
The Impact of Sexually Transmitted Diseases on Minority Populations

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Synopsis

Sexually transmitted diseases (STD) are more prevalent among some minority populations in the

United States than they are among the white majority. Primary and secondary syphilis occurs 45 times as often among non-Hispanic blacks as among non-Hispanic whites and 13 times as often among Hispanics as among non-Hispanic whites, according to morbidity reports received in 1988 by the Centers for Disease Control. Gonorrhea is reported more commonly among some minorities, with 1988 rates per 100,000 population being 54 for whites, 1,801 for blacks, and 201 for Hispanics.

The reasons for the higher incidence of STD among some minorities are unknown. Data on racial differences in behavior and disease susceptibility are meager and do not account for the observed differences. Poverty, which is more common among some minorities than among the white majority, is closely associated with the prevalence of STD and may be a link between membership in a minority population and an increased risk.

THE INCIDENCE of some sexually transmitted diseases (STD) is much higher in some minority groups in the United States than in the white population. For example, although non-Hispanic blacks made up 11.5 percent of the U.S. population in the 1980 census, in 1988 they accounted for 76 percent of the reported primary or secondary syphilis cases and 78 percent of the reported gonorrhea cases. Hispanics, while 6.4 percent of the population, accounted for 12 percent of the reported cases of syphilis, and 5 percent of the cases of gonorrhea (table 1). Non-Hispanic whites, 80 percent of the population, accounted for 12 percent of the reported cases of syphilis and 16 percent of the gonorrhea cases.

The high STD rates for some minorities in the 1980s were once experienced by whites. In 1947, the incidence of primary and secondary syphilis among civilians was 75.6 per 100,000, with rates of 36.9 for whites and 404.9 for blacks. In 1984, the incidence was much lower for both races, being 3.1 for whites and 41.7 for blacks. But the rate for

blacks never was as low as the rate for whites. The rate for blacks has recently increased, while the rate for whites has remained low. Thus, the higher rates of syphilis among minorities reflect a failure to attain the same level of control of STD among minorities that has been achieved among whites.

Minority status has traditionally been recognized as a risk factor for STD (1). Many of the traditional STD risk factors appear to be correlates of the probability of encountering an infected partner, while others are related to the probability of infection if exposed, or the probability of disease if infected. Demographic variables that are linked to STD in terms of coincidental association with sexual behavior, or disease prevalence, may be most accurately referred to as risk markers or risk indicators. Other variables, such as sexual behaviors, or health care behaviors, are directly related to the probability of exposure to STD, to infection following exposure, or to complications if infected, and can be referred to as true risk factors. Presently there is no evidence that minority status is a

true risk factor; however, it appears to be a risk marker.

Magnitude of the Problem

The disparities between the rates of STD among minorities and the white majority vary for different diseases. The most striking difference is between the rates of reported primary and secondary syphilis in whites and blacks (table 2). Some of the difference may be caused by reporting bias, because blacks are more likely to seek treatment in public clinics, where reporting is thought to be more complete than in private clinics. The differences in incidence rates for gonorrhea and acquired immunodeficiency syndrome (AIDS) among whites and blacks are striking, but the same caution regarding reporting bias applies.

Incidence by Race and Ethnicity

Estimating race-specific rates. In addition to the possibility of error from underreporting, calculating race-specific rates is complicated by the incompatibility between the race and ethnicity classifications used in STD morbidity reporting and those used in census reporting. In STD morbidity reports, Hispanics are not identified by race, such as black or white. In census figures, however, Hispanics are identified by race and included in totals for their race. The differing classification schemes may be associated with differing criteria for classifying persons as Hispanics.

We use 1980 census data on race and ethnicity, since no more recent counts of the non-Hispanic black and non-Hispanic white populations are available.

Syphilis. In 1988, the rate of reported primary and secondary syphilis for non-Hispanic blacks was 45 times the rate for non-Hispanic whites, while the rate for Hispanics was 13 times the rate for non-Hispanic whites (table 2). Although reporting is more complete for syphilis than for any other STD, there may be some underreporting of one or more racial or ethnic groups, which could lead to erroneous estimates of the ratios between rates for different groups.

The potential bias of surveillance systems is avoided by a stratified probability cluster survey, such as the Second National Health and Nutrition Examination Survey (NHANES II), conducted by the National Center for Health Statistics in the period 1976-80. The survey found a ratio of 5.7 to

Table 1. Percent distribution of the U.S. population in 1980 and reported cases of primary and secondary syphilis and gonorrhea in 1988, by race or ethnicity

Characteristic	White	Black	Hispanic	Other
U.S. population	79.7	11.5	6.4	2.3
Syphilis	11.6	75.8	12.1	0.5
Gonorrhea	16.1	78.2	4.9	0.8

SOURCE: 1980 census, and Centers for Disease Control, Center for Prevention Services, Division of Sexually Transmitted Diseases

1 between the seropositivity rates of blacks and whites (2). However, the two ratios cannot be readily compared, since the NHANES II survey provides an indicator of the prevalence of untreated or recently treated syphilis, while the morbidity data provides an indicator of the annual incidence of diagnosed syphilis.

The incidence of syphilis is increasing overall, but when case numbers are examined by racial or ethnic group, the only persistent increase is among blacks (figure 1). Rates among Hispanics increased in the period 1985-87. For whites, the incidence of reported syphilis is decreasing, largely because of a declining rate in males (3).

Gonorrhea. Gonorrhea reporting is less complete than syphilis reporting. Reporting by public clinics, where most gonorrhea cases are treated, is nearly complete, but private practitioners may fail to report more than half the cases they treat (4). Race and ethnicity of the patient have not been reported for a substantial percentage of cases (17 percent in 1988). In 1988, the incidence rate (per 100,000 persons) of gonorrhea among non-Hispanic whites was 54, while the rate for non-Hispanic blacks was 1,801, 34 times higher. The rate for Hispanics was 201, 4 times higher than for non-Hispanic whites (table 2). Unlike syphilis, gonorrhea incidence is declining in this country. Most of the decrease is among whites; the incidence in blacks and Hispanics has not changed much recently (figure 2).

AIDS. The epidemiology of AIDS and of human immunodeficiency virus (HIV) infection is complicated by the fact that the virus is transmitted sexually as well as by transfusion of blood and blood products, and the sharing of needles and syringes by intravenous (IV) drug users. Despite variations in routes of infection, the disproportionately higher cumulative incidence of AIDS among blacks and Hispanics is seen in each

Table 2. Incidence¹ and ratios² for primary and secondary syphilis, gonorrhea, and AIDS, among whites, blacks, and Hispanics in the U.S. population

Disease	U.S. population		Whites, not Hispanic		Blacks, not Hispanic		Hispanic	
	Rate	Ratio	Rate	Ratio	Rate	Ratio	Rate	Ratio
Syphilis ³	17.9	1.0	2.5	0.1	113.7	6.4	32.3	1.8
Gonorrhea ³	321.4	1.0	53.7	0.2	1800.7	5.6	201.1	0.6
AIDS ⁴	43.0	1.0	31.5	0.7	103.2	2.4	86.7	2.0

¹ Cases per 100,000 population, using 1980 census data for the denominators.

² Ratio of the incidence rate of the racial or ethnic category to the incidence rate of the U.S. population.

³ Annual, 1988.

⁴ Cumulative, through June 1989.

SOURCE: Syphilis and gonorrhea statistics, Centers for Disease Control, Center for Prevention Services, Division of Sexually Transmitted Diseases. AIDS statistics, CDC (MMWR 38: 561-563, Aug. 18, 1989).

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type of exposure category, except those associated with hemophilia (5).

An analysis of reported cases of AIDS among adults as of April 7, 1987, excluding cases associated with IV drug use, showed a cumulative incidence per million of 435 for non-Hispanic black men and 427 for Hispanic men; the rate for non-Hispanic white men was 255 (6). In women, cumulative incidence of non-IV-drug related AIDS was 8.1 times higher among blacks than whites and 6.5 times higher among Hispanics than whites.

Hepatitis B. Hepatitis B is parenterally transmitted among IV drug users (7). Not all hepatitis B infections are reported, in part because many infected persons are asymptomatic. The U.S. Navy maintains a passive surveillance system for hepatitis among active duty Navy and Marine Corps personnel. A review of 327 cases of hepatitis B reported during 1984 and 1985 revealed a significant difference in cumulative rates (per 100,000 persons) between whites, 34, and blacks, 63 (8). Since acute disease is often unreported (9), serosurveys are particularly revealing. Serological evidence of past or present hepatitis B infection was found more commonly among blacks (13.7 percent) than among whites (3.2 percent) in NHANES II (10). The relative proportion of sexual

to parenteral transmission in the two races is not known.

Herpes simplex virus type 2. Herpes simplex virus type 2 (HSV2), the agent that causes genital herpes, is transmitted mainly through sexual contact. A seroepidemiologic survey undertaken as part of NHANES II compared the prevalence of antibodies to HSV2 in blacks and whites. Antibodies were found in less than 1 percent of the children ages 1 through 14 years, but the prevalence of antibodies increased with age after 14 years for both races. The most rapid increase was for black women, reaching 80 percent by ages 60 through 74 years. The prevalence among black men reached 46 percent by the same age. In contrast, HSV2 antibody prevalence in whites of both sexes never exceeded 25 percent. Overall, the prevalence of HSV2 antibody in persons 15 through 74 years of age was 41 percent for blacks and 13 percent for whites (11).

Chlamydia trachomatis. Chlamydia is the most common STD, with an estimated annual incidence of 4 million cases (12). Infection can cause cervicitis, urethritis, and pelvic inflammatory disease (PID). No data exist on the relative frequency of genital *C. trachomatis* infections in different racial groups in the United States. However, in one study of 500 women visiting a university health service gynecologist, chlamydia was more commonly found among the black women screened (9 of 43, or 21 percent), than among the white women (12 of 388, or 3 percent). Most of the women studied had come for family planning services or routine examinations. Since no information was provided on the reasons for consulting the gynecologist, no conclusions can be drawn about the relative prevalence of chlamydia among blacks and whites in the whole population of female students (13).

PID. Pelvic inflammatory disease is a syndrome caused by sexually transmitted pathogens. PID is more common among nonwhite women than among white women in the United States. Rates of hospitalization of women ages 15 through 44 years for PID in the period 1975–81 were 4.3 per 1,000 for whites and 10.6 for non-whites (14). PID cases that are treated on an outpatient basis also are more common among blacks than whites. The National Survey of Family Growth, Cycle III, 1982, sponsored by the National Center for Health Statistics, showed that 16.7 percent of black women ages 15 through 44 years reported having received ambulatory treatment for PID, compared with 8.8 percent of white women (15).

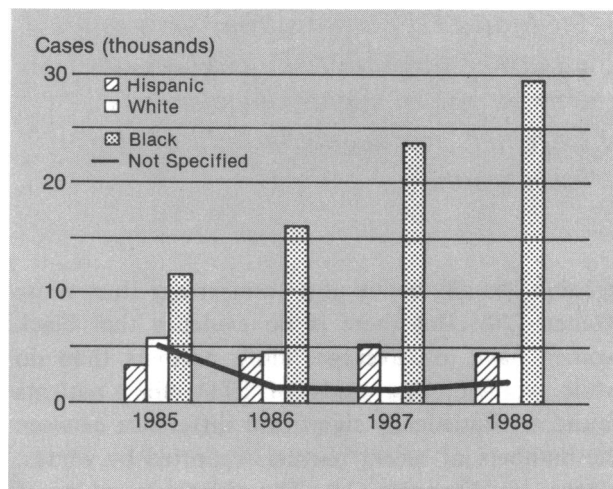
Ectopic pregnancy. Ectopic pregnancy occurs more commonly in women whose reproductive organs have been damaged by STD. The rate of ectopic pregnancy increased from 1970 to 1985. During that time, the rate among nonwhite women was consistently higher than the rate among white women; for the years 1982–85, the rate among non-whites (16.7 per 1,000 reported pregnancies) was 1.3 times the rate for whites (13.3) (16).

Rate Differences Among Groups

Biological differences. Few studies have explored the possibility of racial differences in susceptibility to STD. In one study of gonorrhea infection among U.S. naval personnel in Asia, the calculated risk of acquisition per exposure was 0.19 percent for whites and 0.53 for blacks, assuming that both were exposed to prostitutes with a 17 percent prevalence of infection, the rate found among the 511 prostitutes screened (17). However, the black and white personnel were not exposed to exactly the same population of prostitutes. Another study found an apparent association between blood type B and gonorrhea infection among black women (18). Type B blood is more common among Americans of African descent (17 percent) than among Americans of Western European descent (8 percent) (19). The finding has been neither confirmed nor contradicted in any subsequent published study.

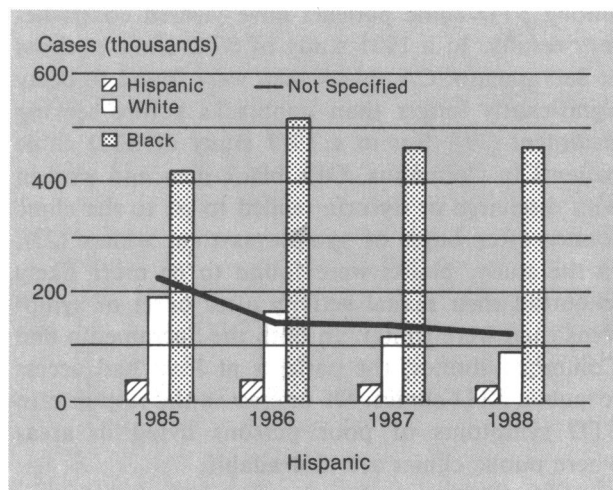
Behavioral differences. Two aspects of behavior could potentially contribute to the differences in STD rates among racial and ethnic groups. The first aspect is differences in sexual behavior, which could be differences in frequency of sexual contact, sexual practices, partner choice, or numbers of

Figure 1. Trends in syphilis incidence in the United States, by racial and ethnic group



SOURCE: Centers for Disease Control, Center for Prevention Services, Division of Sexually Transmitted Diseases

Figure 2. Trends in gonorrhea incidence in the United States, by racial and ethnic group



SOURCE: Centers for Disease Control, Center for Prevention Services, Division of Sexually Transmitted Diseases

partners. The second is differences in medical care-seeking behavior, which could influence STD rates because those who are not treated promptly may be more likely to infect others. Information on either aspect is meager and contradictory.

Little is known about the sexual behavior of Americans in general, and less about sexual behavior differences among racial and ethnic groups. In particular, almost nothing is known about partner choice, an aspect of sexual behavior that is a most important determinant of STD risk. It is known from population surveys, that black women tend to

'Regardless of whether syphilis facilitates HIV acquisition, or is only a marker for high risk activities, the current rise in syphilis incidence is extremely worrisome in light of this association.'

become sexually active at a younger age than white women (20). But there is no evidence that black women have, on average, more partners than do white women. One study of STD clinic patients found no statistically significant difference between the numbers of recent partners reported by whites, blacks, or Hispanics (21). The average numbers of sexual partners may be a poorer correlate of the incidence of STD in a population than the percentage of the population with a very high number of sexual partners.

Two studies of medical care-seeking behavior among STD clinic patients have yielded contradictory results. In a 1971 study of STD clinic patients in Sacramento, CA, black men were found to delay significantly longer than nonblacks before seeking treatment (21). But in a 1977 study of STD clinic patients in Columbus, OH, black men and women with discharge or dysuria tended to go to the clinic sooner after onset of symptoms than whites (22). In the study, blacks were found to be more likely to curtail their sexual activity after onset of symptoms than were whites. In both the Sacramento and Columbus studies, the patients at least had access to public STD clinics. Of interest is the response to STD symptoms of poor persons living in areas where public clinics are unavailable.

Correlation of Incidence and Poverty

It has long been recognized that STD is more common among the poor than the wealthy (23), but the reason remains as unclear (24) as the reason for morbidity and mortality rates in general increasing with decreasing socioeconomic status (25). Poverty is more common among some minority populations, particularly those with high STD rates, than for the white majority. Some data suggest that economic differences account for at least part of the differences in STD rates. Being poor was a risk factor for hepatitis B seropositivity even after controlling for race in NHANES II (10). In the NHANES II syphilis seroprevalence study, the

relative prevalence of syphilis seroreactivity among blacks (including Hispanic blacks) as compared with whites (including Hispanic whites) was 4.1 for persons with incomes less than \$6,000, but 1.2 for those with incomes of more than \$15,000 (2).

Predictor of Heterosexual HIV Transmission

Part of the great concern about the increase in syphilis incidence stems from the association between syphilis and HIV infection. To date, five published studies have shown a high correlation between HIV and syphilis seropositivity in STD clinic patients (26-30). A total of 724 of 11,528 persons screened were seropositive for syphilis. Of these, 157, or 22 percent, were also seropositive for HIV. In these studies, the relative risk for HIV seropositivity was 6.8 (95 percent confidence interval is 5.7 to 8.1 percent) for persons seropositive for syphilis. Regardless of whether syphilis facilitates HIV acquisition, or is only a marker for high risk activities, the current rise in syphilis incidence is extremely worrisome in light of this association.

Conclusions

Clearly, STD occur more commonly among members of some minority groups than among whites in the United States. Serological evidence of past infection with herpes simplex virus type 2, hepatitis B, and syphilis is at least three times as common among blacks as whites, and new infections with gonorrhea and syphilis occur much more frequently among blacks than among non-Hispanic whites, possibly as much as 30 times more. The rate ratios can be compared with some other measures of black and white health differences. The rate ratio for homicide death is 5.2 (31), residential fire death is 3.2 (31) neonatal death is 2.0 (32), infant mortality is 2.0, (32) and maternal mortality is 3.9 (32).

Sexually transmitted diseases, drug addiction, violent crime, and neonatal mortality disproportionately affect some minority populations. The reasons are not obvious and the remedy is not clear cut, but with the threat of heterosexual spread of HIV in our inner cities, public health authorities in the 1990s need to place added emphasis on STD prevention, diagnosis, and treatment for disadvantaged minority populations. They need to duplicate for minorities the revolution in STD control that was achieved in the white population of the United States in the first half of this century.

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