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Comparison of HIV-Risk Behaviors and Demographics of Adolescents Tested or Not Tested for HIV Infection

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Synopsis

In a survey of 2,548 adolescents, 11.5 percent reported ever having had the human immunodeficiency virus (HIV) antibody test. Those who had been tested were significantly more likely to be male, black, and to reside in metropolitan areas than those who had not been tested. Tested adolescents were more than three times as likely to report having injected drugs and were more than twice as likely to have had sexual intercourse, had sexual intercourse at earlier ages, and with multiple partners. More than half of adolescents who had been HIV-tested had no reported risks for HIV infection. More than one-quarter of adolescents not tested reported at least one HIV risk factor. These data suggest the importance of discussing the HIV testing and counseling process within any HIV education program directed to adolescents.

Adolescents' risk for infection with the human immunodeficiency virus (HIV) is a growing concern in connection with the acquired immunodeficiency syndrome (AIDS) epidemic. Adolescents are seen as at increased risk for HIV infection because they engage in sexual intercourse more often and earlier than previous generations, are infected with sexually transmitted diseases at high rates, use alcohol and other drugs that often lead to high-risk behaviors, and use condoms inconsistently as a method of protection (*1–5*).

As a result of growing public awareness of AIDS and recent efforts by schools to implement HIV education programs, increasing numbers of adolescents are expected to seek HIV counseling and testing to determine their HIV status and to try to allay their fears, rational as well as irrational, of being infected. Although there is a growing body of research on the characteristics of adults who seek HIV antibody testing (*6*), and on the effects of HIV testing on adult HIV risk behavior (*7–9*), there are few corresponding data on adolescent populations. Of particular interest is whether adolescents who seek HIV testing and counseling differ from those who do not.

We surveyed 2,548 Colorado students in grades 9 through 12 who were enrolled in an evaluation of a

Table 1. Demographic characteristics of HIV tested and nontested adolescent students, Colorado schools, 1991–92 (percentages)

Characteristic	Tested (N=293)	Not tested (N=2,250)	P value
Sex:			
Female	40.6	51.1	
Male	59.4	48.9	.001
Race:			
White	53.4	65.4	
Black	12.1	5.3	
Hispanic	23.8	21.8	
Asian	3.5	2.7	
Other	7.2	4.8	<.0001
Place of residence:			
Metropolitan	46.8	33.0	
Nonmetropolitan	53.2	67.0	<.0001
Average age in years and SD	15.4 (1.36)	15.3 (1.26)	.32

NOTE: SD = standard deviation.

Table 2. Differences in HIV-related risk behavior of adolescent students, Colorado schools, 1991–92 (percentages)

HIV risk behavior	Tested (N=293)	Not tested (N=2,250)	Odds [1] ratio	95 percent confidence interval
Ever had sexual intercourse	66.1	44.1	2.33	1.77, 3.06
Age at first intercourse: [2]				
12 years or younger	35.8	18.9	2.35	1.63, 3.39
Number of partners:				
2 or more lifetime	48.5	28.0	2.19	1.67, 2.87
2 or more in 2 months	12.3	5.3	2.16	1.43, 3.25
Condom use: [2]				
Last time	56.3	55.3	1.00	.72, 1.39
Never use	33.6	34.6	.98	.70, 1.47
Injected drug use	4.8	1.2	3.60	1.84, 7.06
2-month HIV risk:				
No risk behaviors	54.6	74.8		
1 or more risk behaviors	45.4	25.2	2.45	1.87, 3.22

[1] Odds ratios adjusted for age, sex, metropolitan or nonmetropolitan residence, and race.
[2] Of sexually active students.

1-year HIV education intervention (*10*). As part of the investigation, we used baseline survey data to compare the demographic and risk status of adolescents who reported having had an HIV antibody test with those who did not.

Methods

Between September 1991 and May 1992, we enrolled 2,548 adolescents from 17 schools in 6 Colorado school districts in an evaluation of a school-based HIV education intervention. These districts were selected to include urban, surburban, and rural areas with racial or ethnic diversity. In all districts but one (the largest district), all eligible schools participated. All schools enrolled in the study spent minimal instructional time on HIV and AIDS. At baseline, we surveyed students in both intervention and comparison schools to determine demographic characteristics as well as HIV-related knowledge, attitudes, and behaviors. Included in the survey was a question asking whether students had ever had a blood test to see if they were infected with HIV. In Colorado, minors are allowed to consent to HIV testing.

We used baseline data to compare students who had ever had an HIV antibody test with those who had not. The two groups were compared on demographic characteristics, levels of sexual activity, injected drug use, HIV knowledge, and perceptions of personal risk for HIV infection. The HIV knowledge score was calculated for each student based on their number of correct responses to 10 true-false statements about HIV transmission and protection. HIV testing groups were also compared using a composite risk variable.

We calculated this HIV risk score by summing the values of the following data that pertained to the past 2 months:

Number of sexual partners (0-3),
Number of times the student had had sex (0-3),
Use of alcohol and other drugs before sex (0-3),
Frequency of condom use (0-3), and
Frequency of injected drug use (0,3).

All of the variables used to calculate the HIV-risk score had four categories (0-3) with the exception of frequency of injected drug use which had two categories, never injected (0) or ever injected (3). Student HIV-risk scores could range from 0 to 15. We used multiple logistic regression analysis to examine differences in sexual and drug-related risk behaviors, adjusting for age, sex, race, and metropolitan versus nonmetropolitan residence. Chi squares were used to compare proportions, *t*-tests to compare average values.

Results

The baseline sample of adolescents was 64 percent white, 6 percent black, 22 percent Hispanic, 3 percent Asian, and 5 percent other. Of 2,548 respondents, 293 indicated they had ever had an HIV antibody test

Table 3. Differences among HIV tested and not tested adolescent students in knowledge and perceived vulnerability to HIV infection, Colorado schools, 1991–92

Question	Tested (N=293)		Not tested (N=2,250)		P value
	Average score	Standard deviation	Average score	Standard deviation	
Percent of correct answers on knowledge test	51	2.02	56	1.93	<.0001
I think I have a high chance of being infected with HIV because of the things I have done [1]	2.22	.62	2.17	.61	.15
How likely is it that a person your age who has sex with many different partners and does not use condoms will get infected with HIV [2]	3.57	.63	3.57	.63	.87
How likely is it that you could get infected with HIV given your current sexual or injected drug use activities [2]	2.56	1.24	2.26	1.24	<.0001

[1] Scale endpoints 1 = strongly disagree; 4 = strongly agree.

[2] Scale endpoints 1 = not at all likely; 4 = very likely.

(11.5 percent). Between-school prevalence of self-reported HIV testing ranged from 4.4 to 22.7 percent.

As shown in table 1, HIV-tested adolescents were different from those not tested in terms of sex, race, and whether they lived in metropolitan or non-metropolitan areas; tested adolescents were significantly more likely to be male, with a higher representation of blacks, and a greater proportion living in metropolitan areas. There were no differences between the groups in terms of age.

Differences in HIV-related risk behavior. Adolescents who had had an HIV antibody test more frequently engaged in HIV risk behaviors than those who had not had a test (table 2). They were more than twice as likely to have engaged in sexual intercourse, had sexual intercourse before the age of 13, and had multiple lifetime partners as well as multiple partners in the past 2 months. HIV-tested adolescents were also more than three times as likely to have injected drugs than those who had not been tested.

Condom use was similar for tested and nontested adolescents. In both groups, more than half said they used a condom the last time that they had sex; one-third indicated they had never used condoms.

Students reporting an HIV antibody test had significantly higher HIV-risk scores for the past 2 months than their nontested counterparts ($P = .0001$). However, as indicated in table 2, 55 percent of tested adolescents were at no apparent risk for infection, and 25 percent of nontested adolescents actually reported having some HIV risks.

HIV knowledge and perceived vulnerability. Adolescents tested for HIV antibody were less knowledgeable about HIV and AIDS than their nontested counterparts (table 3). The greatest knowledge discrepancies between HIV-tested and nontested adolescents were on questions about transmission via saliva, tears, or urine (49 percent correct for the tested versus 60 percent for the nontested, use of baby oil or vaseline with condoms (60 percent versus 68 percent correct, respectively); and the appearance of people infected with HIV (58 percent versus 64 percent correct, respectively).

Finally, adolescents who sought testing were significantly more likely than nontested adolescents to believe that they could become HIV-infected given their current sexual or injected drug use activities ($P = .0001$).

Discussion

This analysis is among the first to compare adolescents who reported being HIV-antibody tested with those who had not. However, because our findings are based on adolescents' self-report of HIV antibody testing status and HIV-risk behaviors, they may be subject to reporting bias. It is unlikely, however, that the propensity of reporting bias was different between HIV-tested and untested adolescents. Additional research is needed to corroborate and extend these findings using different study methods and adolescent populations.

The results of our analyses indicate that adolescents who sought HIV-antibody testing were distinctly different from those who had not been tested; they were significantly more likely to be male, black, and live in metropolitan areas. These patterns are similar to those observed in adult populations.

This study supports the case that adolescents who seek HIV-antibody testing and counseling are at greater risk than those who do not. HIV-tested adolescents were more than three times as likely to have injected drugs, more than twice as likely to have engaged in sexual intercourse, and had sexual intercourse more often with a greater number of partners and at younger ages. Tested adolescents also had significantly higher overall HIV-risk scores.

Despite the finding that HIV-tested adolescents were at higher risk, more than half of those reporting an HIV-antibody test actually had no self-reported risks for HIV infection. This finding, coupled with the finding that tested students knew less about HIV and AIDS, points to the critical role of HIV education. Educating adolescents about methods of HIV transmission and protection and engaging them in personal HIV risk assessment activities can help to correct some of the myths and worries of adolescents while dispelling the notion that adolescents are immune to the risk of HIV infection. A thorough discussion of the HIV testing and counseling process and a review of reasons to seek HIV testing must be included within any HIV education program.

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Prevalence of Risk Factors for Residential Fire and Burn Injuries in an American Indian Community

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Synopsis

Fatality rates from residential fires are high among American Indians. Contact burns and scalds are also among the leading types of thermal injuries. Information about the prevalence of risk factors for burn injuries is required to design interventions aimed at reducing residential fire and burn injuries. The authors conducted a survey in July and August 1992 of 68 households located in a small American Indian community in Washington State to ascertain the prevalence of selected risk factors for residential fire and burn injuries.

Nearly all households (96 percent) in the study had a smoke detector, and 95 percent of those tested were functioning. However, a high prevalence of other household characteristics associated with excess risk of residential fire and burn injuries was identified: 59 percent of households had at least one member who smoked, 25 percent had a member who smoked in