

# Risks for HIV Infection Among Persons Residing in Rural Areas and Small Cities -- Selected Sites, Southern United States, 1995-1996

The southern region of the United States \* accounts for the largest proportion (34%) of the 641,086 acquired immunodeficiency syndrome (AIDS) cases reported through 1997 and for 54% of the 58,689 AIDS cases among persons residing in rural areas (CDC, unpublished data, 1998). This report describes characteristics of persons infected with human immunodeficiency virus (HIV) who reside in rural areas and small cities of the southern United States and indicates that, before infection, there was a low prevalence of perceived risk.

The Supplement to HIV/AIDS Surveillance Project (SHAS) interviews persons who are reported with HIV infection or AIDS to state health departments. Participants must be aged greater than or equal to 18 years and medically able to complete the interview (1). Interviews were conducted during 1995-1996 in selected rural areas and small cities \*\* of four southern states that participate in SHAS (Delaware, Florida, Georgia, and South Carolina). In all four states, persons with AIDS who met the eligibility criteria were identified from AIDS case reports and were invited, through their health-care provider, to participate; persons with HIV infection but not AIDS were recruited at clinics where they received HIV care. Of all persons reported with AIDS during 1995-1996 from the four states, the percentages who resided in rural areas and small cities at the time of AIDS diagnosis were as follows: Delaware, 19%; Florida, 9%; Georgia, 18%; and South Carolina, 44%.

The survey instrument included questions about sociodemographics, and, for the time before HIV infection was diagnosed, perceived risk for infection, sexual behavior, and substance use. Category of exposure to HIV was determined from the case report form or based on the interview data and assigned according to the CDC surveillance risk hierarchy (2).

## Sociodemographic Characteristics of Respondents

Of 956 persons who met all eligibility criteria, 608 (64%) completed the interview (AIDS, 58%; HIV, 42%); 348 (36%) refused or could not be located. Persons who completed the interview were more likely than nonrespondents to have progressed to AIDS (71% versus 52%,  $p=0.001$ ). Adjusting for disease status, respondents did not differ from nonrespondents by sex, race/ethnicity, and category of exposure to HIV. Of the 608 persons interviewed, 403 (66%) resided in Georgia; 89 (15%), Florida; 67 (11%), South Carolina; and 49 (8%), Delaware.

Most (66%) respondents were men ([Table 1](#)). The median age for men was 36 years (range: 19-75 years) and for women was 33 years (range: 18-67 years). Most respondents were non-Hispanic black and of low socioeconomic status ([Table 1](#)). Sexual behavior was the most common risk for exposure to HIV (67% for men and 66% for women). Among men, the most common category of exposure was having sex with men (40%); for women, it was heterosexual contact with an at-risk or infected partner (66%) ([Table 1](#)).

## Risk Behaviors

Respondents were asked, "Before you found out you were infected with HIV or had AIDS, did you think you could become infected with HIV?"; 52% of men and 65% of women believed they could not get infected. The most common reasons were not knowing how HIV was spread (men: 33%, women: 29%), thinking that their sex partners were not infected (women: 35%, men: 27%), and thinking only persons who inject drugs or men who have sex with men are at risk for infection (women: 21%, men: 14%).

High-risk sexual and drug-use behaviors (e.g., exchanging sex for money or drugs, sex with an injecting-drug user, injecting drugs, and using crack cocaine) were common among both men and women ([Table 2](#)). However, among men, the prevalence of these behaviors was higher among those from small cities than from rural areas. Among women, there were few differences

by geographic area.

Crack cocaine use was higher among persons whose exposure category was injecting-drug use (65%) than among persons whose exposure category was heterosexual contact (35%;  $p=0.001$ ). Crack cocaine users were more likely than those who had not used crack cocaine to have exchanged sex for money or drugs (57% versus 15%;  $p=0.001$ ).

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## Editorial Note

Editorial Note: The findings in this report indicate that most respondents were exposed to HIV through sexual transmission and reported high-risk sexual behaviors (e.g., unprotected sex and exchanging sex for money or drugs). However, many respondents reported that, before learning of their infection, they had not known how HIV was spread and had not known their partners' risks for HIV. These findings emphasize the importance of sustained access to counseling and behavioral risk reduction programs for at-risk populations and HIV-infected persons in these geographic areas.

Sexually acquired HIV infection among rural residents has been linked to increased use of crack cocaine and the resultant exchange of sex for drugs (3). In this study, crack cocaine use was even more prevalent among persons whose mode of exposure was injecting-drug use than heterosexual contact. Other factors related to sexual transmission of HIV in these geographic areas are high rates of sexually transmitted diseases (STDs) and alcohol abuse (4).

Further research is needed to understand the differences in the number of cases and type of risk for HIV between residents of rural areas and small cities. These differences may explain the higher rates of AIDS among residents of small cities compared with residents of rural areas. However, the number and rate of AIDS cases in these areas are low compared with larger MSAs in the South.

Most respondents in this study were black, of low socioeconomic status

- reflecting in part the characteristics of residents of these areas -- and at risk for acquiring HIV through sexual contact. These characteristics are similar to other reports on AIDS in the rural South (4-7). The disproportionately high rate of HIV/AIDS among blacks may be a result of a higher prevalence of certain risk behaviors or a function of sexual networks in which the high prevalence of infection increases the likelihood of contact with an infected partner. The extent to which the prevalence of low socioeconomic indicators in this population are associated with having AIDS or having moved to a rural area that is economically depressed or both is unknown.

The findings in this report are subject to at least two limitations. First, HIV-infected persons may be reluctant to seek confidential HIV testing or disclose their risk behaviors because of confidentiality concerns or lack of anonymity (8). Second, because participants were recruited from selected states, the findings from this report may not be generalizable to other rural areas and small cities in the southeast or other areas in the United States.

This report highlights the need for HIV-education efforts in rural areas and small cities. Behavioral interventions can be effective in HIV prevention (9); however, programs that have been designed for urban areas will need to be adapted for use in rural areas. Routinely offering HIV counseling and testing at STD clinics, substance abuse treatment programs, and in prenatal care and other medical settings can reduce the number of missed opportunities for HIV prevention among persons at risk and help prevent further increases in HIV/AIDS in rural areas and small cities.

## References

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Alabama, Arkansas, Delaware, District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia. \*\* For this project, "rural" was defined as a nonmetropolitan statistical area (MSA) and small city as an MSA with a population of less than 250,000.

**Table\_1**

**Note:** To print large tables and graphs users may have to change their printer settings to landscape and use a small font size.

TABLE 1. Sociodemographic characteristics of persons with HIV/AIDS, by sex -- selected sites, Southern United States, 1995-1996

Characteristic	Men		Women	
	No.	(%)	No.	(%)
Disease status*				
AIDS	247	( 62)	107	( 52)
HIV infection	154	( 38)	100	( 48)
Race/Ethnicity*				
Non-Hispanic black	251	( 63)	176	( 85)
Non-Hispanic white	124	( 33)	23	( 11)
Other+	16	( 4)	8	( 4)
Education*				
>=12 years	258			
<12 years	142	(		
Employment status*				
Employed	100	( 25)	27	( 13)
Unemployed	301	( 75)	180	( 87)
Household income*				
<\$10,000	234	(		
>=\$10,000	165	(		
State of residence*				
Delaware	41	( 10)	8	( 4)
Florida	67	( 17)	22	( 11)
Georgia	245	( 61)	158	( 76)
South Carolina	48	( 12)	19	( 9)
Exposure category				
Men who have sex with men (MSM)	158	( 40)	--	--
Injecting-drug use (IDU)	62	( 16)	35	( 17)
MSM and IDU	24	( 6)	--	--
Heterosexual contact	105	( 27)	136	( 66)
Other&	47	( 12)	35	( 17)
Total@	401	(100)	207	(100)

\* p<0.05

+ Numbers for racial/ethnic groups other than black and white were too small for meaningful analysis.

& Includes no identified risk, blood transfusion, and hemophilia.

@ Columns may not add to total because of missing data.

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## Table\_2

**Note:** To print large tables and graphs users may have to change their printer settings to landscape and use a small font size.

TABLE 2. Risk behaviors of persons with HIV/AIDS, by sex -- selected sites, Southern United States, 1995-1996

	Men		Women	
	No.	(%)	No.	(%)
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Unprotected sex with opposite-sex partner*				
Yes	273	( 69)	202	( 98)
No	124	( 31)	5	( 2)
Unprotected sex with same-sex partner*				
Yes	174	( 44)	19	( 9)
No	223	( 56)	188	( 81)
Sex with injecting-drug user*				
Yes	79	( 20)	48	( 23)
No	91	( 23)	30	( 14)
Don't know	228	( 57)	129	( 62)
Sex with HIV positive partner*				
Yes	125	( 31)	90	( 43)
No	172	( 43)	63	( 30)
Don't know	101	( 25)	54	( 26)
STD+ visit during previous 10 years				
Yes	205	( 51)	113	( 55)
No	195	( 49)	94	( 45)
Gave money or drugs for sex*				
Yes	108	( 27)	10	( 5)
No	286	( 73)	196	( 95)
Received money or drugs for sex*				
Yes	48	( 12)	52	( 25)
No	348	( 88)	155	( 75)
Possible problem with alcohol				
Yes	141	( 35)	63	( 30)
No	260	( 65)	144	( 70)
Injected drugs				
Yes	62	( 16)	29	( 14)
No	334	( 84)	178	( 86)
Used crack cocaine				
Yes	150	( 37)	87	( 42)
No	251	( 63)	120	( 58)
Total&	401	(100)	207	(100)

\* p<0.05

+ Sexually transmitted disease.

& Columns may not add to total or 100% because of missing data.

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