

HIV Infection and AIDS in the Deep South

We examine epidemiological and demographic data documenting the HIV/AIDS epidemic in the Deep South region of the United States. These data document substantial increases in AIDS cases in the Deep South from 2000 to 2003. In contrast, other US regions are experiencing stable rates or small increases in new AIDS cases. Furthermore, the AIDS epidemic in the Deep South is more concentrated than in other regions among African Americans, women, and rural residents.

The Deep South also has some of the highest levels of poverty and uninsured individuals, factors that complicate the prevention and treatment of HIV infection. Further research is needed to determine the cause of the disproportionate rise in AIDS incidence and to develop effective means of preventing HIV infection and providing care of those infected in this region. (*Am J Public Health*. 2006;96:970–973. doi:10.2105/AJPH.2005.063149)

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THE US CENSUS BUREAU

defines the Southern region of the United States as encompassing 16 states and the District of Columbia (Delaware, Maryland, West Virginia, Virginia, North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Arkansas, Tennessee, Kentucky, Louisiana, Texas, Oklahoma, and Washington, DC)¹; the region extends from Delaware to Florida and from the East Coast to Texas. Six of these Southern states have demographically similar HIV/AIDS epidemics. These states (Alabama, Georgia, Louisiana, Mississippi, North Carolina, and South Carolina) also constitute the Deep South.² The Deep South is historically defined as those Southern states that actively promoted slavery and whose agricultural and economic base was in cotton.² This region is currently disproportionately affected by the HIV/AIDS epidemic. From 2000 to 2003, the number of new reported AIDS cases increased 35.6% in the Deep South, and only 4.0% in the other Southern states^{3,4} and 5.2% nationally (excluding the Deep South states). Incident AIDS cases decreased 0.4% in the Northeast, increased 1.7% in the Midwest, and increased 19.3% in the West, most of which was fueled by a 25.7% increase in California.^{3,4}

AIDS incidence rates are the most practical statistic to use for comparisons, because states are mandated to report AIDS cases; the reporting of HIV infection is voluntary so not all states provide this data. However, tracking

new cases of HIV infection in addition to new AIDS cases is critical to defining the current epidemic because these 2 measures reflect different aspects of the epidemic. AIDS incidence includes individuals testing positive for the first time who meet the criteria for AIDS and previously diagnosed individuals who have progressed to AIDS. In contrast, the incidence of HIV infection includes individuals testing positive for HIV who do not meet the criteria for AIDS. HIV infection incidence trends among the 36 states that collected information on new HIV infection cases in 2003 suggest that the Deep South continues to be disproportionately affected by the spreading epidemic.⁵ In 2003, the rate of HIV infection per 100 000 population was 11.6 for the United States as a whole. In contrast, the rate of HIV infection per 100 000 was 14.7 for the Deep South, excluding Georgia. (Georgia was excluded because HIV reporting was initiated in Georgia in 2003 and the numbers were artificially low at 52 new cases.⁵)

Compared with other regions of the country, it is clear that the HIV/AIDS epidemic is spreading rapidly in the Deep South. Furthermore, the Deep South has some of the highest death rates from AIDS in the country. All 6 Deep South states are among the 15 states with the highest AIDS death rates per 100 000 population.^{4,5} Because of these factors, it is critical to acquire an understanding of the epidemic in the Deep South. This knowledge is a

necessary first step in determining effective methods for improving the situation.

HEALTH INDICATORS IN THE DEEP SOUTH

To better understand HIV/AIDS in the Deep South, it is important to examine the epidemic in the context of general health in this region. When compared with other areas of the United States, the Deep South ranks poorly on many health indicators in addition to AIDS incidence. For example, 3 of the 5 states with the highest death rate per 100 000 in 2001 were located in the Deep South (Louisiana, Mississippi, Alabama).⁵ Similarly, 3 of the 5 states with the highest diabetes prevalence per 100 population in 2002 (Mississippi, South Carolina, Alabama) and the highest stroke rate in 2001 (North Carolina, South Carolina, Mississippi) were in the Deep South.⁵ For heart disease deaths and deaths by firearms, 3 of the 10 states with highest rates in 2001 were located in the Deep South.⁵ Infant mortality and morbidity are also prevalent in the Deep South, as all 6 Deep South states were among the 10 states with the highest infant mortality in 2001, and all but 1 of the Deep South states (Georgia) were among the 10 states with the highest rates of preterm births in 2001.⁵ Finally, the Deep South has been particularly affected by sexually transmitted diseases (STDs). In 2002, the 5 states with the highest rates of gonorrhea were all in the Deep South

TABLE 1—Characteristics of the Deep South, Other Southern States (States Given Equal Weight), and All Other States: United States, 2000–2003

	Deep South, %	Other Southern States, %	All Other States, %
Black or African American	29.15	19.54	8.46
High-school graduate or higher	76.00	78.18	82.66
Bachelor's degree or higher	20.30	23.87	24.58
Unemployed	3.82	3.78	3.58
Families in poverty	12.32	10.62	8.45
Individuals in poverty	15.83	13.84	11.61
Without health insurance	15.88	14.78	13.53

(range 225 to 255 per 100 000 in 2002), and half the 10 states with the highest rates of chlamydia were in the Deep South.⁵ Four of the 10 states with the highest syphilis rates in 2002 were in the Deep South.⁵

DEMOGRAPHICS OF THE DEEP SOUTH VS OTHER US REGIONS

We used US Census data to compare the demographics of the Deep South states, including race, education, unemployment, poverty, and insurance status, with those of the rest of South and with those of the rest of the country. To calculate aggregate rates per region, state rates within a given region were averaged, giving each state equal weight. According to the 2000 Census, 35% of the African American population lives in the 6 Deep South states. Nationally, 12.3% of the entire US population is African American.⁶ The Deep South states' populations are, on average, 29.2% African American, whereas the rest of the South's population is 18.5% African American (Table 1).⁶ In general, the Deep South has lower rates of high school graduation; college completion;

and having health insurance than the rest of the South and the rest of the country.^{6,7} Additionally, the Deep South has higher rates of unemployment and poverty (for both individuals and families) than the rates for the rest of the South and the country.⁶ To determine whether there were differences between the characteristics of HIV-infected individuals in the Deep South and those reported at the national level, we compared data from the HIV Cost and Services Utilization Study (HCSUS),⁸ a national study of individuals receiving treatment for HIV/AIDS, with data from the Coping with HIV and AIDS in the Rural Southeast (CHASE) study of people living with HIV/AIDS in the Deep South.⁹ Although the national HCSUS study includes a sample of people living with HIV infection in the South, the study was not designed to provide regional estimates. Rather, comparisons must be made to the national estimates from the HCSUS study (e-mail communication with Samuel Bozzette, co-principal investigator of the HCSUS, December 15, 2003). The CHASE study was designed in 1998 to characterize the HIV/AIDS epidemic in the

Southeast, and included the 6 Deep South states because of their demographic similarities. These states are unique in that they have (1) population densities under 200 people per square mile,¹⁰ (2) populations that are more than 20% African American,⁷ (3) populations with African Americans constituting nearly 70% or more incident AIDS cases, and (4) populations with women constituting more than 33% of incident AIDS cases.¹¹ The CHASE study population was representative of the HIV-infected population in the Deep South in terms of the

percentage of females and African Americans in the study sample.

The CHASE sample was generally older than the HCSUS sample (75% of the CHASE sample was aged 35 years or older, vs 65% of the HCSUS sample), with a higher percentage of participants who were female (31% vs 23%) and non-Hispanic Black (63% vs 33%) (Table 2). Additionally, a higher percentage of CHASE participants were infected with HIV through heterosexual contact (43% vs 18%) and fewer were in the transmission category of

TABLE 2—Characteristics of HCSUS and CHASE Study Participants

	HCSUS (n=2864)	CHASE (n=611)
Age, y		
18–34	34	25
35–49	54	62
≥50	11	13
Gender		
Men	77	69
Women	23	31
Race/ethnic group		
Non-Hispanic White	49	31
Non-Hispanic Black	33	63
Hispanic	15	3
Other	3	3
Risk category		
Injection drug user	24	7
Men who have sex with men	49	36
Heterosexual contact	18	43
Other	9	14
Education		
High school or less	52	54
Some college or more	48	46
Employment status		
Employed	37	40
Unemployed	63	60
Private insurance		
Yes	32	24
No	68	76

Note. HCSUS = HIV Cost and Services Utilization Study; CHASE = Coping with HIV and AIDS in the Rural Southeast.

men having sex with men (36% vs 49%). A smaller percentage of CHASE participants were privately insured than HCSUS participants (24% vs 32%).

Psychiatric comorbidities may also be more prevalent among HIV-infected individuals in the Deep South. One study described a high prevalence of symptoms of mental illness (60%), substance abuse (32%), and co-occurring symptoms of mental illness and substance abuse (23%) in a sample of individuals receiving treatment for HIV infection at 2 infectious diseases clinics in North Carolina.¹² These rates are considerably higher than those found in other studies of the general population¹³ and in the HCSUS study.¹⁴ The Deep South has also experienced a higher incidence of rural HIV/AIDS cases. In 1999, 22.3% of new AIDS cases in the Deep South resided in nonmetropolitan areas compared with 7.85% in the other Southern states.^{15,16} In the North Central region, 9% of new AIDS cases occurred in nonmetropolitan areas; in the West, 4%; and in the Northeast, 3%.^{15,16} According to the 1990 Census, 42.2% of the Deep South population lived in rural areas, whereas 26.2% of the population in the other Southern states lived in rural areas.¹⁷ In the same year, the US population as a whole was 24.8% rural.¹⁷

THE DISPROPORTIONATE INCREASE IN HIV/AIDS IN THE DEEP SOUTH

Although little research has been published regarding the cause of the sharp increase in HIV/AIDS in the Deep South, there are a number of factors that likely influence HIV/AIDS

incidence in this region. The high levels of STDs in the Deep South offer some explanation for the higher incidence of AIDS in this region, as STDs have been consistently found to facilitate HIV transmission.^{18,19} Health experts cite characteristics of the South, including high levels of poverty and inconsistent availability and quality of health care services, as factors contributing to the higher rates of STDs.¹⁸ No studies have been identified that compared sexual risk behavior between the Deep South and other regions to assess whether this may be a contributing factor. However, several studies have noted no differences in sexual risk between the Southern region and other areas or between rural and urban areas.^{20,21}

In addition to contributing to higher rates of STDs, poverty and poor access to health care may also contribute to the disproportionate rates of HIV/AIDS and other diseases in the Deep South. Individuals living in poverty often do not have adequate access to health education, preventive services, and treatment, all of which may contribute to the incidence of disease. Furthermore, poverty has been associated with drug use and lack of drug treatment, which in turn may lead to transmission of HIV/AIDS.^{18,22} There is increasing evidence that the HIV/AIDS epidemic is currently concentrated in low-income communities, where African Americans are disproportionately represented.¹⁸ This is of particular concern in the Deep South, where the percentage of the population that is African American is the highest in the country. Half of African Americans live below 200% of the poverty line, and the number of people lacking health insurance among African Americans is 1.5 times that of

Whites.^{18,23} These factors may result in compromised access to medical services, which can influence infection with HIV and treatment of the infection. Even after control for poverty and health insurance status, African American race has been consistently associated with inequitable access to medical care, including antiretroviral medications.^{24–30}

The high levels of poverty experienced in the Deep South not only limit the ability of individuals to access health care but also limit the ability of states in the Deep South to allocate the resources necessary to provide adequate HIV/AIDS prevention and treatment. Providing prevention and treatment in the Deep South is further complicated by the fact that these states have a large proportion of their population living in geographically dispersed areas compared with the other Southern states.¹⁷ Rural areas often experience difficulty in acquiring health care professionals and preventive and treatment services, requiring rural residents to travel to urban areas for care.^{31–33} In addition, greater stigma related to HIV infection has been identified in rural areas,^{31,34,35} further complicating efforts to provide HIV/STD prevention and treatment.¹⁸

CONCLUSIONS

Epidemiological data from the Centers for Disease Control and Prevention identify a 21st-century trend of substantially increasing AIDS incidence in the Deep South of the United States. These gains are occurring as most other regions of the United States, including the rest of the Southern region, are experiencing stable rates or small increases in incident cases. Furthermore,

there are differences in the demographic characteristics of individuals living with HIV/AIDS in the Deep South including higher proportions of African Americans, women, and rural residents compared with individuals living with HIV/AIDS in other regions of the United States. In addition to differences in AIDS demographics and incidence, the Deep South has some of the highest rates of other diseases such as diabetes, stroke, and infant mortality. The Deep South also has some of the highest levels of STDs, poverty, and uninsured individuals, all of which may contribute to the greater increases in HIV/AIDS incidence in the Deep South.

The cause of the substantial increases in AIDS cases in the Deep South is likely multifaceted, including factors described here such as poverty and inadequate health infrastructures. However, if the causative factors were only poverty and lack of health infrastructures, we would expect to see similar rates of spread in some of the Midwestern states. There may be an association of disease with the unique history and culture of the Deep South. This history is tied to the definition of these states, which has possibly fostered a culture that facilitates the spread of disease through distrust of the healthcare system and a sense that people are born into social positions from which they cannot escape.³⁶ It is critical to examine all potential contributors to the spread of disease in the Deep South to identify the actual causes rather than making assumptions about the probable causes. This research is a necessary first step in developing effective methods to combat the HIV/AIDS epidemic in this region.

Failure to adequately confront this emerging crisis may result in further increases in AIDS incidence, deaths, and economic burdens in the Deep South states. ■

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S. Reif led the writing and preparation of the article and participated in compiling the statistical data. K. Lowe Geonnotti assisted in preparing the statistics for the article, conducted a relevant literature review, and assisted in the writing and editing process. K. Whetten provided conceptual leadership and assisted in preparing and editing the article. All authors participated in the interpretation of the epidemiological evidence and reviewed the final article.

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