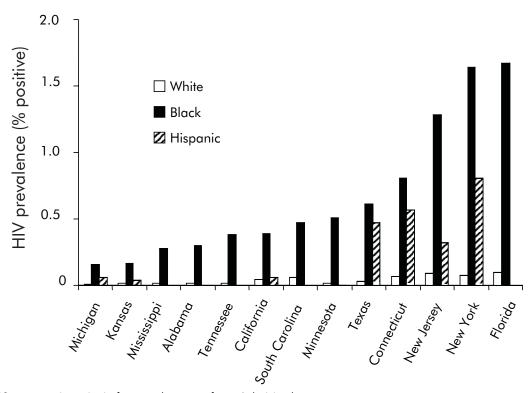


Figure 14. HIV prevalence among childbearing women, by race and state*, 1994



^{*}States meeting criteria for completeness of race/ethnicity data

Suggested Readings

Davis SF, Byers RH Jr., Lindegren ML, Caldwell MB, Karon JM, Gwinn M. Prevalence and incidence of vertically acquired HIV infection in the United States. *JAMA* 1995;274:952-5.

Davis SF, Rosen DH, Steinberg S, Wortley PM, Karon JM, Gwinn M. Trends in HIV prevalence among childbearing women, United States, 1989-1994. *J Acquir Immune Defic Syndr Hum Retrovirol* 1998;19:158-64. Gwinn M, Pappaioanou M, George R, et al. Prevalence of HIV infection in childbearing women in the United States. *JAMA* 1991;265:1704-8.

Pappaioanou M, George RJ, Hannon WH, et al. HIV seroprevalence surveys of childbearing women: objectives, methods, and uses of the data. *Public Health Rep* 1990;105:147-52.

Wortley PM, Fleming PL. AIDS in women in the United States. *JAMA* 1997;278:911-6.

Sentinel Hospital Surveillance System for HIV Infection

The Sentinel Hospital Surveillance System was established in 1986 to detect and monitor HIV prevalence in populations at acute-care hospitals in metropolitan areas of the United States. The survey focused on persons treated at participating hospitals, including outpatient and emergency services, for medical conditions unrelated to HIV infection or major HIV risk behaviors. The sentinel hospital study concluded at the end of 1995.

Hospitals participated in the Sentinel Hospital Surveillance System on the basis of responses to a request for proposals issued by CDC and thus were not a representative sample of all hospitals in the United States. Hospitals had participated in a previous phase of the Sentinel Hospital Surveillance System for HIV infection and met the definition for high HIV prevalence among hospital patients in 1990-1991 (one or more cases of newly diagnosed AIDS per 1000 patients

discharged per year). Serum specimens that remained after clinical testing of inpatients and outpatients were systematically selected to meet quotas based on the distribution of age and sex in the U.S. population. The data presented in this report exclude results of tests of blood specimens from persons whose hospital visits were specifically for conditions associated with HIV infection, such as AIDS, or related to considerably increased risk for exposure to HIV infection, such as hemophilia or drug overdose.

HIV prevalence rates were higher among males than among females for whites, blacks, and Hispanics at hospitals that participated in the survey during 1994. For males and females, overall rates were higher for blacks than for whites. HIV prevalence differed by region (Table 6).

These patterns persisted during 1995. Prevalence rates among males were higher at nearly all participating hospitals. Rates increased in the Northeast from 1994 to 1995 for all race/ethnicity groups for males and also for white and black females (Tables 6 and 7).

Table 6. Sentinel Hospital Surveillance System for HIV Infection: prevalence among patients, by region, sex, and race/ethnicity, 1994

% Positive

Hospitals by region		Male			Female	
	White	Black	Hispanic	White	Black	Hispanic
Northeast						
1	_	11.7	8.0	_	5.8	5.1
2	2.4	5.6	1.4	0.0	3.4	1.2
3	3.0	5.7	1.5	2.2	5.1	2.3
4	6.1	4.3	5.8	2.4	2.0	2.9
5	0.9	1.4	0.2	0.2	1.2	_
Midwest						
6	0.9	1.6	_	0.4	0.5	
7	0.0	3.4	_	0.8	1.6	
8	3.4	5.9	0.9	1.0	1.3	1.8
South						
9	1.0	5.3	_	0.9	3.7	
10	0.9	4.5	_	0.4	4.1	
11	3.0	5.7	3.0	1.6	6.4	1.4
12	1.2	6.1	_	1.0	2.7	
13	4.3	9.2	_	0.3	3.4	_
West						
14	1.2	4.0	1.8	0.2	1.2	0.0

Table 7. Sentinel Hospital Surveillance System for HIV Infection: prevalence among patients, by region, sex, and race/ethnicity, 1995

% Positive

		Male			Female	
Hospitals by region	White	Black	Hispanic	White	Black	Hispanic
Northeast						
1	_	11.7	9.6	_	6.8	5.9
2	2.9	4.0	3.3	5.9	2.8	0.0
3	4.3	9.1	9.5	4.3	5.1	0.9
4	5.4	6.2	6.7	1.7	3.8	2.5
5	0.9	4.5	_	0.6	2.1	_
Midwest						
6	1.0	2.0	_	0.0	1.0	
7	1.5	4.0	_	1.4	1.2	
8	1.9	6.1	4.0	1.3	1.9	1.5
South						
9	1.2	6.5	_	0.5	3.1	
10	1.0	5.7	_	0.6	2.2	
11	2.2	4.0	2.5	1.8	5.9	1.5
12	2.0	5.7	_	0.6	3.6	_
13	1.5	5.2	1.1	0.0	2.0	0.0
West						
14	0.7	5.5	1.0	0.2	0.8	0.2

Suggested Readings

Chin KM, Sidhu JS, Janssen RS, Weber JT. Invasive cervical cancer in human immunodeficiency virus-infected and uninfected hospital patients. *Obstet Gynecol* 1998;92:83-7.

Janssen RS, St Louis ME, Satten GA, et al. HIV infection among patients in U.S. acute care hospitals: strategies for the counseling and testing of the hospital patients. *N Engl J Med* 1992; 327:445-52.

St Louis ME, Olivo N, Critchley S, et al. Methods of surveillance for HIV infection at U.S. sentinel hospitals. *Public Health Rep* 1990;105:140-6.

Trepka MJ, Davidson AJ, Douglas JM Jr. Extent of undiagnosed HIV infection in hospitalized patients: assessment by linkage of seroprevalence and surveillance methods. *Am J Prev Med* 1996;12: 195-202.