

Adolescents' Reports of Reproductive Health Education, 1988 and 1995

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Context: *Reproductive health education is a key strategy for promoting safe sexual behavior among teenagers. In the last decade, new initiatives in response to AIDS and growing interest in abstinence education may have changed the prevalence, content or timing of the reproductive health education provided by schools and parents.*

Methods: *Formal reproductive health education and communication with parents about reproductive health among males aged 15–19 were analyzed using data from the 1988 and 1995 National Surveys of Adolescent Males. Young men's reports of formal instruction were compared with reports by adolescent females from the 1995 National Survey of Family Growth.*

Results: *Between 1988 and 1995, formal reproductive health education became nearly universal among adolescent males: In 1988, 93% of teenage males received some formal instruction, compared with 98% in 1995. The percentage of teenage males who received instruction about AIDS increased from 73% to 97% and the proportion who received instruction about how to say no to sex increased from 58% to 75%. Adolescent males who had dropped out of school received significantly less reproductive health education than those who had stayed in school, however. In addition, the median age at initial instruction decreased from age 14 to 13. Many males did not receive instruction prior to first intercourse, with non-Hispanic blacks being significantly less likely than other males to receive education prior to first intercourse. In 1995, 54% of black males had received reproductive health education before they first had sex, compared with 68% of Hispanic males and 76% of non-Hispanic white males. A smaller share of adolescent males than females received reproductive health education, and males were less likely than females to receive instruction prior to first intercourse.*

Conclusions: *During the last decade, many types of formal reproductive health education for adolescents expanded. Further efforts should focus on assuring access to timely, comprehensive and high-quality reproductive health education for all teenagers and reducing gaps in access related to race, gender and school attendance.*

Family Planning Perspectives, 2000, 32(5):220–226

Reproductive health education, including messages to encourage abstinence and promote the use of condoms and contraceptives by those who are sexually active, is the front line of efforts to prevent pregnancy, AIDS and other sexually transmitted diseases (STDs) among America's adolescents. School-based instruction is a primary mode of reproductive health education: It can reduce sexual risk behaviors by delaying age at first intercourse, reducing levels of sexual activity and increasing contraceptive or condom use.¹ Parents also can be influential sources of reproductive health education for adolescents.² Reproductive health education, through schools or parents, is an important step in promoting safer sexual behaviors among American teenagers.

The prevalence, content and timing of adolescents' reproductive health education in the last decade likely have changed as a result of AIDS prevention initiatives and shifts in the debate about responsible sexual behavior. In 1988, at least some school-

based health education was nearly universal among adolescent males, but a substantial proportion of young men did not receive instruction about AIDS or abstinence.³ It is likely that since that time, more teenagers have received instruction about AIDS: Between 1991 and 1998, the number of states requiring HIV-prevention education in schools increased from 13 to 35.⁴

There also may have been increases in abstinence-related instruction for teenagers, as interest in such instruction has grown. For example, as part of the 1996 federal welfare reform legislation, Congress authorized \$50 million annually to fund abstinence-only education,⁵ so for the first time significant federal and state funds would be invested in abstinence programs for teenagers. Many states now require some form of abstinence education in schools.⁶

While some of these policy shifts followed the period we examine in this article, they reflect the changing social context of sexuality education that serves as

the background to potential changes in instruction from 1988 to 1995. Increased efforts to involve parents in their children's reproductive health education also may have increased teenagers' exposure to reproductive health information.⁷ However, a recent Gallup poll indicates that adults were less concerned about AIDS in 1997 than in 1987, suggesting that motivation to educate their teenagers about this topic may have waned.⁸

Recent research has described reproductive health education among certain subgroups of adolescents and the specific topics covered by the instruction. Formal reproductive health instruction among metropolitan males aged 17–19 increased between 1979 and 1988 and between 1988 and 1995.⁹ The Youth Risk Behavior Survey (YRBS) indicated increases from 1991 to 1997 in the proportion of students in grades 9–12 reporting having been taught about HIV or AIDS in school.¹⁰ While formal instruction about reproductive health seems to have increased in the recent past, at least among some adolescents, it is not clear how the content and timing of the instruction has changed, or which teenagers have not received instruction. For example, adolescents not attending high school are not included in the YRBS estimates of the prevalence of AIDS education.

Our article examines changes between 1988 and 1995 in American teenage males' reports of the prevalence, content and timing of their reproductive health education,

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both from formal, school-based instruction and from their parents. We describe differences in education by age, race and ethnicity, and school attendance status.

We focus on young males for three major reasons. First, the available data are best suited to monitor the experiences of teenage males. The National Survey of Adolescent Males (NSAM) provides the richest measures of reproductive health education during the past decade; the National Survey of Family Growth (NSFG), which includes only females, and the YRBS, which excludes teenagers who are not in school, measure instruction in a more limited range of reproductive health topics. In addition, our focus on teenage males extends an established body of research that has examined the link between reproductive health education and sexual risk-taking among young males. Finally, recent shifts in sexual activity and condom use have occurred primarily among adolescent males rather than among females, making it imperative to discern the factors influencing their change in behavior.¹¹ To better understand the experiences of young men, we also compare their formal instruction with that of adolescent females in the more recent period.

Data and Methods

Data

The data for males are derived from the 1988 and 1995 NSAM. The methodologies for each survey wave have been described in detail elsewhere.¹² The 1988 NSAM was a nationally representative household sample of 1,880 never-married men aged 15–19 years and stratified to oversample black and Hispanic youth. The overall sample response rate was 74%. The 1995 NSAM also was a nationally representative household sample of 15–19-year-old males in the contiguous United States that oversampled black and Hispanic youth. The response rate was 75%. In 1995, 1,729 males participated in interviews; however, our analyses are restricted to the 1,710 who were never married. Because each wave of the NSAM is representative of teenage males living in households, the sample includes both current students and nonstudents.

Data for females are derived from the 1995 NSFG, a nationally representative household sample of 10,847 15–44-year-old women that was designed to study fertility and family formation.¹³ Black and Hispanic women were oversampled. The overall response rate was 79%. The NSAM originally was designed as a counterpart to fertility-related data about adolescent

females collected in the NSFG; this facilitates our comparisons between males and females.

Variables

In both waves of the NSAM, all respondents were asked to report retrospectively on whether they had ever received “formal instruction in school or in an organized program” in eight specific reproductive health topics, and if so, the grade they first received this instruction. These topics are divided into five content areas of reproductive health education based on previously used categorizations¹⁴: AIDS (including how to prevent AIDS through safe sex); other STDs*; birth control (including methods of birth control and where to obtain contraceptive methods); how to say no to sex; and how to put on a condom (1995 only).

The location of this formal instruction was measured only in the 1988 survey; the vast majority of males (91–96%) receiving each type of reproductive health education said they received this instruction in school. Thus, formal instruction on these topics is essentially synonymous with school-based reproductive health education.¹⁵

In the 1995 NSFG, female respondents reported retrospectively about formal sex education in four specific topics: methods of birth control, STDs, how to prevent AIDS using safe sex practices, and abstinence or how to say no to sex. Respondents aged 18 or older were asked to report only about formal instruction they received prior to age 18. To create measures comparable with those in the NSAM, we limited our analytic samples to 815 females and 1,149 males aged 15–17. For both sexes, the measures of reproductive health education reflect adolescents’ recall of such instruction, and should not be interpreted as a direct measure of school policies or specific curricula.

For males and females, we calculated two measures of the timing of formal reproductive health education. In both the NSAM and the NSFG, respondents were asked the grade they first received instruction in each topic reported. Estimating that children in first grade are approximately six years old, we calculated respondents’ age at first instruction by adding five to the grade in which they said they first received instruction. For male respondents who reported having repeated a grade, we added another year. (Comparable information was not collected for females.)

Based on this measure, we calculated the median age at first instruction in each topic (the age at which 50% of all respon-

dents receive instruction), derived using life-table methods. For example, to compute the percentage of youth who had instruction by their 16th birthday, we exclude data from 15 year-olds, since they have not attained that age yet. Formal instruction prior to first intercourse was identified if age at first instruction was younger than reported age at first intercourse; following the approach used in prior research,¹⁶ if the same age was reported for both, instruction was deemed to have occurred after first intercourse. We limited this measure to sexually experienced respondents.

In addition to being asked about formal instruction in reproductive health topics, NSAM respondents were asked if they had “ever talked with either or both of your parents or the people who raised you” about the following reproductive health topics: birth control, AIDS, other STDs or “what would happen if you got a girl pregnant.”

In the NSAM and the NSFG, questions about reproductive health instruction, age at first intercourse and age at interview were all self-reported in face-to-face interviews. As these are potentially sensitive behaviors, there is some risk of intentional or unintentional reporting errors. Nonetheless, earlier research has shown that other interview responses in the NSAM are relatively reliable and valid when compared with self-administered questions and external data.¹⁷

Analysis

We first examined changes in the receipt, content and timing of reproductive health education among adolescent males between 1988 and 1995 and tested for differences within each period by age, race and ethnicity, and whether the respondent was in school or had dropped out. We also studied differences between 1988 and 1995 in the percentage of young males reporting having ever talked with a parent about specific reproductive health topics, and we tested for differences in 1995 by individual and family characteristics. Finally, we looked for differences in 1995 between males and females aged 15–17 in their reports of receipt, content and timing of formal reproductive health instruction.

The surveys each employed multistage, stratified, clustered sampling and oversampled black and Hispanic adolescents. Accordingly, we weighted the results pre-

*In 1988, respondents were asked about “venereal diseases or VD,” while in 1995 they were asked about “sexually transmitted diseases.”

Table 1. Percentage of males aged 15–19 who received formal reproductive health education, by topic and year, according to demographic characteristics

Characteristic	Any topic‡		AIDS		How to say no to sex		STDs		Birth control		How to put on a condom
	1988	1995	1988	1995	1988	1995	1988	1995	1988	1995	1995
Total	92.5	97.7***	72.8	96.5***	58.0	74.5***	81.1	85.2*	78.7	85.0**	58.0
Age at interview											
15–17	93.0	97.7	81.3	96.1	63.0	74.9	80.1	84.3	79.5	83.2	58.0
18–19	91.6	97.8	59.2†††	97.2	50.2††	73.9	82.9	86.7	77.4	88.1	58.1
Race/ethnicity											
Non-Hispanic black	93.7	98.5	79.2	98.0	61.6	77.4	80.2	86.9	78.8	86.4	65.9
Non-Hispanic white	92.3	97.7	70.3	96.1	57.7	74.2	82.0	85.2	79.2	84.2	55.9
Hispanic	92.9	96.8	78.7†	96.1	51.3	76.1	78.0	84.3	74.8	84.6	60.7†
School status at age 18–19											
In school/has diploma	95.7	98.3	66.1	98.0	55.0	77.9	86.8	90.1	84.9	90.9	58.5
Dropout	71.6††	95.1	24.6†††	93.0	26.3††	53.9††	63.7††	69.5††	39.7††	73.8†	55.9

*Difference between 1988 and 1995 is statistically significant at p≤.05. **Difference between 1988 and 1995 is statistically significant at p≤.01. ***Difference between 1988 and 1995 is statistically significant at p≤.001. †Difference across a characteristic within year is statistically significant at p≤.05. ††Difference across a characteristic within year is statistically significant at p≤.01. †††Difference across a characteristic within year is statistically significant at p≤.001. ‡Instruction about AIDS, STDs, birth control or how to say no to sex. Notes: All tests of significance were done using t-tests. Ns varied among categories; the highest Ns were 1,880 (for 1988) and 1,709 (for 1995). Respondents in 1988 were not asked about instruction in how to put on a condom.

sented in this article to compensate for the probability of selection and nonresponse and poststratified them to align with Census data.¹⁸ Because the sampling designs of the surveys are complex, we used SUDAAN to compute the standard errors used in statistical tests of differences in proportions.¹⁹

Results

Formal Instruction

• *Prevalence of reproductive health instruction by topic.* The proportion of teenage males receiving formal reproductive health education about AIDS, STDs, birth control or how to say no to sex increased significantly from 1988 to 1995 (Table 1). In 1995, 98% of teenage males received some formal instruction, compared with 93% in 1988. The largest increases occurred in the percentage of teenage males who received instruction about AIDS (from 73% to 97%) and about how to say no to sex (from 58%

to 75%). Significant but smaller increases also occurred in the proportion of teenage males who had been taught about STDs and birth control. In 1995, 58% of teenage males received formal instruction in how to put on a condom.

In 1995, most males (97%) received formal instruction in two or more of the reproductive health topics examined (not shown). Almost half (45%) received instruction in all five topics, and 63% received instruction in the four topics most commonly examined—AIDS, how to say no to sex, birth control and STDs. Instruction about how to say no to sex that was not accompanied by instruction in where to obtain birth control, how to put on a condom and how to prevent AIDS by practicing safe sex—our best measure of what is currently referred to as “abstinence-only education”—was reported by less than 1% of teenage males.*

• *Differences in exposure to formal instruction.* In 1995, there were no significant differences by age or by race and ethnicity in male adolescents' exposure to formal reproductive health instruction (Table 1). This marks an attenuation of those demographic differences observed in 1988, reflecting the overall high levels of reproductive health education seen in 1995. In 1988, age was negatively associated with the receipt of instruction about AIDS or how to say no to sex: Adolescents aged 18–19 were less likely to have received this information than were those aged 15–17. The widespread adoption of these new topics into the reproductive health curriculum had eradicated these age differences by 1995, however.

Additionally, in 1988, non-Hispanic

white males were significantly less likely to have received AIDS education than were non-Hispanic blacks or Hispanic males; by 1995, in contrast, there no longer were any significant differences by race. In 1995, instruction in how to put on a condom was significantly more common among black males than among other racial or ethnic groups.

Among 18–19-year-olds, both high school dropouts and those who were in school or who had earned a high school diploma experienced increases in reproductive health education from 1988 to 1995.† However, in both years, high school dropouts were significantly less likely than their more educated peers to have received instruction about STDs, birth control or how to say no to sex.

• *Timing of formal instruction.* The median age at first formal reproductive health education declined by one year between 1988 and 1995, from age 14 to age 13 (Table 2). The median age at first instruction in AIDS and in how to say no to sex each declined by two years. Differences by race in the median age at first instruction in 1988 had diminished by 1995.

Overall, and in each topic, sexually experienced males were significantly more likely in 1995 than in 1988 to have received reproductive health information prior to first intercourse. More than two-thirds of sexually experienced males received some formal reproductive health education prior to first intercourse in 1995, compared to only about half in 1988. The largest increases occurred in the timing of AIDS instruction; between 1988 and 1995, the percentage of sexually experienced teenage males who had received AIDS education prior to first

*Respondents were not asked specifically if they had received “abstinence-only” education. Instead, our estimate is calculated from separate responses to questions on each reproductive health topic. Instruction about where to obtain birth control, how to put on a condom and how to prevent AIDS by practicing safe sex was identified as inconsistent with an abstinence-only curriculum, and adolescents reporting instruction in these topics were deemed not to have received “abstinence-only” instruction. Adolescents reporting instruction in how to say no to sex combined with the more general topics of AIDS, STDs or birth control were identified as “abstinence-only,” because aspects of these latter topics could be included in an abstinence-only curriculum.

†The group of adolescents who earned a high school diploma does not include those who may have earned a GED after dropping out of school. It is school attendance, not necessarily level of completed education, that is of interest to us here, because most formal reproductive health education takes place in school settings.

Table 2. Timing of reproductive health education among males aged 15–19, by topic and race/ethnicity, 1995 and 1998

Race/ethnicity	Any topic‡		AIDS		How to say no to sex		STDs		Birth control		How to put on a condom
	1988	1995	1988	1995	1988	1995	1988	1995	1988	1995	1995
MEDIAN AGE AT FIRST INSTRUCTION											
Total	14	13	15	13	16	14	14	14	15	14	15
Non-Hispanic black	14	13	15	14	16	14	15	14	15	14	15
Non-Hispanic white	14	13	16	13	16	14	14	14	15	14	16
Hispanic	14	13	15	13	17	14	15	14	15	14	15
% WHO RECEIVED INSTRUCTION BEFORE FIRST SEX											
Total	53.3	70.4***	18.5	65.8***	21.1	47.0***	43.1	55.1***	41.3	58.0***	38.0
Non-Hispanic black	39.7	54.3	14.4	48.2	17.4	38.0	30.7	37.4	29.8	35.4	29.6
Non-Hispanic white	57.0	75.8	17.9	72.6	21.2	50.9	46.0	62.0	44.1	67.0	41.5
Hispanic	53.7††	68.2†††	27.9†	64.2†††	21.6	46.2†	44.3††	51.3†††	44.6††	53.2†††	39.0††

***Difference between 1988 and 1995 is statistically significant at $p \leq .001$. †Difference within year is statistically significant at $p \leq .05$. ††Difference within year is statistically significant at $p \leq .01$. †††Difference within year is statistically significant at $p \leq .001$. ‡Instruction about AIDS, STDs, birth control or how to say no to sex. Notes: All tests of significance were done using t-tests. Respondents in 1988 were not asked about instruction in how to put on a condom. In three cases, medians are overstated because slightly fewer than 50% had received instruction by the next lowest age—49.3% of white males first received AIDS education by age 15; 49.0% of black males first received AIDS education by age 13; and 49.4% of white males received education about how to put on a condom by age 15.

intercourse jumped from 19% to 66%.

Large increases also occurred in the receipt of instruction about how to say no to sex prior to first intercourse; by 1995, almost half of sexually experienced teenage males had received this instruction prior to becoming sexually experienced. Of all topics examined, how to put on a condom was the topic in which sexually experienced males were least likely to have received instruction prior to first intercourse.

In contrast to the similarities by race in the median age of instruction, there were significant differences by race among sexually experienced young men in the receipt of reproductive health education prior to first intercourse. In both 1988 and 1995, sexually experienced non-Hispanic blacks were less likely than other males to have received instruction prior to first intercourse in each topic. For example, in 1995, only about half of black males (54%) had received any reproductive health education prior to first intercourse, compared with 68% of Hispanic males and 76% of non-Hispanic white males.

Communication with Parents

Despite increases in adolescents' exposure to formal reproductive health instruction, there was little change between 1988 and 1995 in the proportion of young males who said they had discussed reproductive health topics with their parents. In both years, about three-quarters of young men reported ever having spoken with their parents about AIDS, STDs, birth control or what would happen if their partner became pregnant (Table 3). However, for each topic, only about half of teenage males reported ever having discussed the topic with either of their parents. "What would happen if you got a girl pregnant"

was the only topic for which discussion increased significantly, from 49% to 56%.

We tested for differences in 1995 in the prevalence of parental communication by young men's race, age, sexual experience and family structure. Prior research has suggested that these demographic characteristics may predict parent-child communication about sex, although past findings are not consistent.²⁰ Given the stability of the level of parental communication between 1988 and 1995, we limit our examination of demographic variation to the most recent period.

There were few demographic differences in teenage males' reports of talking with their parents about AIDS (Table 4, page 224), and more differences in reports of discussing other reproductive health issues. Discussion of AIDS did not vary by race and ethnicity, family structure or sexual experience, but it did vary by age: Adolescents aged 15–17 were more likely than those aged 18–19 to report having discussed AIDS with their parents.

In contrast, discussion of the other three topics varied significantly by all demographic characteristics except age. Black males, those who lived outside of two-parent households and those who were sexually experienced were significantly more likely than their peers to have spoken with their parents about STDs, birth control or what would happen if their partner became pregnant.

Sex Differences

We also examined differences between males and females aged 15–17 in 1995 in the prevalence and timing of four types of formal reproductive health instruction—how to prevent AIDS by practicing safe sex, methods of birth control, STDs and

how to say no to sex. (For the last topic, the NSAM respondents were asked only about how to say no to sex, while the NSFG participants were asked about abstinence and how to say no to sex as a single topic. For ease of discussion, we refer to reports from either sex as how to say no to sex.) These four topics differ somewhat from those examined in the previous tables.

In 1995, adolescent females aged 15–17 were significantly more likely than adolescent males to report ever having received formal instruction about methods of birth control, STDs and how to say no to sex (Table 5, page 224). The prevalence of AIDS instruction was the same for males and females. The largest differences were for instruction in how to say no to sex, for which 93% of females reported instruction, compared with only 75% of males. (However, question wording differed by sex for this type of instruction.)

Females were significantly more likely than males to have received instruction prior to first intercourse in each of the four topics examined. About half of males received instruction in each topic prior to first intercourse, compared with about three-quarters of females.

Table 3. Percentage of males aged 15–19 who reported having communicated with their parents about reproductive health, by topic, 1988 and 1995

Topic	1988	1995
Any	74.0	77.7
AIDS	51.4	55.6
STDs	41.1	42.7
Methods of birth control	44.6	43.8
What would happen if you got a girl pregnant	49.0	55.8**

**Difference between 1988 and 1995 was statistically significant at $p \leq .01$.

Table 4. Percentage of males aged 15–19 who reported communication with parents about reproductive health, by topic, according to demographic characteristics, 1995

Characteristic	AIDS	STDs	Birth control	What would happen if you got a girl pregnant
Race/ethnicity				
Non-Hispanic black	58.4	56.6	48.5	69.0
Non-Hispanic white	56.9	41.1	46.0	51.4
Hispanic	52.8	40.3***	39.0**	64.6***
Age				
15–17	59.3	44.6	41.3	55.9
18–19	49.4*	39.4	48.1	55.7
Family structure at age 14				
Two parents	54.3	38.1	41.9	52.3
Other	58.2	50.9***	47.9*	63.0***
Ever had sexual intercourse				
Yes	56.1	47.0	47.2	62.3
No	55.1	37.4***	39.7**	47.8***

*Difference between characteristics within year is statistically significant at $p \leq .05$. **Difference between characteristics within year is statistically significant at $p \leq .01$. ***Difference between characteristics within year is statistically significant at $p \leq .001$. Note: All tests of significance were done using t-tests.

Discussion

The last decade was a period of significant expansion of many types of formal instruction about AIDS, birth control, STDs and how to say no to sex among teenage males in the United States. In 1988, the recent emergence of AIDS as a significant public health concern served to jump-start the expansion of reproductive health education. In 1995, teenage males received more formal reproductive health education, about more topics and at earlier ages than they had in 1988. By 1995, general reproductive health education and instruction about AIDS were nearly universal among teenage males, while instruction about how to say no to sex became significantly more common. The median age at first instruction in reproductive health declined by one year, and teenage males were significantly more likely to have received some reproductive health education prior to first intercourse in 1995 than in 1988.

Even with the broad expansion of formal reproductive health education, there

continues to be a lack of access to education among select groups of adolescents. First, high school dropouts appear to have much less access to formal instruction—which tends to be provided primarily through schools—than their peers. Other studies show that teenage dropouts are more involved in sexual risk behaviors, increasing their exposure to HIV and pregnancy, as well as heightening their need for reproductive health information.²¹ Efforts need to be expanded to reach out-of-school youth through less traditional venues, such as in the workplace, the criminal justice system or other community settings.²²

Additionally, in 1995, a substantial proportion of sexually experienced young men still had not received reproductive health education before they first had sex. Of particular concern is the lower rate of instruction before first intercourse among sexually experienced non-Hispanic black males. Differences in the relative timing of instruction are seen in spite of the few differences by race in the prevalence of reproductive health education or in the median age at first instruction.

In contrast, what *does* differ by race is the timing of first intercourse. The earlier onset of sexual activity among non-Hispanic blacks permits these youth fewer opportunities to receive instruction prior to first intercourse.²³ Recent declines in sexual activity among non-Hispanic white males, but not black males, exacerbate this problem.²⁴ Similarly, earlier ages at sexual initiation among males than among females²⁵ may explain in part the significantly lower levels of reproductive health education prior to first intercourse among males. While curriculum developers and communities may be hesitant to raise certain topics before children are “old enough,” the timing of formal reproductive health education must realistically reflect the needs and be-

haviors of the students they are trying to educate.

The reasons why teenage males are less likely to receive formal reproductive health information than females are not clear. Although coeducational instruction should in theory result in comparable levels of education by sex, single-sex instruction for females may be more comprehensive than that provided to males. Females may be more likely to receive additional education to supplement any coeducational instruction they receive. Alternately, these differences by sex may reflect measurement error if young men are less able or willing than young women to recall reproductive health instruction.

The sex difference in education about how to say no to sex is particularly striking. This finding must be interpreted cautiously, given the differences in question wordings between the NSAM and the NSFG. There may be differences in students' exposure to instruction about how to say no to sex and instruction about abstinence if these are distinctive curricula. Thus, the NSFG's broader question asking young women if they received instruction about abstinence or about how to say no to sex may be eliciting more responses. Beyond methodological differences, however, these findings suggest that some abstinence education messages are targeted only at females. Reaching out to young males with gender-sensitive, accessible reproductive health information needs to be a key strategy for reducing sexual risks for young men and their partners.

The changes in the prevalence, content and timing of reproductive health education documented here occurred contemporaneously with unprecedented shifts toward safer sexual behaviors among American teenagers. Between 1988 and 1995, teenage sexual activity declined, condom use increased and the teenage birth-rate fell.²⁶ There is some evidence of a direct relationship between these trends. An increase in AIDS education from 1979 to 1995 is one factor associated with declines in sexual activity during this period for some groups of males.²⁷ While further research is needed to identify a causal mechanism between increased reproductive health education and decreased sexual risk-taking among teenagers, the concurrent shifts add further evidence to a growing body of research that reproductive health education can be provided to teenagers without encouraging sexual activity.²⁸

While formal reproductive health education expanded substantially in the last decade, the level of communication be-

Table 5. Percentage of males and females aged 15–17 who ever received reproductive health education, and percentage of sexually experienced males and females aged 15–17 who received reproductive health education before first intercourse, by topic, 1995

Topic	Ever		Before first intercourse†	
	Males (N=1,149)	Females (N=815)	Males (N= 576)	Females (N=331)
How to prevent AIDS by practicing safe sex	92.0	93.5	52.7	70.2*
Methods of birth control	78.6	87.3*	48.6	71.3*
STDs	84.2	93.3*	50.6	73.8*
How to say no to sex	74.9	92.9*	43.0	72.0*

*Difference between sexes is statistically significant at $p \leq .001$. †Among sexually experienced respondents. Notes: Ns are unweighted. All tests of significance were done using t-tests.

tween parents and their teenage sons remained stagnant and relatively low. In both 1988 and 1995, only about half of young males reported ever having spoken with their parents about each of the topics examined in this article. Parents seem not to have responded to the AIDS epidemic and its inherent risks to their children's health by increasing their communication about AIDS, STDS or contraception with their sons. In contrast, young males became increasingly likely to report having talked to their parents about the consequences of getting a girl pregnant, suggesting that increased public concern about the role of males in teenage childbearing, and fatherhood more generally, have increased the salience of the consequences of childbearing for young males.²⁹

Our measures of parent-son communication are limited, however, because we do not know with which parent the communication occurred, the exact content of the discussion or its timing. The higher prevalence of communication with parents among sexually experienced males than among inexperienced males suggests that some parent-teenager communication may be a response to teenage sexual activity.³⁰

Our findings have some additional limitations. All of the measures rely on teenage males' self-reports, so there are likely to be some biases or measurement error in young men's recollections of what they were taught and their categorization of the topic of instruction they received. However, a study of parents' and children's reports of communication about sex found that when teenagers reported having communicated with their parents, their sexual behavior was influenced more than when parents reported having communicated with their teenagers.³¹ What teenagers *remember* being taught may be more relevant than an external, albeit less biased, measure.

Although most of the NSAM questions about reproductive health education were the same in 1988 and 1995, it is possible that teenagers' interpretation of these questions changed over time. For example, both surveys asked about education on how to say no to sex. It is tempting to interpret this measure as the prevalence of abstinence education, based on our current understandings of this approach to sexuality education. However, in 1988, how to say no to sex may have been interpreted as abstinence-related education, but perhaps as one part of a more comprehensive approach that also recommended use of condoms for those who are sexually active. By 1995, it is possible that this measure may

have been viewed in the more current context of abstinence-only education. Similarly, the interpretation of the question about instruction in "how to prevent AIDS using safe sex practices" might have changed between 1988 and 1995, as the term safe sex became more widely popularized and socially understood. The strength of respondent-based answers in the NSAM is that they help us understand what the students remember. However, changes in the sociopolitical environment make the nuances of how the respondents interpreted the questions more difficult to determine.

Our results provide limited insight into variations in the quality or quantity of teenagers' formal reproductive health education. A national survey of schools found great variation in the amount of classroom time devoted to HIV prevention education. Among teachers teaching HIV prevention, 22% spent only one class period on the topic, while 20% spent six or more class periods on the topic.³² The data we examined also suggest variation in the depth and breadth of instruction. While nearly all teenage males received AIDS education, the exact content of this instruction likely varies. For example, the proportion of teenage males who received instruction about contraception, about how to say no to sex or about how to put on a condom was much lower than the proportion who received AIDS education, even though each of those topics could be considered relevant aspects of AIDS education.

Our results indicate that there has been substantial expansion in the prevalence and content of reproductive health education in the United States in the past decade. This expansion includes the co-existence of formal education in AIDS, STDs, birth control and how to say no to sex. Fewer than 1% of teenage males report receiving instruction about how to say no to sex without also receiving instruction about safe sex, about where to obtain birth control or about how to put on a condom. More recent surveys indicate that schools have shifted much more toward abstinence-only education: In 1999, one-third of public school principals said they have abstinence-only education. Among school superintendents who knew when their current sexuality education policy was established, more than one-half said it had been adopted after 1995.³³

While changes between 1995 and 1999 in the content of what schools teach probably contribute to the discrepancies in school officials' and teenagers' reports, other factors may also explain the differences. First, students are reporting what

they received over a long period of time that may encompass several classes taught at different grade levels, while school officials' reports typically describe a particular curriculum. Moreover, abstinence-only education may not necessarily be interpreted as teaching how to say no to sex and might also teach about AIDS or birth control, but without promoting use of contraception or safe sex. Additionally, the differences between the adolescents' and school officials' reports suggest that there may be substantial gaps between school policies and their actual practices inside the classroom. Finally, teenagers' reports are more related to what they remember, while the school officials are describing what was in the lesson plans. Nonetheless, the important finding is that—at least in 1995—most young men were exposed to a broader range of topics than simply abstinence.

Efforts to require abstinence-only education have the potential to sharply change teenagers' exposure to formal instruction in other topics. Narrowing the range of topics covered in formal reproductive health education is of grave concern.³⁴ Parents and health professionals may play a part in this education, but their efforts are not as universal as school-based sex education.³⁵ School-based reproductive health education is a primary guarantor that all teenagers obtain basic information about how to protect themselves from AIDS, STDs and pregnancy.

Although by 1995 at least some reproductive health education among teenagers was nearly universal, many challenges still remain in creating access to timely, comprehensive and high-quality reproductive health education for all teenagers.³⁶ Further efforts need to focus on diminishing differences in access by race, sex and school attendance. There are remaining gaps in the coverage of different reproductive health topics, especially in getting information to teenagers before they initiate sex. Progress has been made in closing these gaps. It will be important to continue monitoring whether recent efforts to narrow the curriculum result in changes in the type of information adolescents receive and, ultimately, in adolescents' sexual and reproductive behavior.

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