

Trends in HIV-Related Risk Behaviors Among High School Students — United States, 1991–2011

One of the three primary goals of the *National HIV/AIDS Strategy for the United States* is to reduce the number of persons who become infected with human immunodeficiency virus (HIV) (1). In 2009, persons aged 15–29 years comprised 21% of the U.S. population but accounted for 39% of all new HIV infections (2). Sexual intercourse, sexual intercourse with multiple partners, sexual intercourse without using a condom, and injection drug use are behaviors that increase risk for HIV infection. To describe trends in the prevalence of HIV-related risk behaviors among high school students, CDC analyzed data from the biennial national Youth Risk Behavior Survey (YRBS) for the period 1991–2011. The results of that analysis indicated that, although the percentage of students overall who had ever had sexual intercourse decreased significantly from 54.1% in 1991 to 47.4% in 2011, the prevalence of ever having had sexual intercourse did not change significantly after reaching 45.6% in 2001. Similarly, although the percentage of students who had four or more sex partners decreased significantly from 18.7% in 1991 to 15.3% in 2011, the prevalence of having four or more sex partners did not change significantly after reaching 14.2% in 2001. Condom use at most recent sexual intercourse among students currently having sexual intercourse increased from 46.2% in 1991 to 60.2% in 2011. However, the prevalence of condom use did not change significantly beginning in 2003 (63.0%). The prevalence of injection drug use among students overall did not change significantly from 1995 (2.1%) to 2011 (2.3%). The results suggest that progress in reducing some HIV-related risk behaviors among high school students overall and in certain populations stalled in the past decade. To reduce the number of young persons who become infected with HIV, renewed educational efforts and other risk reduction interventions are warranted.

The national YRBS, a component of CDC's Youth Risk Behavior Surveillance System, used independent, three-stage cluster samples for the 1991–2011 biennial surveys to obtain cross-sectional data representative of public and private school

students in grades 9–12 in all 50 states and the District of Columbia (3). Sample sizes in the surveys ranged from 10,904 to 16,410. School response rates ranged from 70% to 81%, student response rates ranged from 83% to 90%, and overall response rates* ranged from 60% to 71%.

For each survey, students completed anonymous, self-administered questionnaires that included identically worded questions about their sexual experience, number of sexual intercourse partners, current sexual intercourse, condom use, and injection drug use.† Sexual experience was defined as ever having had sexual intercourse. Having multiple sex partners was defined as having sexual intercourse with four or more persons during their life. Current sexual activity was defined as having sexual intercourse with at least one person during the 3 months before the survey. Condom use was defined as using a condom during the most recent sexual intercourse among currently sexually active students. Injection drug use was defined as using a needle to inject any illegal drug into their body one or more times during their life. Data by race/ethnicity are presented for black, white, and Hispanic students only. The three populations are mutually exclusive. All black and white students were non-Hispanic; Hispanic students might be of any race. The numbers of students from other racial/ethnic populations were too small for meaningful trend analysis.

Data were weighted to provide national estimates, and the statistical software used for all analyses accounted for the complex sample design. Changes over time during 1991–2011

* Overall response rate = (number of participating schools/number of eligible sampled schools) x (number of usable questionnaires/number of eligible students sampled).

† The YRBS questions were as follows: "Have you ever had sexual intercourse?" "During your life, with how many people have you had sexual intercourse?" "During the past 3 months, with how many people did you have sexual intercourse?" "The last time you had sexual intercourse, did you or your partner use a condom?" and "During your life, how many times have you used a needle to inject any illegal drug into your body?" The wording of the question on injection drug use changed substantially after the 1993 survey, so 1991 and 1993 data on injection drug use are not included in this report.



were analyzed using logistic regression analyses that controlled for sex, race/ethnicity, and grade and simultaneously assessed significant ($p<0.05$) linear and quadratic time effects.[§] T-tests were used to test for significant ($p<0.05$) differences between prevalence estimates for 2009 and those for 2011.

During 1991–2011, a significant linear decrease occurred in the prevalence of sexual experience overall and among male, female, black, and white high school students (overall: 54.1% to 47.4%; male: 57.4% to 49.2%; female: 50.8% to 45.6%; black: 81.5% to 60.0%; and white: 50.0% to 44.3%) (Table). Among Hispanic students, no significant change was detected. Overall and among male and white students a significant quadratic trend also occurred. Overall, the prevalence of sexual

experience decreased during 1991–2001 and then did not change significantly during 2001–2011 (54.1% to 45.6%, and then 47.4%). Among male students, the prevalence of sexual experience decreased during 1991–1997 and then did not change significantly during 1997–2011 (57.4% to 48.9% and then 49.2%), and among white students the prevalence of sexual experience decreased during 1991–2003 and then did not change significantly during 2003–2011 (50.0% to 41.8% and then 44.3%). The prevalence of sexual experience was lower in 2011 compared with 2009 among black students (65.2% to 60.0%), but not overall or among either sex or any other racial/ethnic population.

A significant linear decrease occurred during 1991–2011 in the prevalence of having four or more sex partners overall and among male, female, black, and white high school students (overall: 18.7% to 15.3%; male: 23.4% to 17.8%; female: 13.8% to 12.6%; black: 43.1% to 24.8%; and white: 14.7% to 13.1%) (Table, Figure 1). Among Hispanic students, no

[§] A quadratic time effect indicates a significant but nonlinear trend in prevalence over time. Whereas a linear trend is depicted with a straight line, a quadratic trend is depicted with a curve with one bend. A temporal change that includes a significant linear and quadratic time effect demonstrates nonlinear variation (e.g., leveling off or change in direction of prevalence) in addition to an overall increase or decrease in prevalence over time.

TABLE. Percentage of high school students who reported HIV-related risk behaviors, by sex, race/ethnicity, and survey year — Youth Risk Behavior Surveys, United States, 1991–2011

Characteristic	Survey year	Ever had sexual intercourse		Had sexual intercourse with four or more persons during their life		Currently sexually active*		Condom use†		Ever injected and illegal drug‡	
		%	(95% CI)	%	(95% CI)	%	(95% CI)	%	(95% CI)	%	(95% CI)
Total	1991	54.1	(50.5–57.8)	18.7	(16.6–21.0)	37.5	(34.3–40.7)	46.2	(42.8–49.6)	NA	—
	1993	53.0	(50.2–55.8)	18.7	(16.8–20.9)	37.5	(35.4–39.7)	52.8	(50.0–55.6)	NA	—
	1995	53.1	(48.4–57.7)	17.8	(15.2–20.7)	37.9	(34.4–41.5)	54.4	(50.7–58.0)	2.1	(1.6–2.6)
	1997	48.4	(45.2–51.6)	16.0	(14.6–17.5)	34.8	(32.6–37.2)	56.8	(55.2–58.4)	2.1	(1.7–2.7)
	1999	49.9	(46.1–53.7)	16.2	(13.7–19.0)	36.3	(32.7–40.0)	58.0	(53.6–62.3)	1.8	(1.4–2.2)
	2001	45.6	(43.2–48.1)	14.2	(13.0–15.6)	33.4	(31.3–35.5)	57.9	(55.6–60.1)	2.3	(2.0–2.7)
	2003	46.7	(44.0–49.4)	14.4	(12.9–16.1)	34.3	(32.1–36.5)	63.0	(60.5–65.5)	3.2	(2.1–4.7)
	2005	46.8	(43.4–50.2)	14.3	(12.8–15.8)	33.9	(31.4–36.6)	62.8	(60.6–64.9)	2.1	(1.8–2.4)
	2007	47.8	(45.1–50.6)	14.9	(13.4–16.5)	35.0	(32.8–37.2)	61.5	(59.4–63.6)	2.0	(1.5–2.7)
	2009	46.0	(42.9–49.2)	13.8	(12.8–13.4)	34.2	(31.9–36.5)	61.1	(59.0–63.1)	2.1	(1.8–2.5)
	2011	47.4	(45.0–49.9)¶**	15.3	(14.2–16.4)¶**	33.7	(31.8–35.7)§	60.2	(57.5–62.9)¶**	2.3	(1.9–2.7)
Sex											
Male	1991	57.4	(53.1–61.5)	23.4	(20.4–26.7)	36.8	(33.3–40.3)	54.5	(50.5–58.4)	NA	—
	1993	55.6	(52.0–59.2)	22.3	(19.6–25.2)	37.5	(34.5–40.7)	59.2	(55.3–63.0)	NA	—
	1995	54.0	(49.0–58.8)	20.9	(18.3–23.7)	35.5	(32.0–39.2)	60.5	(56.0–64.9)	3.0	(2.4–3.7)
	1997	48.9	(45.4–52.3)	17.6	(16.1–19.2)	33.4	(30.8–36.1)	62.5	(59.6–65.3)	2.6	(2.0–3.3)
	1999	52.2	(48.0–56.2)	19.3	(15.8–23.3)	36.2	(32.3–40.2)	65.5	(61.0–69.8)	2.8	(2.1–3.8)
	2001	48.5	(45.8–51.3)	17.2	(15.7–18.9)	33.4	(31.0–35.8)	65.1	(62.2–67.9)	3.1	(2.7–3.6)
	2003	48.0	(44.6–51.4)	17.5	(15.3–19.9)	33.8	(31.3–36.5)	68.8	(66.0–71.4)	3.8	(2.7–5.4)
	2005	47.9	(44.4–51.5)	16.5	(14.8–18.4)	33.3	(30.7–36.0)	70.0	(66.7–73.0)	3.0	(2.6–3.6)
	2007	49.8	(46.7–52.9)	17.9	(16.0–20.0)	34.3	(32.0–36.7)	68.5	(65.4–71.4)	2.6	(2.0–3.4)
	2009	46.1	(41.5–50.9)	16.2	(13.7–19.1)	32.6	(29.4–36.0)	68.6	(66.0–71.2)	2.7	(2.1–3.4)
	2011	49.2	(46.6–51.8)¶**	17.8	(16.2–19.4)¶**	33.3	(31.1–35.6)§	67.0	(63.5–70.3)¶**	2.9	(2.4–3.4)
Female	1991	50.8	(46.7–54.9)	13.8	(12.1–15.7)	38.2	(34.7–41.8)	38.0	(33.7–42.5)	NA	—
	1993	50.2	(47.5–52.8)	15.0	(13.2–17.0)	37.5	(35.7–39.3)	46.0	(43.3–49.0)	NA	—
	1995	52.1	(46.9–57.2)	14.4	(11.1–18.5)	40.4	(36.1–44.8)	48.6	(43.3–53.9)	1.0	(0.6–1.7)
	1997	47.7	(43.9–51.5)	14.1	(12.3–16.3)	36.5	(33.8–39.3)	50.8	(47.7–53.8)	1.5	(0.9–2.5)
	1999	42.9	(40.1–45.8)	13.1	(11.0–15.5)	36.3	(32.2–40.7)	50.7	(44.8–56.6)	0.7	(0.5–1.1)
	2001	42.9	(40.1–45.8)	11.4	(10.0–13.0)	33.4	(31.0–35.8)	51.3	(47.8–54.9)	1.6	(1.2–2.1)
	2003	45.3	(42.6–48.0)	11.2	(9.8–12.7)	34.6	(32.5–36.8)	57.4	(54.2–60.5)	2.5	(1.4–4.2)
	2005	45.7	(42.0–49.4)	12.0	(10.4–13.7)	34.6	(31.5–37.7)	55.9	(53.0–58.8)	1.1	(0.8–1.6)
	2007	45.9	(43.1–48.6)	11.8	(10.5–13.1)	35.6	(33.2–38.1)	54.9	(51.8–58.1)	1.3	(0.8–2.2)
	2009	45.7	(43.0–48.5)	11.2	(10.1–12.4)	35.6	(33.4–38.0)	53.9	(51.4–56.4)	1.4	(1.2–1.8)
	2011	45.6	(43.0–48.3)§	12.6	(11.4–14.0)§	34.2	(32.1–36.4)§	53.6	(50.6–56.4)¶**	1.6	(1.3–2.0)

See table footnotes on page 3.

significant change was detected. Overall and among male and white students a significant quadratic trend also occurred. Overall, the prevalence of having four or more sex partners decreased during 1991–2001 and then did not change significantly during 2001–2011 (18.7% to 14.2% and then 15.3%). Among male students, the prevalence of having four or more sex partners decreased during 1991–2005 and then did not change significantly during 2005–2011 (23.4% to 16.5% and then 17.8%), and among white students the prevalence of having four or more sex partners decreased during 1991–2003 and then did not change significantly during 2003–2011 (14.7% to 10.8% and then 13.1%). The prevalence of having

four or more sex partners was higher in 2011 compared with 2009 among white students (13.1% to 10.5%), but not overall or among either sex or any other racial/ethnic population.

During 1991–2011, a significant linear decrease occurred in the prevalence of current sexual activity overall and among male, female, and black high school students (overall: 37.5% to 33.7%; male: 36.8% to 33.3%; female: 38.2% to 34.2%; and black: 59.3% to 41.3%) (Table). Among Hispanic and white students, no significant change was detected. The prevalence of current sexual activity was lower in 2011 (41.3%) compared with 2009 (47.7%) among black students, but not overall or among either sex or any other racial/ethnic population.

TABLE. (Continued) Percentage of high school students who reported HIV-related risk behaviors, by sex, race/ethnicity, and survey year — Youth Risk Behavior Surveys, United States, 1991–2011

Characteristic	Survey year	Ever had sexual intercourse		Had sexual intercourse with four or more persons during their life		Currently sexually active*		Condom use [†]		Ever injected and illegal drug [‡]	
		%	(95% CI)	%	(95% CI)	%	(95% CI)	%	(95% CI)	%	(95% CI)
Race/ethnicity**											
Black	1991	81.5	(78.0–84.5)	43.1	(39.5–46.7)	59.3	(55.3–63.1)	48.0	(44.1–51.9)	NA	—
	1993	79.7	(76.2–82.7)	42.7	(38.8–46.7)	59.1	(54.6–63.5)	56.5	(52.6–60.3)	NA	—
	1995	73.4	(68.4–77.8)	35.6	(31.2–40.3)	54.2	(49.4–59.0)	66.1	(61.0–70.9)	1.1	(0.6–2.0)
	1997	72.7	(69.7–75.4)	38.5	(34.9–42.3)	53.6	(50.3–56.9)	64.0	(61.0–66.8)	1.0	(0.5–2.0)
	1999	71.2	(62.2–78.8)	34.4	(24.7–45.7)	53.0	(43.8–62.0)	70.0	(64.1–75.2)	0.9	(0.5–1.6)
	2001	60.8	(53.9–67.4)	26.6	(22.9–30.6)	45.6	(40.1–51.2)	67.1	(63.4–70.6)	1.6	(1.0–2.5)
	2003	67.3	(63.7–70.6)	28.8	(26.3–31.5)	49.0	(46.0–52.0)	72.8	(68.8–72.4)	2.4	(1.5–3.9)
	2005	67.6	(64.4–70.7)	28.2	(25.6–30.9)	47.4	(44.7–50.1)	68.9	(65.0–72.5)	1.7	(0.9–3.0)
	2007	66.5	(63.0–69.9)	27.6	(24.8–30.6)	46.0	(42.3–49.7)	67.3	(62.6–71.6)	1.8	(1.2–2.6)
	2009	65.2	(62.0–68.3)	28.6	(25.5–32.0)	47.7	(44.2–51.2)	62.4	(57.9–66.8)	2.4	(1.7–3.4)
	2011	60.0	(56.6–63.4) [¶]	24.8	(22.4–27.3) [¶]	41.3	(38.4–44.3) [¶]	65.3	(60.4–69.9) ^{¶***}	2.4	(1.7–3.5) [¶]
White	1991	50.0	(46.7–53.4)	14.7	(13.0–16.7)	33.9	(31.1–36.9)	46.5	(41.8–51.2)	NA	—
	1993	48.4	(45.6–51.3)	14.3	(12.3–16.6)	34.0	(31.9–36.2)	52.3	(48.2–56.3)	NA	—
	1995	48.9	(43.8–54.1)	14.2	(11.8–16.8)	34.8	(30.8–39.0)	52.5	(48.4–56.6)	2.0	(1.5–2.7)
	1997	43.6	(39.4–48.0)	11.6	(10.2–13.2)	32.0	(29.0–35.3)	55.8	(53.8–57.8)	1.8	(1.4–2.4)
	1999	45.1	(41.1–49.2)	12.4	(10.4–14.7)	33.0	(29.0–36.5)	55.0	(49.8–60.2)	1.6	(1.2–2.1)
	2001	43.2	(40.7–45.8)	12.0	(10.6–13.5)	31.3	(29.0–33.6)	56.8	(53.7–59.9)	2.4	(2.0–2.9)
	2003	41.8	(39.0–44.5)	10.8	(9.4–12.4)	30.8	(28.7–32.9)	62.5	(59.2–65.6)	2.5	(1.5–4.3)
	2005	43.0	(38.8–47.3)	11.4	(9.7–13.3)	32.0	(28.7–35.5)	62.6	(60.0–65.2)	1.9	(1.6–2.3)
	2007	43.7	(40.5–47.0)	11.5	(9.6–13.7)	32.9	(30.3–35.5)	59.7	(56.8–62.5)	1.5	(1.0–2.3)
	2009	42.0	(37.9–46.3)	10.5	(9.0–12.3)	32.0	(28.8–35.3)	63.3	(60.4–66.1)	1.6	(1.2–2.1)
	2011	44.3	(41.1–47.4) ^{¶***}	13.1	(11.7–14.5) ^{¶***}	32.4	(29.7–35.3)	59.5	(55.4–63.5) ^{¶***}	1.9	(1.6–2.3)
Hispanic	1991	53.1	(49.4–56.7)	16.8	(14.3–19.7)	37.0	(33.4–40.8)	37.4	(31.3–44.0)	NA	—
	1993	56.0	(51.8–60.2)	18.6	(15.7–22.0)	39.4	(35.6–43.3)	46.1	(41.6–50.6)	NA	—
	1995	57.6	(48.6–66.1)	17.6	(14.1–21.7)	39.3	(32.3–46.8)	44.4	(33.4–56.0)	2.2	(1.4–3.4)
	1997	52.2	(48.4–55.8)	15.5	(13.2–18.1)	35.4	(31.5–39.5)	48.3	(42.6–54.0)	2.2	(1.6–2.9)
	1999	54.1	(49.0–59.0)	16.6	(13.2–18.1)	36.3	(32.2–40.5)	55.2	(48.1–62.0)	1.8	(1.1–2.8)
	2001	48.4	(43.8–53.0)	14.9	(13.2–16.7)	35.9	(32.7–39.4)	53.5	(48.2–58.7)	2.5	(1.8–3.4)
	2003	51.4	(48.1–54.8)	15.7	(13.5–18.1)	37.1	(34.4–40.0)	57.4	(51.9–62.8)	3.9	(2.2–6.8)
	2005	51.0	(46.5–55.4)	15.9	(13.6–18.5)	35.0	(31.3–39.1)	57.7	(53.4–61.8)	3.0	(2.1–4.2)
	2007	52.0	(48.3–55.6)	17.3	(15.2–19.5)	37.4	(33.8–41.1)	61.4	(56.7–65.9)	3.1	(2.2–4.3)
	2009	49.1	(46.0–52.2)	14.2	(12.7–15.9)	34.6	(32.2–37.0)	54.9	(51.7–58.0)	3.1	(2.4–4.0)
	2011	48.6	(46.1–51.0)	14.8	(13.6–16.0)	33.5	(31.6–35.4)	58.4	(54.0–62.7) ^{¶***}	2.9	(2.2–3.8) [¶]

Abbreviations: HIV = human immunodeficiency virus; CI = confidence interval; NA = not available.

* Had sexual intercourse with at least one person during the 3 months before the survey.

† During most recent sexual intercourse among students who were currently sexually active.

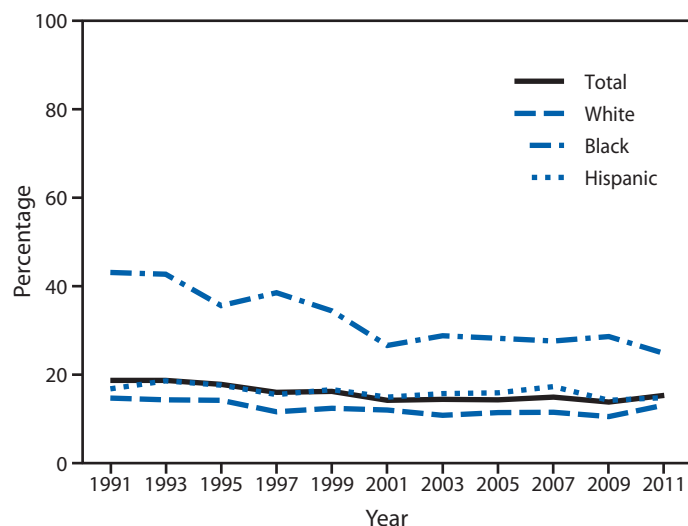
‡ Used a needle to inject any illegal drug into their body one or more times during their life. Wording of this question changed substantially after the 1993 survey, so 1991 and 1993 data are not included.

¶ Significant linear effect ($p < 0.05$).

** Significant quadratic effect ($p < 0.05$).

†† Data by race/ethnicity are presented for black, white, and Hispanic students only. The three populations are mutually exclusive. All black and white students were non-Hispanic; Hispanic students might be of any race. The numbers of students from other racial/ethnic populations were too small for meaningful trend analysis.

FIGURE 1. Percentage of high school students who had sexual intercourse with four or more persons during their life, by race/ethnicity* — Youth Risk Behavior Surveys, United States, 1991–2011†



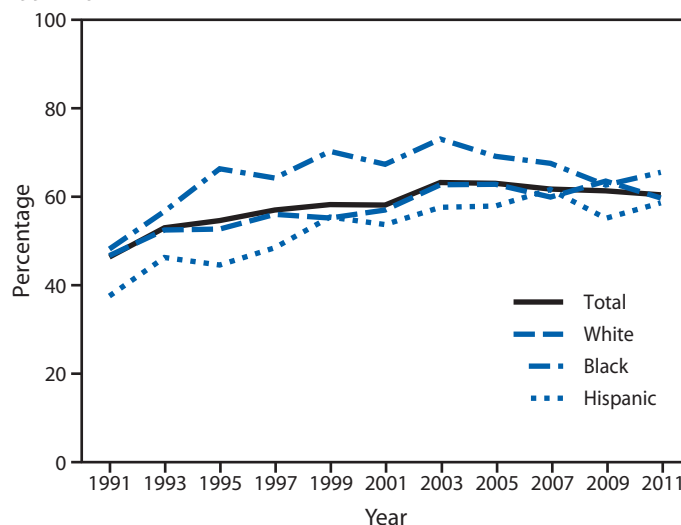
* Data by race/ethnicity are presented for black, white, and Hispanic students only. The three populations are mutually exclusive. All black and white students were non-Hispanic; Hispanic students might be of any race. The numbers of students from other racial/ethnic populations were too small for meaningful trend analysis.

† A significant linear effect ($p < 0.05$) was observed for participants overall and for black and white students. A significant quadratic effect ($p < 0.05$) was observed for participants overall and for white students.

A significant linear increase occurred during 1991–2011 in the prevalence of condom use among currently sexually active students overall and among both sexes and all three racial/ethnic populations (overall: 46.2% to 60.2%; male: 54.5% to 67.0%; female: 38.0% to 53.6%; black: 48.0% to 65.3%; Hispanic: 37.4% to 58.4%; and white: 46.5% to 59.5%) (Table, Figure 2). In addition, a significant quadratic trend occurred overall and among both sexes and all three racial/ethnic populations. Overall and among female and white students, condom use increased during 1991–2003 and then did not change significantly during 2003–2011 (overall: 46.2% to 63.0% and then 60.2%; female: 38.0% to 57.4% and then 53.6%; and white: 46.5% to 62.5% and then 59.5%). Among male students, condom use increased during 1991–2005 and then did not change significantly during 2005–2011 (54.5% to 70.0% and then 67.0%). Among Hispanic students, condom use increased during 1991–2007 and then did not change significantly during 2007–2011 (37.4% to 61.4% and then 58.4%). Among black students, condom use increased during 1991–1999 and then decreased during 1999–2011 (48.0% to 70.0% to 65.3%).

During 1995–2011, a significant linear increase occurred in the prevalence of injection drug use among black and Hispanic students (black: 1.1% to 2.4%; and Hispanic: 2.2% to 2.9%)

FIGURE 2. Percentage of sexually active high school students who used a condom during most recent sexual intercourse, by race/ethnicity* — Youth Risk Behavior Surveys, United States, 1991–2011†



* Data by race/ethnicity are presented for black, white, and Hispanic students only. The three populations are mutually exclusive. All black and white students were non-Hispanic; Hispanic students might be of any race. The numbers of students from other racial/ethnic populations were too small for meaningful trend analysis.

† A significant linear effect ($p < 0.05$) was observed for participants overall and for black, white, and Hispanic students. A significant quadratic effect ($p < 0.05$) also was observed for participants overall and for black, white, and Hispanic students.

(Table). Overall and among male, female, and white students, no significant change was detected.

Reported by

Laura Kann, PhD, Richard Lowry, MD, Danice Eaton, PhD, Howell Wechsler, EdD, Div of Adolescent and School Health, National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention, CDC. **Corresponding contributor:** Laura Kann, lkann@cdc.gov, 770-488- 6181.

Editorial Note

The findings in this report suggest that previously reported progress in reducing some HIV-related risk behaviors among students (4) stalled overall and among certain populations of students. Most concerning are the decrease in condom use among black students since 1999 and the lack of any significant decrease since 1991 in the percentage of Hispanic students who have had sexual intercourse, four or more sex partners, and current sexual activity.

Another of the three primary goals of the *National HIV/AIDS Strategy for the United States* is to reduce HIV-related health disparities. In 1991, a gap of 32 percentage points was observed in sexual experience prevalence between black and white students (black: 81.5%; white: 50.0%). In 2011, this

What is already known on this topic?

One of the three primary goals of the *National HIV/AIDS Strategy for the United States* is to reduce the number of persons who become infected with human immunodeficiency virus (HIV). In 2009, young persons aged 15–29 years comprised 21% of the U.S. population but accounted for 39% of all new HIV infections.

What is added by this report?

Overall, decreases in sexual experience and having four or more sex partners did not change significantly beginning in 2001, and increases in condom use did not change significantly beginning in 2003.

What are the implications for public health practice?

To achieve the *National HIV/AIDS Strategy for the United States* goal of reducing the number of persons who become infected with HIV, renewed educational efforts that reach all students before HIV-related risk behaviors are initiated and that seek to delay the onset of sexual activity, increase condom use among students who are sexually active, and decrease injection drug use are warranted.

gap had been reduced to 16 percentage points (black: 60.0%; white: 44.3%). Large differences between black and white students in the prevalence of having four or more sex partners and current sexual activity also have been reduced over time. Nonetheless, black students still report significantly higher prevalence of sexual risk behaviors than white or Hispanic students and remain at increased risk for HIV infection and sexually transmitted diseases, a finding that underscores the importance of the decreasing trend in condom use among black students since 1999. YRBS data cannot isolate the effects of race/ethnicity from the effects of other factors on the prevalence of HIV-related behaviors. Additional research is needed to assess the effects of education, socioeconomic status, and cultural factors on the prevalence of these behaviors and to help intensify HIV prevention efforts in the communities where HIV infection is most heavily concentrated (1).

The findings in this report are subject to at least two limitations. First, these data apply only to youths who attend school and therefore are not representative of all persons in this age group. Nationwide, in 2009, of persons aged 16–17 years, approximately 4% were not enrolled in a high school program and had not completed high school (5). Second, the extent of underreporting or overreporting of self-reported

behaviors cannot be determined, although the survey questions demonstrate good test-retest reliability (6).

The *National HIV/AIDS Strategy for the United States* recommends educating young persons about HIV before they begin engaging in behaviors that place them at risk for HIV infection (1), and the Community Preventive Services Task Force recommends risk reduction interventions to prevent HIV infection among adolescents (7). Although in another study a median of 90% of all public secondary schools in 45 states taught HIV prevention in a required course during 2010, the percentage that taught 16 specific topics varied widely (8).

To achieve the *National HIV/AIDS Strategy for the United States* goal of reducing the number of persons who become infected with HIV, further improvements in the prevalence of behaviors that contribute to HIV infection among young persons are needed. Renewed educational efforts that reach all students before risk behaviors are initiated and that seek to delay the onset of sexual activity, increase condom use among students who are sexually active, and decrease injection drug use are warranted.

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