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**Impacts of Four Title V,
Section 510 Abstinence
Education Programs**

Final Report

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EXECUTIVE SUMMARY

The enactment of Title V, Section 510 of the Personal Responsibility and Work Opportunity Reconciliation Act of 1996 significantly increased the funding and prominence of abstinence education as an approach to promote sexual abstinence and healthy teen behavior. Since fiscal year 1998, the Title V, Section 510 program has allocated \$50 million annually in federal funding for programs that teach abstinence from sexual activity outside of marriage as the expected standard for school-age children. Under the matching block grant program administered by the U.S. Department of Health and Human Services (DHHS), states must match this federal funding at 75 percent, resulting in a total of \$87.5 million annually for Title V, Section 510 abstinence education programs. All programs receiving Title V, Section 510 abstinence education funding must comply with the “A-H” definition of abstinence education (Table 1).

In the Balanced Budget Act of 1997, Congress authorized a scientific evaluation of the Title V, Section 510 Abstinence Education Program. This report presents final results from a multi-year, experimentally-based impact study conducted as part of this evaluation. It focuses on four selected Title V, Section 510 abstinence education programs: (1) *My Choice, My Future!* in Powhatan, Virginia; (2) *ReCapturing the Vision* in Miami, Florida; (3) *Families United to Prevent Teen Pregnancy (FUPTP)* in Milwaukee, Wisconsin; and (4) *Teens in Control* in Clarksdale, Mississippi. Based on follow-up data collected from youth four to six years after study enrollment, the report presents the estimated program impacts on youth behavior, including sexual abstinence, risks of pregnancy and sexually transmitted diseases (STDs), and other related outcomes.

FOCAL PROGRAMS FOR THIS REPORT

The four selected programs offered a range of implementation settings and program strategies, reflecting the array of operational experiences of the Title V, Section 510 programs operating nationwide. The programs served youth living in a mix of urban communities (Miami and Milwaukee) and rural areas (Powhatan, Virginia and Clarksdale, Mississippi). In three of these communities, the youth served were predominantly African-American or Hispanic and from poor, single-parent households. In Powhatan, youth in the programs were mostly white, non-Hispanic youth from working- and middle-class, two-parent households.

Table 1. A-H Definition of Abstinence Education for Title V, Section 510 Programs

A	Have as its exclusive purpose teaching the social, psychological, and health gains to be realized by abstaining from sexual activity
B	Teach abstinence from sexual activity outside marriage as the expected standard for all school-age children
C	Teach that abstinence from sexual activity is the only certain way to avoid out-of-wedlock pregnancy, sexually transmitted diseases, and other associated health problems
D	Teach that a mutually faithful, monogamous relationship in the context of marriage is the expected standard of sexual activity
E	Teach that sexual activity outside the context of marriage is likely to have harmful psychological and physical effects
F	Teach that bearing children out of wedlock is likely to have harmful consequences for the child, the child's parents, and society
G	Teach young people how to reject sexual advances and how alcohol and drug use increases vulnerability to sexual advances
H	Teach the importance of attaining self-sufficiency before engaging in sexual activity

Source: Title V, Section 510 (b)(2)(A-H) of the Social Security Act (P.L. 104-193).

Other key dimensions of program variation include the following (Table 2):

- **Program Delivery.** The four programs differed substantially in their setting, program type, and attendance requirements.
 - **Setting:** Although all four programs served youth in school settings, *FUPTP* served youth after school and the other three programs served youth in classrooms during the school day much like any other course.
 - **Program Type:** Two of the programs were offered on an elective basis (*ReCapturing the Vision* and *FUPTP*), while the other two programs were non-elective classes.
 - **Attendance:** One program had voluntary attendance (*FUPTP*); the other three had mandatory attendance.
- **Ages of Youth Served.** Two of the programs—*My Choice, My Future!* and *ReCapturing the Vision*—targeted youth in middle school grades, while the other two programs targeted youth in upper elementary grades.
- **Program Duration and Intensity.** Although all programs offered more than 50 contact hours, making them relatively intense among programs funded by the Title V, Section 510 grant, two of the programs—*ReCapturing the Vision* and

FUPTP—were particularly intensive. These two programs met every day of the school year and youth could participate in *FUPTP* for up to four years.

- **Other Services Available to Youth.** Two of the programs—*ReCapturing the Vision* and *FUPTP*—operated in communities with a rich set of health, family life, and sex education services available through the public schools, while the remaining two programs operated in schools with limited services as part of their existing school curricula.

Table 2. Distinguishing Features of the Focal Programs

<i>My Choice, My Future!</i>	<i>ReCapturing the Vision</i>	<i>Families United to Prevent Teen Pregnancy</i>	<i>Teens in Control</i>
Powhatan, VA	Miami, FL	Milwaukee, WI	Clarksdale, MS
Socio-Demographic Characteristics			
Middle- and working-class, two-parent, white, non-Hispanic families. Semi-rural setting.	Poor, single-parent, African American and Hispanic families. Urban setting.	Poor, single-parent, African American families. Urban setting.	Poor, single-parent, African American families. Rural setting.
Program Delivery			
Non-elective class during the school day with mandatory attendance.	Year-long elective class during the school day with mandatory attendance.	After-school elective program with voluntary attendance.	Non-elective class during the school day with mandatory attendance.
Ages of Youth Served			
Grade 8 at enrollment.	Grades 6–8 at enrollment; high-risk girls only.	Grades 3–8 at enrollment.	Grade 5 at enrollment.
Program Duration and Intensity			
Three year program: 30 sessions in year one, 8 in year two, and 14 in year three; occasional school assembly and community outreach.	Year-long class that met daily as part of the students’ regular schedule.	Daily two and one-half hour after school program; students could attend for up to four years.	Two year program: weekly pull-out class sessions.
Other Health, Family Life, and Sex Education Services			
Nine-week health and physical education class in 8th grade that did not include topics directly related to abstinence or STD risks. An additional health class in 9th grade covered abstinence, but did not cover STDs or contraceptive use.	Mandated school curriculum for 6th through 8th grades, including a week-long unit on human growth and development; 6th grade curriculum covers STDs, abstinence, and drug and alcohol prevention.	Mandatory family life curricula for K–12; units on abstinence and contraceptive use beginning in 5th grade.	Limited district-wide health, family life, and sex education curricula for middle-school youth.

EVALUATION DESIGN

In response to the Congressional authorization of a scientific evaluation of the Title V, Section 510 Abstinence Education Program, the evaluation used an experimental design. Under this design, eligible youth were randomly assigned to either the program group, which was offered Title V, Section 510 abstinence education program services, or the control group that was not offered these services. The rigor of the experimental design derives from the fact that, with random assignment, youth in both the program and control groups were similar in all respects except for their access to the abstinence education program services. As a result, differences in outcomes between the program and control groups could be attributed to the abstinence education program and not to any pre-existing unobserved differences between the program and control groups.

Study Sample

This report is based on a final follow-up survey administered to 2,057 youth; just less than 60 percent (1,209) were assigned to the program group; the remainder (848) were assigned to the control group (Table 3). The survey was administered to youth in 2005 and early 2006—roughly four to six years after they began participating in the study. By this time, youth in the study sample had all completed their programs, in some cases several years earlier, and averaged about 16.5 years of age. Across the programs, the mean age was higher (roughly 18 years of age) for study youth in the two middle school programs, *ReCapturing the Vision* and *My Choice, My Future!*, while it was lower (around 15 years of age) for those in the two upper elementary school programs, *FUPTP* and *Teens in Control*.

Table 3. Impact Analysis Evaluation Sample

	<i>My Choice, My Future!</i> Powhatan, VA	<i>ReCapturing the Vision</i> Miami, FL	<i>FUPTP</i> Milwaukee, WI	<i>Teens in Control</i> Clarksdale, MS	Total
Total	448	480	414	715	2,057
Control group	162	205	140	341	848
Program group	286	275	274	374	1,209

Outcome Measures

The impact evaluation draws on a rich longitudinal data set that includes measures of sexual abstinence and teen risk behavior, knowledge of the consequences of sexual activity, and perceptions about the risks of pregnancy and STDs. Two main sets of outcome measures were constructed from the follow-up survey data:

1. ***Sexual Behavior.*** Rates of sexual abstinence, rates of unprotected sex, number of sexual partners, expectations to abstain, and reported rates of pregnancy, births, and STDs.

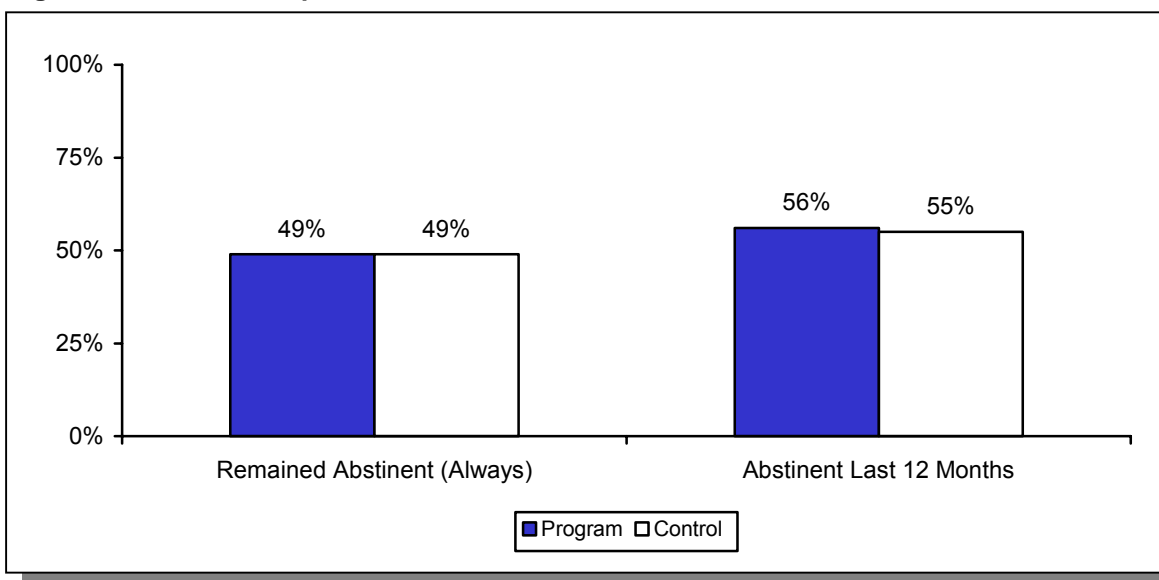
2. **Knowledge and Perceptions of Risks Associated with Teen Sexual Activity.** Scale measures of STD identification (from among a list of diseases), risks of pregnancy and STDs from unprotected sex, and health consequences of STDs; youth perceptions of the effectiveness of condoms and birth control pills for pregnancy prevention and for the prevention of several types of STDs, including HIV, chlamydia and gonorrhea, and herpes and human papillomavirus (HPV).

IMPACTS ON BEHAVIOR

Findings indicate that youth in the program group were no more likely than control group youth to have abstained from sex and, among those who reported having had sex, they had similar numbers of sexual partners and had initiated sex at the same mean age. Contrary to concerns raised by some critics of the Title V, Section 510 abstinence funding, however, program group youth were no more likely to have engaged in unprotected sex than control group youth. Specific findings follow.

Sexual Abstinence. Program and control group youth were equally likely to have remained abstinent (Figure 1). About half of both groups of youth reported remaining sexually abstinent, and a slightly higher proportion reported having been abstinent within the 12 months prior to the final follow-up survey (56 percent of program group youth versus 55 percent of control group youth; this difference was not statistically significant).

Figure 1. Estimated Impacts on Sexual Abstinence

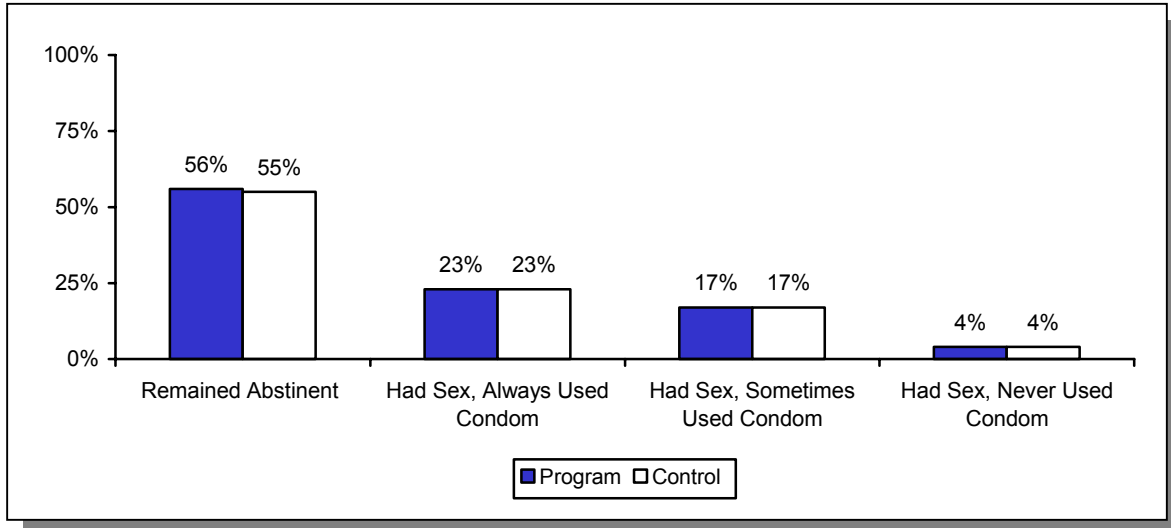


Source: Wave 4 Survey of Teen Activities and Attitudes (Mathematica Policy Research, Inc., 2005), administered to youth 42 to 78 months after enrolling in the Title V, Section 510 Abstinence Education Program study sample.

****p*-value (of program-control difference) < 0.01; ***p*-value < 0.05; **p*-value < 0.10, two-tailed test.

Unprotected Sex. Program and control group youth did not differ in their rates of unprotected sex, either at first intercourse or over the last 12 months. Over the last 12 months, 23 percent of both groups reported having had sex and always using a condom; 17 percent of both groups reported having had sex and only sometimes using a condom; and 4 percent of both groups reported having had sex and never using a condom (Figure 2).

Figure 2. Estimated Impacts on Unprotected Sex, Last 12 Months



Source: Wave 4 Survey of Teen Activities and Attitudes (Mathematica Policy Research, Inc., 2005), administered to youth 42 to 78 months after enrolling in the Title V, Section 510 Abstinence Education Program study sample.

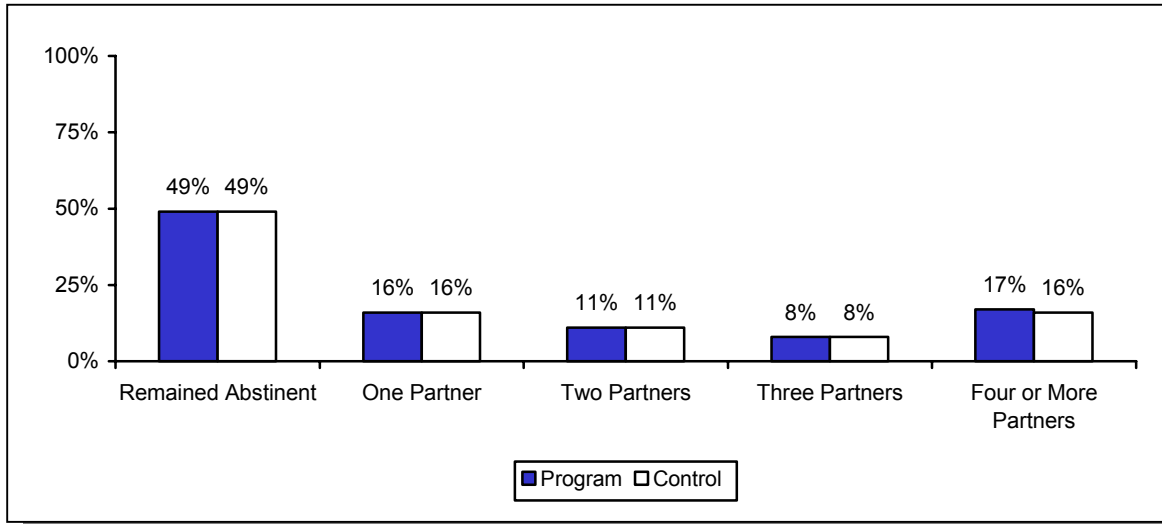
*** p -value (of program-control difference) < 0.01; ** p -value < 0.05; * p -value < 0.10, two-tailed test.

Age at First Intercourse. For both the program and control group youth, the reported mean age at first intercourse was identical, 14.9 years. This age is seemingly young, but recall that the outcome is defined only for youth who reported having had sex and the average age of the evaluation sample was less than 17.

Sexual Partners. Program and control group youth also did not differ in the number of partners with whom they had sex. Comparing the program and control groups overall, the distributions on the number of reported sex partners are nearly identical (Figure 3). About one-quarter of all youth in both groups had sex with three or more partners, and about one in six had sex with four or more partners.

IMPACTS ON KNOWLEDGE OF RISKS ASSOCIATED WITH TEEN SEX

Overall, the programs improved identification of STDs but had no overall impact on knowledge of unprotected sex risks and the consequences of STDs. Both program and control group youth had a good understanding of the risks of pregnancy but a less clear understanding of STDs and their health consequences.

Figure 3. Estimated Impacts on Reported Number of Sexual Partners

Source: Wave 4 Survey of Teen Activities and Attitudes (Mathematica Policy Research, Inc., 2005), administered to youth 42 to 78 months after enrolling in the Title V, Section 510 Abstinence Education Program study sample.

*** p -value (of program-control difference) < 0.01; ** p -value < 0.05; * p -value < 0.10, two-tailed test.

STD Identification. On the follow-up survey, youth were given a list of 13 diseases and asked whether or not each was a sexually transmitted disease; nine were actual STDs and four were not STDs. Youth in the program group identified an average of 69 percent of these diseases correctly (Table 4). This rate is two percentage points higher than the average among youth in the control group, and the difference is statistically significant.

Findings remain consistent when examining impacts separately for diseases that are STDs and those that are not. This consistency suggests that programs did not simply raise the likelihood that youth believed any disease was transmitted sexually; rather, they had a beneficial long-term impact on STD identification.

Knowledge of Unprotected Sex Risks. Most youth are knowledgeable about the risks of unprotected sex. On a two-item [0-1] scale measuring knowledge of these risks, youth in both the program and control group reported a high mean score (0.88) (Table 4).

Knowledge of STD Consequences. In contrast to high levels of knowledge about the risks of unprotected sex, study youth are less knowledgeable about the potential health risks from STDs. On a three-item [0-1] scale measuring their understanding of these risks, youth in the program and control groups had nearly identical mean scores of 0.52 and 0.51, respectively, which corresponded to a typical youth answering only about half the items of the scale correctly (Table 4).

Table 4. Estimated Impacts on Selected Measures of Knowledge of STDs and Risk Behavior

	Program Group (Scale Mean)	Control Group (Scale Mean)	Program-Control Difference	<i>p</i> -value
STD Identification				
Overall identification of STDs	0.69	0.67	0.02	0.00 ***
Knowledge of Pregnancy and STD Risks				
Knowledge of unprotected sex risks	0.88	0.88	0.00	0.85
Knowledge of STD consequences	0.52	0.51	0.02	0.20

Source: Wave 4 Survey of Teen Activities and Attitudes (Mathematica Policy Research, Inc., 2005), administered to youth 42 to 78 months after enrolling in the Title V, Section 510 Abstinence Education Program study sample.

Note: Program-control difference may not equal difference in means due to rounding.

****p*-value (of program-control difference) < 0.01; ***p*-value < 0.05; **p*-value < 0.10, two-tailed test.

IMPACTS ON PERCEPTIONS OF PREGNANCY AND STD PREVENTION

Perceived Effectiveness of Condoms. Program and control group youth had similar perceptions about the effectiveness of condoms for pregnancy prevention (Table 5). About half of the youth in both groups reported that condoms usually prevent pregnancy, and 38 percent reported that condoms sometimes prevent pregnancy. Only three percent of youth reported that condoms never prevent pregnancy, while seven percent reported being unsure.

With respect to STD prevention, a number of youth in both the program and control groups reported being unsure about the effectiveness of condoms at preventing STDs. For example, roughly one-quarter of youth in both groups reported being unsure about whether condoms are effective at preventing chlamydia and gonorrhea or at preventing herpes and HPV. In addition, a sizeable fraction in both groups, about one-in-seven, reported being unsure about condoms' effectiveness for preventing HIV. These findings are in sharp contrast to those for pregnancy, for which very few youth in either group reported being unsure about their effectiveness.

Program group youth were less likely than control group youth to report that condoms are usually effective at preventing STDs; and they were more likely to report that condoms are never effective at preventing STDs. For example, 21 percent of program group youth reported that condoms never prevent HIV, compared to 17 percent of control group youth. For herpes and HPV, 23 percent of program group youth reported that condoms are never effective, compared to 15 percent of control group youth.

Table 5. Estimated Impacts on Perceived Effectiveness of Condoms for Preventing Pregnancy and STDs

	Program Group (Percentage)	Control Group (Percentage)	Program-Control Difference (Percentage Points)	<i>p</i> -value
Condoms Prevent Pregnancy				
Usually	51	52	-1	0.63
Sometimes	38	38	0	0.88
Never	3	3	1	0.49
Unsure	7	7	0	0.83
Condoms Prevent HIV				
Usually	34	38	-4	0.07*
Sometimes	30	30	0	0.97
Never	21	17	5	0.01**
Unsure	14	15	-1	0.76
Condoms Prevent Chlamydia and Gonorrhea				
Usually	30	35	-5	0.03**
Sometimes	27	25	2	0.37
Never	20	14	6	0.00***
Unsure	23	26	-3	0.15
Condoms Prevent Herpes and HPV				
Usually	26	31	-5	0.03**
Sometimes	26	26	1	0.77
Never	23	15	7	0.00***
Unsure	25	28	-3	0.10*

Source: Wave 4 Survey of Teen Activities and Attitudes (Mathematica Policy Research, Inc., 2005), administered to youth 42 to 78 months after enrolling in the Title V, Section 510 Abstinence Education Program study sample.

Notes: Program-control difference may not equal difference in percentages due to rounding. *F*-tests of the difference in the distribution of the outcome measures between control and program groups are in Appendix Tables A.10–A.13.

****p*-value (of program-control difference) < 0.01; ***p*-value < 0.05; **p*-value < 0.10, two-tailed test.

Perceived Effectiveness of Birth Control Pills. Just over 55 percent of the youth in both the program and control groups reported that, when used properly, birth control pills usually prevent pregnancy (Table 6). With respect to STD prevention, more than two out of three youth reported, correctly, that birth control pills do not prevent STDs. And, for each type of STD investigated, a significantly higher proportion of youth in the program group than in the control group reported this was the case. For example, 73 percent of program group youth correctly reported that birth control pills never prevent HIV compared to 69 percent of control group youth, a statistically significant difference of four points.

Table 6. Estimated Impacts on Perceived Effectiveness of Birth Control Pills for Preventing Pregnancy and STDs

	Program Group (Percentage)	Control Group (Percentage)	Program-Control Difference (Percentage Points)	p-value
Birth Control Pills Prevent Pregnancy				
Usually	56	55	1	0.55
Sometimes	33	36	-2	0.32
Never	3	3	0	0.62
Unsure	7	7	1	0.65
Birth Control Pills Prevent HIV				
Usually	6	6	0	0.94
Sometimes	6	7	-2	0.15
Never	73	69	4	0.04**
Unsure	16	18	-2	0.15
Birth Control Pills Prevent Chlamydia and Gonorrhea				
Usually	4	5	-1	0.15
Sometimes	6	5	0	0.71
Never	71	67	4	0.03**
Unsure	19	23	-3	0.06*
Birth Control Pills Prevent Herpes and HPV				
Usually	4	5	-1	0.54
Sometimes	4	6	-2	0.08*
Never	71	67	3	0.09*
Unsure	21	22	-1	0.64

Source: Wave 4 Survey of Teen Activities and Attitudes (Mathematica Policy Research, Inc., 2005), administered to youth 42 to 78 months after enrolling in the Title V, Section 510 Abstinence Education Program study sample.

Note: Program-control difference may not equal difference in percentages due to rounding.

***p-value (of program-control difference) < 0.01; **p-value < 0.05; *p-value < 0.10, two-tailed test.

SITE-LEVEL IMPACTS

Findings for each of the four individual sites indicate few statistically significant differences in behavior between program and control group youth. In each site, most differences between youth in the program and control groups were small and inconsistent in direction. *ReCapturing the Vision* displayed the largest positive differences with respect to abstinence from sex; 48 percent of program youth in this site reported being abstinent in the last 12 months compared with 43 percent of control group youth. *ReCapturing the Vision* also displayed a positive difference of seven points in the proportion of youth who reported expecting to abstain from sex until marriage. Neither of these differences is statistically significant. Given the smaller sample sizes available for estimating impacts at the site level, however, the study cannot rule out modest site-specific impacts on these outcomes.

Remaining site-level findings show that *My Choice, My Future!* increased youth knowledge of STD and pregnancy risks, and changed their perceptions of the effectiveness of condoms and birth control pills. Compared to youth in the control group, youth in the program group for *My Choice, My Future!* were more likely to identify STDs correctly and to have greater knowledge of both unprotected sex risks and the potential health consequences of STDs. All differences were statistically significant. With respect to perceptions, program group youth in *My Choice, My Future!* were less likely than their control group counterparts to perceive condoms as effective at preventing a range of STDs. Youth in the program group were also less likely than control group youth to perceive birth control pills as effective in preventing STDs. As with the knowledge measures, differences across all of the measures of perceptions were statistically significant for *My Choice, My Future!*

LOOKING FORWARD

The evaluation highlights the challenges faced by programs aiming to reduce adolescent sexual activity and its consequences. Nationally, rates of teen sexual activity have declined over the past 15 years, yet even so, about half of all high school youth report having had sex, and more than one in five report having had four or more partners by the time they graduate from high school. One-quarter of sexually active adolescents nationwide have an STD, and many STDs are lifelong viral infections with no cure.

Some policymakers and health educators have questioned whether the Title V, Section 510 programs' focus on abstinence elevates these STD risks. Findings from this study suggest that this is not the case, as program group youth are no more likely to engage in unprotected sex than their control group counterparts. However, given the lack of program impacts on behavior, policymakers should consider two important factors as they search for effective ways to reduce the high rate of teen sexual activity and its negative consequences:

► Targeting youth solely at young ages may not be sufficient.

As with the four programs in this study, most Title V, Section 510 abstinence education programs were implemented in upper elementary and middle schools. In addition, most Title V, Section 510 programs are completed before youth enter high school, when rates of sexual activity increase and many teens are either contemplating or having sex.

Findings from this study provide no evidence that abstinence programs implemented in upper elementary and middle schools are effective in reducing the rate of teen sexual activity. However, the findings provide no information on the effects programs might have if they were implemented for high school youth or began at earlier ages but continued to serve youth through high school.

► Peer support may be protective but erodes sharply during the teen years.

An analysis of teen sexual activity, presented in Chapter VI of the report, finds that friends' support for abstinence is a significant predictor of future sexual abstinence. Although the programs had at most a small impact on this measure in the short-term and no

impact in the longer-term, this finding suggests that promoting support for abstinence among peer networks should be an important feature of future abstinence programs.

While friends' support for abstinence may have protective benefits, maintaining this support appears difficult for most youth as they move through adolescence. At the time when most Title V, Section 510 abstinence education programs are completed and youth enter their adolescent years, data from the study find that support for abstinence among friends drops dramatically. For example, survey data from the start of the impact study show that nearly all youth had friends who exhibited attitudes and behaviors supportive of abstinence. Four years later, however, the typical youth in the study reported that only two of his or her five closest friends remained supportive of abstinence.

Youth who participate in Title V, Section 510 programs may also find themselves unable to maintain their peer networks as they advance from elementary to middle school or from middle school up through high school. In some urban settings, for example, the parent(s) of a child attending a particular middle school might have the option of sending that child to potentially dozens of high schools in the school district. Alternatively, in many other communities, children from several elementary (or middle) schools might feed into a single middle (or high) school. To the extent that the Title V, Section 510 abstinence programs aim to influence peer networks, this dispersal or dilution of peer networks after youth complete the programs presents a significant challenge to sustaining positive change.

CHAPTER I

INTRODUCTION

Authorized under the Social Security Act of the Personal Responsibility and Work Opportunity Reconciliation Act of 1996 (PRWORA), the Title V, Section 510 Abstinence Education Program was one of the legislative centerpieces that increased both the funding and visibility of abstinence education programs. Since fiscal year 1998, the Title V, Section 510 Abstinence Education Program has allocated \$50 million annually for programs that teach abstinence from sexual activity outside of marriage as the expected standard for school-age children. Under the matching block grant program administered by the U.S. Department of Health and Human Services (DHHS), states must match this federal funding at 75 percent, resulting in a total of up to \$87.5 million annually for Title V, Section 510 abstinence education programs.

In the Balanced Budget Act of 1997, Congress authorized a scientific evaluation of Title V, Section 510 abstinence education programs. The resulting multi-year evaluation included two major components. The first was an implementation and process analysis that documented the experiences of the organizations and communities that applied for and received the block grants authorized under Title V, Section 510. The second was a rigorous, experimentally based impact evaluation designed to estimate the effects of selected Title V, Section 510 abstinence education programs on teen sexual abstinence and related outcomes.

This report presents the behavioral impact findings of four selected programs that received funding through the Title V, Section 510 grants: (1) *My Choice, My Future!* in Powhatan, Virginia; (2) *ReCapturing the Vision* in Miami, Florida; (3) *Families United to Prevent Teen Pregnancy (FUPTP)* in Milwaukee, Wisconsin; and (4) *Teens in Control* in Clarksdale, Mississippi. Like most programs supported by the Title V, Section 510 grants, these four programs all served youth in school settings, usually in the upper elementary or middle school grades. All programs offered more than 50 contact hours and lasted for one or more school years, making them relatively intense among programs funded by the Title V, Section 510 grant. One of the programs, *FUPTP*, served youth on a voluntary basis in an after-school setting. The other three programs served youth in classrooms during the school day much like any other course, although *ReCapturing the Vision* augmented these classroom-based services with a number of extracurricular offerings.

This report examines the impact of these programs on teens' sexual abstinence, their risks of pregnancy and sexually transmitted diseases, and other behavioral outcomes. The report is based on survey data collected in 2005 and early 2006—four to six years after study enrollment—from more than 2,000 teens who had been randomly assigned to either a program group that was eligible to participate in one of the four programs or a control group that was not.

BACKGROUND

By the time Congress enacted PRWORA and authorized funding for abstinence education programs under Title V, Section 510, there was growing concern over the dramatic rise in teen pregnancy and childbirth rates during the late 1980s and early 1990s. By 1991, teen pregnancy and childbirth rates had reached highs of 116.5 and 62.1 per 1,000 women 15 to 19 years of age, respectively. Rates have dropped since that time; for example, by 2004, the teenage birthrate had fallen to 41.1 births per 1,000 women 15 to 19 years of age. However, concerns over the high incidence of births to unwed teen mothers, as well as the broader risks of teen sexual activity, have persisted (Centers for Disease Control and Prevention 2006; Weinstock et al. 2004; Chesson et al. 2004).

Teen Sexual Activity and Its Consequences

- In 2005, women 15 to 19 years of age had 831,000 pregnancies, most out of wedlock.
- In 2005, 14.3 percent of high school students and 21.4 percent of twelfth grade students had had sex with four or more persons.
- In 2005, 37.2 percent of sexually active high school students and 44.6 percent of sexually active twelfth grade students did not use a condom during their last sexual intercourse.
- Of the approximately 19 million new STD infections in the U.S. in 2000, nearly half were among persons 15 to 24 years of age.
- STDs have been linked to infertility, miscarriages, cervical cancer, increased HIV risk, and numerous other health problems. Their cost is estimated at several billion dollars annually.

Title V, Section 510 Funding

Beginning in fiscal year 1998, the Title V, Section 510 funding provided \$50 million of annual federal support for abstinence education programs that teach abstinence from sexual activity outside of marriage as the expected standard for school-age children. In order to receive these grants, states must match \$3 of every \$4 contributed by the federal government, which results in a total of up to \$87.5 million available annually. Upon receipt of federal funding, states have discretion over which programs to fund and at what level. However, all funded programs are required to be consistent with the “A-H” definition of abstinence education prescribed in the Social Security Act (Table I.1).

Originally administered by the Maternal and Child Health Bureau (MCHB) of the Health Resources and Services Administration within DHHS, the Title V, Section 510 funding is currently distributed to states by the Administration of Children and Families (ACF) in the form of grants. These grants are based on a formula that compares the proportion of low-income children in the state to the total number of low-income children

Table I.1. A-H Definition of Abstinence Education

A	Have as its exclusive purpose teaching the social, psychological, and health gains to be realized by abstaining from sexual activity
B	Teach abstinence from sexual activity outside marriage as the expected standard for all school-age children
C	Teach that abstinence from sexual activity is the only certain way to avoid out-of-wedlock pregnancy, sexually transmitted diseases, and other associated health problems
D	Teach that a mutually faithful, monogamous relationship in the context of marriage is the expected standard of sexual activity
E	Teach that sexual activity outside the context of marriage is likely to have harmful psychological and physical effects
F	Teach that bearing children out of wedlock is likely to have harmful consequences for the child, the child's parents, and society
G	Teach young people how to reject sexual advances and how alcohol and drug use increases vulnerability to sexual advances
H	Teach the importance of attaining self-sufficiency before engaging in sexual activity

Source: Title V, Section 510 (b)(2)(A-H) of the Social Security Act (P.L. 104-193).

in all states. Just two years after the start of the Title V, Section 510 funding, states had funded over 700 programs nationwide. Among the groups that received funding were community-based organizations, school boards, local health departments, faith-based organizations, universities, local coalitions and advocacy groups, consultants, research firms, health care organizations, and non-profit organizations (MCHB 2000). Congress reauthorized the Title V, Section 510 funding in 2002.

Other Major Federal Abstinence Funding

In 2000, Congress increased funding of abstinence education through a federal earmark known as Community Based Abstinence Education (CBAE). Like the Title V, Section 510 programs, the CBAE-funded programs must be consistent with all eight of the “A-H” criteria. However, CBAE differs from Title V, Section 510 in the way that the funding is distributed. Under Title V, Section 510, funding passes through the states before reaching the abstinence education programs; CBAE funding, by contrast, is provided directly from the federal government to community-based programs. Also in contrast to Title V, Section 510, all programs funded by CBAE must specifically target youth between 12 and 18 years of age. Initially administered by MCHB, administration of CBAE was re-assigned to ACF in 2005.

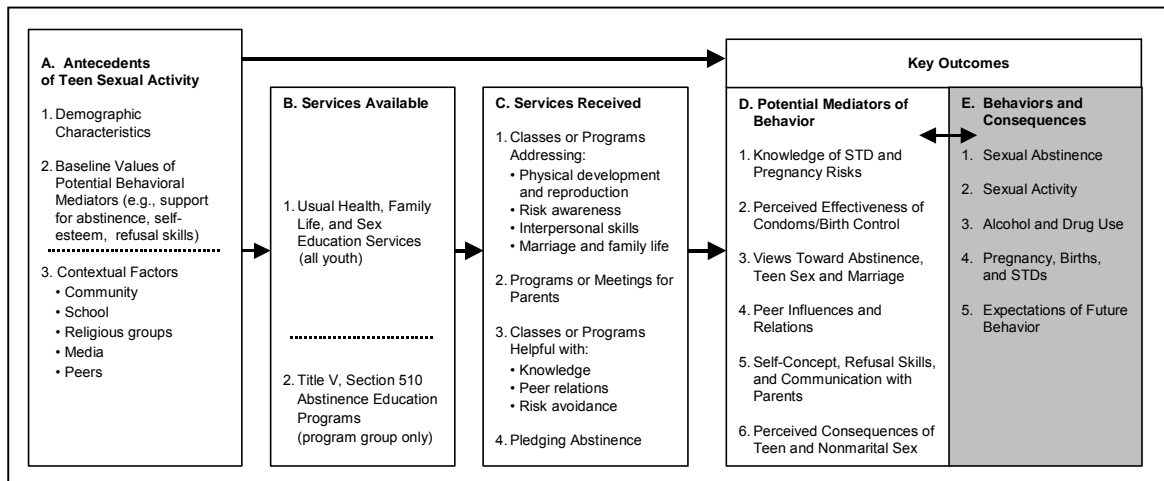
Prior to the enactment of Title V, Section 510, federal funding for abstinence education had been provided mainly through the Adolescent Family Life Act (AFLA) or Title XX of the Public Health Services Act of 1981. Funding through AFLA is modest relative to Title

V, Section 510. In fiscal year 2005, the Office of Adolescent Pregnancy Programs awarded about \$13 million in Title XX grants to 58 public and private community organizations for projects that specifically promote several abstinence programs for adolescents (DHHS 2006). All programs funded by AFLA must be consistent with the same eight “A-H” criteria spelled out for the Title V, Section 510 funding.

EVALUATION OF TITLE V, SECTION 510 ABSTINENCE EDUCATION PROGRAMS

Guiding the evaluation of the Title V, Section 510 programs is a logic model describing how the funded programs aim to reduce teen sexual activity and related risk behaviors (Figure I.1). Beginning in Box A, the logic model assumes that adolescent decision-making is influenced by numerous antecedents, including their own backgrounds and experiences and the characteristics of their schools and communities. Youth decision-making may also be influenced by the formal education services that they receive (Box B). As one of these possible services, the Title V, Section 510 abstinence programs aim to change the health, family-life, and sex education that youth normally receive (Box C). This change, in turn, is hypothesized to have favorable impacts on several intermediate outcomes that may serve as mediators of behaviors (Box D). For example, youth participating in the programs might develop more positive views towards abstinence and marriage or improve their knowledge of sexual activity risks. Through these and other changes, programs are ultimately hypothesized to affect longer-term behavioral outcomes (Box E). Among these outcomes are the rate of sexual abstinence and the potential consequences of sexual activity, such as STDs and pregnancy.

Figure I.1. Logic Model for Evaluating the Impact of Title V, Section 510 Programs



A series of evaluation reports has studied the pre-behavioral components of the logic model, spanning Boxes A through D. In an initial DHHS study report, Devaney et al. (2001) examined Boxes A and B of the logic model—describing the populations served by the programs and the characteristics and implementation experiences of programs funded through Title V, Section 510. In two subsequent DHHS study reports, Maynard et al. (2005) and Clark and Devaney (2006) examined Boxes C and D of the logic model—measuring the

first-year impacts of five selected Title V, Section 510 programs on the services youth received and on selected intermediate outcomes that may influence risk behavior.

Building on these earlier findings, the current report focuses mainly on the behavioral outcomes of youth, summarized in Box E of the logic model. The report addresses three questions:

1. ***What impacts do programs have on behavioral outcomes?*** Do the four selected Title V, Section 510 abstinence education programs affect behavioral outcomes summarized in Box E—rates of sexual abstinence and sexual activity and risks of STDs and pregnancy?
2. ***What impacts do programs have on possible mediators of behavior?*** Do the four programs improve knowledge of pregnancy and STD risks, knowledge of the health consequences of STDs, and other possible mediators of behavior, such as views toward abstinence and relations with peers, which were a focus of earlier DHHS study reports as well?
3. ***What are the links between possible mediators and behavior?*** How well do the potential mediators (Box D), measured after the first program year, predict the rates of sexual abstinence and sexual activity three to five years later? This analysis provides valuable insight into whether the intermediate outcomes that programs seek to affect (such as self-esteem and skill building) are in fact associated with future behavior.

The next chapter (Chapter II) describes the four programs that are the focus of this report, highlighting their common features and key differences. This is followed, in Chapter III, by a description of the research design and analytic methods used to measure the programs' impacts. Chapters IV through VI present the report findings, addressing respectively each of the three research questions listed above. Finally, Chapter VII summarizes the main study findings and considers the implications of these findings for future policy and research.

CHAPTER II

FOCAL PROGRAMS

Four Title V, Section 510 programs are the focus of this report: (1) *My Choice, My Future!* in Powhatan, Virginia; (2) *ReCapturing the Vision* in Miami, Florida; (3) *Families United to Prevent Teen Pregnancy (FUPTP)* in Milwaukee, Wisconsin; and (4) *Teens in Control* in Clarksdale, Mississippi. This chapter provides a brief overview of these programs, how they were selected, and the features that distinguish them and the communities they serve. It also briefly describes how certain program features have influenced the design of the study and the interpretation of findings.

OVERVIEW OF THE PROGRAMS

One of the earliest stages of the evaluation entailed selecting Title V, Section 510 abstinence education programs for the study. The evaluation team first called and met with numerous state officials and experts across the country to identify promising programs for inclusion in the evaluation. Grant applications and program documents provided additional detail on program goals, target population, curriculum used, and funding levels. The evaluation team visited and observed 28 abstinence education programs across the nation. Eleven of these, representing a range of program models and serving different target populations, were invited and agreed to participate in the evaluation.

This report focuses on 4 of these 11 programs. These four programs are called “impact sites” because they had program features and staff capable of supporting a rigorous, experimental-design impact evaluation. (A fifth program—*Heritage Keepers*[®] in South Carolina—is also an impact site but is not included in this report because it has a different research design.¹) The remaining six programs were community-wide, systemic-change initiatives that aimed to increase public awareness of the problems of teen sexual activity, change community norms and attitudes, involve parents and encourage stronger parent-child communication, and engage youth in abstinence education and youth development services.

¹ Specifically, for *Heritage Keepers*[®], the evaluation was designed to measure the impact of adding an abstinence-focused character club to a classroom-based abstinence curriculum rather than to measure the impact of an overall abstinence program versus services as usual. A separate report on the impact of the *Heritage Keepers*[®] program is forthcoming.

While these community-wide initiatives broaden our understanding of strategies for changing youth behavior, by design they are less able to support a rigorous impact study of program effectiveness.

The four programs are the following:

1. ***My Choice, My Future!*** A three-year, mandatory, classroom-based program, *My Choice, My Future!* served students, beginning in the eighth grade, who attended Powhatan, Virginia County Schools.
2. ***ReCapturing the Vision.*** A one-year, elective, classroom-based program, *ReCapturing the Vision* served mainly seventh and eighth grade girls attending selected middle schools in Miami, Florida.
3. ***Families United to Prevent Teen Pregnancy (FUPTP).*** An elective, after-school program available on a voluntary basis to students between the ages of 8 and 13, *FUPTP* served students attending selected elementary and middle schools in Milwaukee, Wisconsin.
4. ***Teens in Control.*** A two-year, mandatory, classroom-based program, *Teens in Control* served students, beginning in the fifth grade, who attended selected elementary schools in the Clarksdale, Mississippi area.

Each of the four programs had qualities commonly found in programs supported by the Title V, Section 510 funding. Each program complied with the “A-H” guidelines, delivered its services in school settings, and focused on upper elementary and middle school youth. The four programs’ curricula also shared a similar focus and had many specific topic areas in common (Table II.1). For example, all four programs taught physical development and reproduction, promoted risk awareness, taught goal-setting and good decision-making, provided instruction about healthy relationships, and helped develop interpersonal and risk-avoidance skills.

Table II.1. Common Curriculum Topics

<i>Physical Development and Reproduction</i>	<i>Interpersonal and Relationship Skills</i>
Understanding human development and anatomy	Building healthy relationships
Understanding STDs	Improving communication skills
	Avoiding risk
<i>Risk Awareness</i>	Managing social and peer pressure
Formulating personal goals	Developing values and character traits
Making good decisions	
Building self-esteem	
Risks of drugs and alcohol	

Note: Appendix B outlines the main curriculum used in each of the four programs.

DISTINGUISHING PROGRAM FEATURES

Despite the programs' similarities, each program had several other distinguishing features, including community characteristics, existing services, duration and intensity of services, and curriculum used.

Community Socio-Demographic Characteristics

Two of the programs, *My Choice, My Future!* and *Teens in Control*, operated in rural communities; however, the communities differed markedly in their socio-demographic makeup (see Table II.2, upper panel). *My Choice, My Future!* served youth attending Powhatan County Public Schools. The county is about 40 miles west of Richmond, and many of the newer residents commute to the city for work. The median income of the county is above the national average, and a majority of the youth attending the school system are white, non-Hispanic and live in two-parent families. *Teens in Control* served youth attending selected schools in three county school districts near Clarksdale, Mississippi—Coahoma, West Tallahatchie, and Tunica. In contrast to Powhatan, there is no urban center near these counties and, despite some recent growth in Tunica, the median income remains well below the national average. Most of the youth attending the three school districts are African American and live in single parent households.

Table II.2. Characteristics of the Communities and Youth Served by the Focal Programs

<i>My Choice, My Future!</i>	<i>ReCapturing the Vision</i>	<i>FUPTP</i>	<i>Teens in Control</i>
Powhatan, VA	Miami, FL	Milwaukee, WI	Clarksdale, MS
Socio-Demographic Characteristics			
Mostly middle- and working-class, two-parent, white, non-Hispanic families. Semi-rural setting.	Largely poor, single-parent, African American and Hispanic families. Urban setting.	Predominantly poor, single-parent, African American families. Urban setting.	Predominantly poor, single-parent, African American families. Rural setting.
Existing Health, Family-Life, and Sex Education Services^a			
Nine-week health and physical education class in 8th grade that did not include topics directly related to abstinence or STD risks. An additional health class in 9th grade covered abstinence, but did not cover STDs or contraceptive use.	Mandated school curriculum for 6th through 8th grades, including a week-long unit on human growth and development; sixth grade curriculum covers STDs, abstinence, and drug and alcohol prevention.	Mandatory family life curricula for K through 12; units on abstinence and contraceptive use beginning in 5th grade.	Limited district-wide health, family-life, and sex education curricula for middle-school youth.

^aThis information was provided by school district administrators, school principals, counselors, and school health educators as well as state departments of education and school district websites.

The two other programs, *FUPTP* and *ReCapturing the Vision*, operated in two large urban settings—Milwaukee, Wisconsin and Miami-Dade County, Florida, respectively. In both cities, the schools served by the programs were located in low-income neighborhoods characterized by program staff as having high rates of poverty, teen pregnancy, crime, and deteriorating housing. Youth in these schools are predominantly African American, and most live in low-income households with a single parent.

Existing Health, Family Life, and Sex Education Services

Both rural school districts—the Powhatan school district and the districts in Mississippi—offered only a modest degree of health, family-life, and sex education (Table II.2, lower panel). In Powhatan, all eighth grade youth not enrolled in *My Choice, My Future!* participated in a nine-week health and physical education class. This class covered alcohol, drugs, tobacco, personal safety, communicable and non-communicable diseases, consumerism, mental health, nutrition, and fitness. However, the class did not cover sex education, STDs, contraceptive use, abstinence from sexual activity, or marriage. In ninth grade, these students were enrolled in a health course that covered similar health topics. While the ninth grade course included material on abstinence, it did not cover sex education or contraceptive use. *Teens in Control* operated in schools that had an even more limited, district-wide health, family-life, and sex education curriculum for elementary and middle school youth. Usual services consisted of occasional presentations by outside organizations that generally consisted of a few sessions over a period of weeks.

Compared to the rural districts, both urban school districts offered a fairly significant set of health, family-life, and sex education services. The Miami-Dade County Public Schools, served by *ReCapturing the Vision*, had a mandated health and sex education curriculum for youth in grades six through eight, which included a week-long unit each year on human growth and development taught as part of the science class. The curriculum covered the stages of reproduction and human development and included discussions of contraceptive use. The sixth grade curriculum also covered drug and alcohol prevention, peer pressure, STDs, and the benefits of abstinence from sexual activity. The Milwaukee Public Schools, served by *FUPTP*, already had a mandatory family life curriculum for kindergarten through grade 12, a curriculum that both program and control group youth experienced. This curriculum included what was described as grade-appropriate coverage of comprehensive health education; sexuality and HIV/AIDS; drugs, alcohol, and tobacco; and violence prevention. Abstinence and contraceptive use were covered beginning in fifth grade.

Program Delivery

All four programs began serving youth in elementary and middle school, when few among the target population had become sexually active. Two of the programs—*My Choice, My Future!* and *ReCapturing the Vision*—served youth beginning in seventh and eighth grade, when they were, on average, about 13 years of age. The other two programs—*Teens in Control* and *FUPTP*—served youth beginning in fourth and fifth grade, when they were, on average, 10 to 11 years of age. *ReCapturing the Vision* only served girls; the other three programs served both boys and girls.

The four programs also differed by whether they were elective or non-elective. *My Choice, My Future!* and *Teens in Control* were both non-elective programs that met during the school day much like any other class. Students could only “opt out” of consideration for the class if their parents gave permission. *ReCapturing the Vision* was an elective program whereby girls who were identified by school and program staff as potential candidates had the choice of participating or not. After students chose to participate, however, the program had required attendance like any other class. *FUPTP* was also an elective program, but youth could attend on a voluntary basis.

Program Structure: Duration, Intensity, and Curricula

The four programs differed significantly in duration and intensity and featured a variety of curricula (Figure II.1). *My Choice, My Future!* served youth for three years, though at a modest level of intensity; it included 30 classroom sessions in the first year, 8 in the second year, and 14 in the third year. *Teens in Control* was somewhat similar; it served youth for two years and met once a week during the school day. *ReCapturing the Vision* served youth for only one school year, but the program met daily, making it more intense than the other two classroom-based programs. Finally, *FUPTP* was an after-school program that met for two and one-half hours daily throughout the school year. The program was available to students as long as they attended the program school, which could have been up to four years in some cases. This made the program both relatively long and intense, assuming youth chose to attend.

Figure II.1. Program Setting and Curricula, by Year of Program Participation

Program and Setting	Year of Participation			
	First Year	Second Year	Third Year	Fourth Year
<i>My Choice, My Future!</i> Powhatan, VA (Classroom-based)	<i>Reasonable Reasons to Wait</i> 8th Grade	<i>The Art of Loving Well</i> 9th Grade	<i>Wait Training™</i> 10th Grade	
<i>ReCapturing the Vision</i> Miami, FL (Classroom-based)	<i>ReCapturing the Vision & Vessels of Honor</i> 6th–8th Grades			
<i>FUPTP</i> Milwaukee, WI (After-school program)	← 3rd–8th Grades	<i>A Life Options Model Curriculum for Youth</i> 4th–8th Grades	5th–8th Grades	→ 6th–8th Grades
<i>Teens in Control</i> Clarksdale, MS (Classroom-based)	<i>Postponing Sexual Involvement</i> 5th Grade	<i>Sex Can Wait</i> 6th Grade		

Note: Appendix B provides additional detail on each of these curricula.

My Choice, My Future! used a different curriculum for each of the three years that youth were enrolled in the program. The eighth grade curriculum, *Reasonable Reasons to Wait: The Keys to Character*, focused on character development, reasons to wait to engage in sex, peer influence, dating, avoiding STDs, relationship skills, and the benefits and ingredients of a strong marriage (Duran 1997). The ninth grade curriculum, the *Art of Loving Well: A Character Education Curriculum for Today's Teenagers*, featured short stories, poetry, classic fairy tales, and myths that taught about healthy and loving relationships (Boston University 1993). During the final year of the program, tenth graders received the *WAIT Training™* curriculum, which focused on relationship skills and risk avoidance. The tenth grade program also featured slide show materials from the Medical Institute for Sexual Health (MISH), which provided information on STDs and instructed students that abstinence is the only sure way to avoid contracting them.

ReCapturing the Vision used two curricula—*ReCapturing the Vision* and *Vessels of Honor*—during the one year program. The *ReCapturing the Vision* curriculum centered on identifying personal strengths and resources, developing strategies for fulfilling personal and career goals, and building critical skills that would help youth achieve positive goals and resist negative influences (Del Rosario 2003). The complementary *Vessels of Honor* curriculum included six key areas of focus: (1) honorable behavior, (2) effective communication for resisting pressure to engage in sex and other high-risk behaviors, (3) development of good relationships and satisfying social needs and emotional feelings through friendships rather than sex, (4) physical development and its implications for changing pressures, (5) sexual abuse and date rape and how to avoid both, and (6) strategies for choosing a mate and the benefits of a committed marital relationship (Del Rosario 1999). In addition to the class-based lessons and activities, the *ReCapturing the Vision* program provided a number of complementary services, including home visits by social workers, referrals to local services, after-school tutoring, community service projects, cultural events, a family retreat, an annual Teen Abstinence Rally, and an annual Teen Talk Symposium with celebrity panelists.

FUPTP's abstinence curriculum, *A Life Options Model Curriculum for Youth*, was delivered as a key component of its after-school activities. This curriculum covered 10 topic areas, nearly all of which have abstinence as a central focus: (1) group-building, (2) self-esteem, (3) values and goal-setting, (4) decision-making skills, (5) risk-taking behavior, (6) communication skills, (7) relationships and sexuality, (8) adolescent development and anatomy, (9) sexually transmitted diseases, and (10) social skills (Rosalie Manor, undated). The unit on relationships and sexuality addressed marriage in addition to abstinence; however, because of the young age of many *FUPTP* participants, marriage received relatively less attention. In addition to the in-school services, youth and parents in *FUPTP* could participate in other programming that Rosalie Manor made available; these included periodic parent workshops, a Saturday teen mentoring program, and a seven-week summer program with teen mentors.

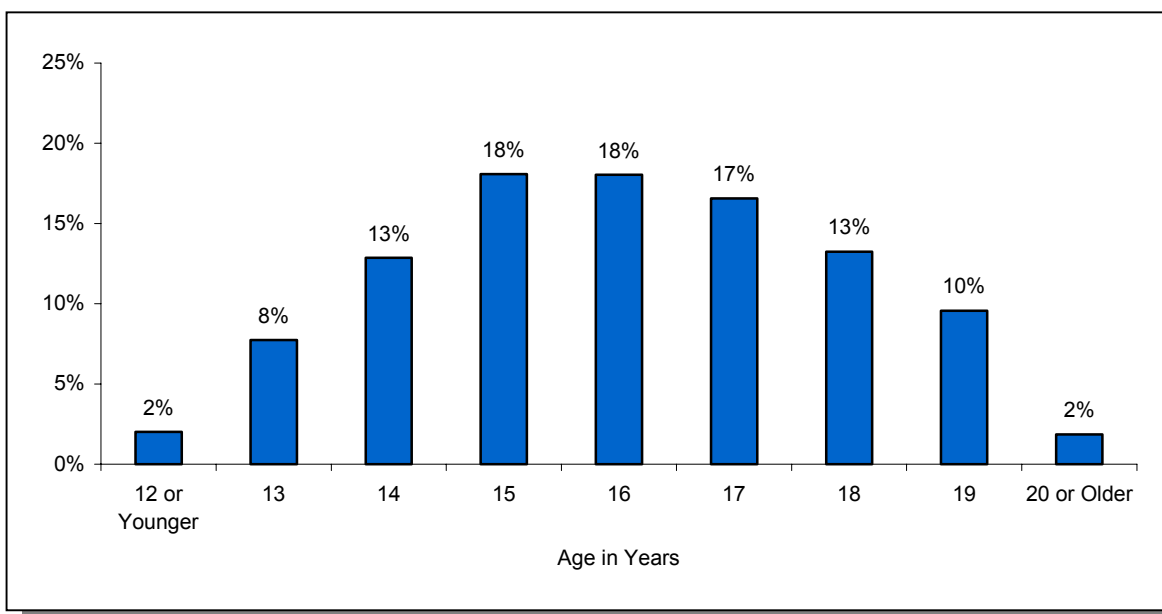
Teens in Control used a different curriculum for each of the two years that youth participated in the program. In fifth grade, program group youth received the *Postponing Sexual Involvement* curriculum (Howard and Mitchell 1990), which was designed to increase

the awareness of the risks and pressures associated with early sexual involvement and to develop skills that could help youth remain abstinent. The five topic areas covered in this curriculum focused on the risks of early sexual involvement and the benefits of abstaining from sex until marriage, social and peer pressures to have sex, and the development of specific skills for resisting peer pressure using extensive practice sessions and reinforcement. The sixth graders in the program received the *Sex Can Wait* curriculum, which covered several key areas: self-concept and self-esteem; the psychological and physical changes during puberty; values; communication skills; information on the risks of STDs; skills for resisting social and peer pressures; and the formulation of career goals, planning how to achieve them, and how sexual abstinence is important for achieving these personal goals.

STUDY IMPLICATIONS

Two program features had notable implications for the study design and for this report. The first is the targeting of age groups in the upper elementary or middle school grades. While this is a common program feature of Title V, Section 510 programs, it required the evaluation to include an extended follow-up period so that program impacts on sexual abstinence and activity could be measured. At the time of the final follow-up survey, administered four to six years after youth enrolled in the study sample, the age of the study youth ranged from 12 to 20 years with a mean and modal age of 16 years (Figure II.2). The upper end of this age distribution includes youth primarily from the two programs that served middle school students, *ReCapturing the Vision* and *My Choice, My Future!*, while the lower end of this age distribution includes youth primarily from the two programs that served elementary school youth, *FUPTP* and *Teens in Control*. Youth in the former two

Figure II.2. Age Distribution of the Study Sample at the Time of the Final Follow-Up Survey



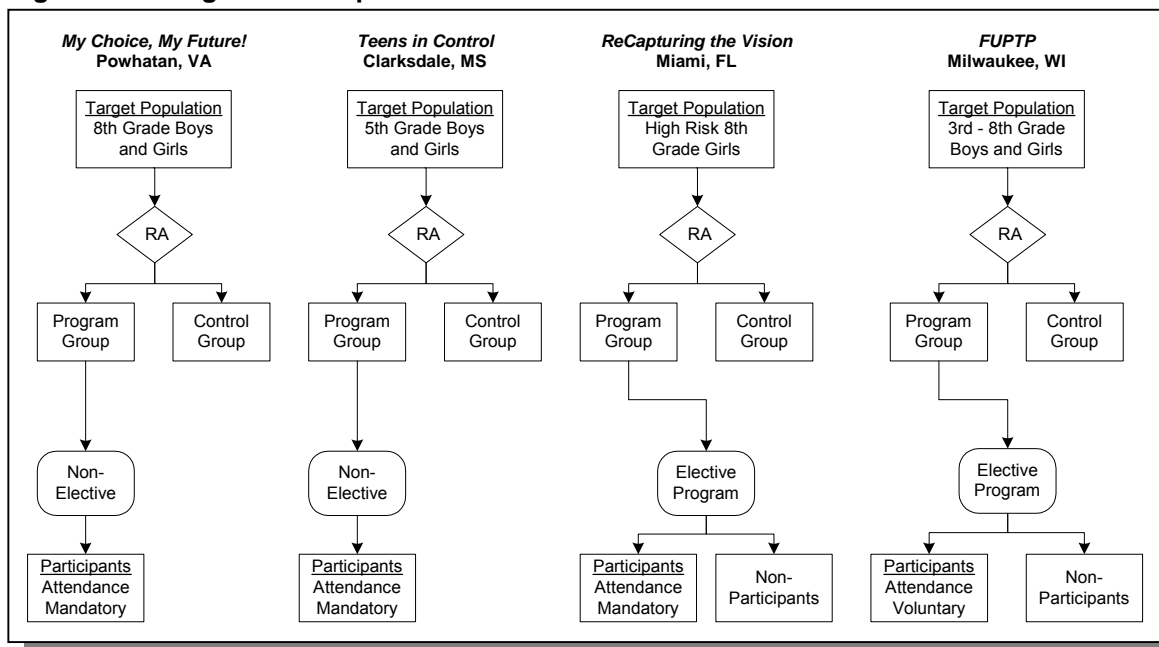
programs averaged 18 years of age at the time of the final follow-up survey; youth in the latter two programs averaged 15 years of age.

Given this age distribution, substantial variation was expected in the rates of sexual abstinence and sexual activity across the study sites at the time of the final follow-up survey (the survey on which findings in this report are based). Youth in the *FUPTP* and *Teens in Control* samples were expected to report relatively low rates of sexual activity compared to youth in the other two program sites.

Even at these fairly young ages, however, rates of sexual activity were expected to be at levels such that true program impacts could be detected. For example, according to the CDC's Youth Risk Behavior Survey, 51 percent of teens in Milwaukee, Wisconsin, report having had sex by ninth grade—the grade of the typical youth in the *FUPTP* study sample. While comparable data are not available for the other program that targeted elementary school youth (*Teens in Control*), its service area in Mississippi has among the highest rates of teen pregnancy in the state, making it likely that a large fraction of youth in the study sample would be sexually active by the time of the final follow-up survey.

The second program feature with important study implications is the elective versus non-elective nature of the programs, which leads to differences across the programs in both program participation and attendance. As shown in Figure II.3, both *My Choice, My Future!* and *Teens in Control* were non-elective school-based programs, and, as with any typical course offered in school, attendance was mandatory among those assigned to the program. In contrast, both *ReCapturing the Vision* and *FUPTP* were elective programs, meaning that eligible youth could choose whether or not to participate.

Figure II.3. Program Participation and Attendance



In the case of *ReCapturing the Vision*, program staff identified a set of high-risk girls in the spring of seventh grade and invited them to apply to the program. Once girls applied and were randomly assigned to the program, they could have chosen not to participate in the fall of eighth grade because they either faced scheduling conflicts (such as a required math class) or may have changed their minds and decided to take another elective. This happened for 35 percent of the girls assigned to the program group. Attendance was mandatory, however, for all girls who chose to participate.

In the case of *FUPTP*, the program was not only elective but attendance was also completely voluntary, meaning that youth could attend as many or as few times as they chose. In practice, many students did not participate at all, though this was often for involuntary reasons such as transportation problems or other constraints. As a result, many youth assigned to the program group, 43 percent, did not participate in any *FUPTP* classes.² In addition, among those who did participate, only a fraction attended most or all of the classes that were available. Specifically, among the 57 percent of program group youth with any participation, only 11 percent attended more than 80 percent of program services in the first year and 45 percent attended more than half. Even for those youth with low attendance rates, however, the total contact hours were still high because of the program's high intensity (a session available every school day for 150 minutes). Indeed, the average program group youth who participated in *FUPTP* received an estimated 146 hours of program services in the first year—more than the total annual contact hours for either *My Choice, My Future!* or *Teens in Control*.

The substantial nonparticipation among program group youth in *ReCapturing the Vision* and *FUPTP* reflects the reality of many abstinence (and other) programs that serve youth on an elective basis, making it an important program feature to include in this study. Consistent with standard research practices, the analysis of program impacts is conducted in two ways. The first presents impacts for all youth that the program intended to serve—that is, those randomly assigned to the program group. The second presents impacts for those who actually participated in the programs. As discussed in the next chapter, while the estimated impacts differ between these two approaches, their associated statistical significance is roughly equal. Thus, the main conclusions from this study differ little when based on one measure or the other.

² This 43 percent rate of nonparticipation reflects an upper bound because the program did not have available attendance records for youth who attended fewer than 25 percent of the classes they had the opportunity to attend. The actual rate of true nonparticipation is therefore lower than 43 percent.

CHAPTER III

DESIGN AND METHODS FOR THE FINAL IMPACT EVALUATION

Central to the evaluation of Title V, Section 510 abstinence education programs is a rigorous analysis of the programs' impact on teen sexual abstinence and teen sexual activity. To this end, the impact analysis for the evaluation relies on an experimental design. Under the experimental design, youth in the study sample are assigned to either a program group that receives the services provided by a selected group of Title V, Section 510 programs or a control group that receives only the usual services available in the absence of these programs. When coupled with sufficiently large sample sizes, longitudinal surveys conducted by independent data collectors, and appropriate statistical methods, this design is able to produce highly credible estimates of the impacts of the focal programs.

IMPACT STUDY DESIGN

Obtaining an unbiased impact estimate requires determining what the outcomes of program group youth would be in the absence of that program (known as the counterfactual). Because the counterfactual cannot be observed directly, it must be estimated. Randomly assigning members of the study sample to either a program group or a control group is considered the most valid approach for estimating the counterfactual. Because of random assignment, program and control groups are similar in all respects except their access to the program services, making the control group a highly credible counterfactual. As a result, unbiased estimates of program impacts can be generated by simply comparing mean values of outcome measures (such as sexual abstinence) for the program group with those for the control group. The evaluation of Title V, Section 510 program uses this type of experimental design.

Sample Intake and Random Assignment

Sample intake took place near the beginning of three school years—1999–2000, 2000–2001, and 2001–2002. In each of these years, either program or school staff identified those youth who were eligible to participate in the programs. In the two non-elective programs—*My Choice, My Future!* and *Teens in Control*—eligible youth included all those in the targeted grade level (8th and 5th grades, respectively). In the elective programs—*ReCapturing the Vision* and *FUPTP*—eligible youth included all those in the targeted grade levels who had

been identified by school or program staff as potential candidates. Once identified, eligible students were given a study consent form that notified parents of their child's eligibility for the program, explained the program and the evaluation, and described how selection for the program would take place through a lottery (random assignment).

In order for a student to be eligible both for the lottery and to participate in the evaluation, parents had to provide signed, active consent. In the two non-elective programs, parent consent rates were high, in excess of 90 percent (youth with parents not agreeing to participate were automatically placed in the classes that control group youth were to take). In the two other programs, parental consent rates could not be estimated because of their elective nature; however, there were few known cases of parents who wanted their child to participate in the program but opted out of the lottery because of the requirement to participate in the study.

In order to conduct the random assignment, lists of the eligible students who had active parental consent were sent to the evaluation team near the beginning of each school year and a random number generator was used to order the applicant pool. Once programs informed the evaluation team of the number of program slots available, the evaluation team released the names of students with that rank order or less in the assignment hierarchy. For example, in a program with 200 applicants and a capacity to serve 100 youth, the evaluation team released the names of the first 100 youth in the randomly ordered list of eligible applicants for inclusion in the program group. All students not selected for the program group formed an ordered "waitlist" and control group. In cases where it was necessary to maintain a minimum program enrollment, program vacancies were filled by releasing youth on the waitlist in the order of their original random number. Along with the original set of youth selected for the programs, all students selected from the waitlist to fill program vacancies became members of the study's program group regardless of whether they actually participated. All remaining students on the ordered waitlist formed the control group for the study.

In some instances, lists of eligible students were sent to the evaluation team in batches, leading to multiple rounds of random assignment within a school year. These multiple rounds of assignment, coupled with sample enrollment taking place over multiple school years, led to modest variation in the likelihood of students being selected for the program or control group. This variation in the selection probability was addressed in the analysis by using sample weights, as described below.

Sample and Data Collection

The resulting study sample includes 2,501 youth, enrolled over a three-year period from fall 1999 through fall 2001 (Table III.1; top panel). Within each program site, sample sizes ranged from 504 for *FUPTP* to 849 for *Teens in Control*. Just less than 60 percent of the study sample was assigned to the program group (1,461); the remainder was assigned to the control group (1,040).

Table III.1. Study Sample and Sample Size for this Report

	<i>My Choice, My Future!</i>	<i>ReCapturing the Vision</i>	<i>FUPTP</i>	<i>Teens in Control</i>	Total Sample
	Powhatan, VA	Miami, FL	Milwaukee, WI	Clarksdale, MS	
Number in Study Sample					
Total	551	597	504	849	2,501
Control group	203	260	178	399	1,040
Program group	348	337	326	450	1,461
Response Rate on Final Follow-Up Survey					
Total	81%	80%	82%	84%	82%
Control group	80%	79%	79%	85%	82%
Program group	82%	81%	84%	83%	83%
Sample Size for this Report (Number in Study Sample x Response Rate)					
Total	448	480	414	715	2,057
Control group	162	205	140	341	848
Program group	286	275	274	374	1,209

Source: Tracking system for the *Survey of Teen Activities and Attitudes* (Mathematica Policy Research, Inc., 1999 and 2000) administered to youth in the Title V, Section 510 Abstinence Education Program study sample.

Data were collected from the study sample through a series of four surveys.¹ They included a baseline survey, administered near the time that youth began participating in the study, and three follow-up surveys. The surveys were administered either in school using a pen-and-paper instrument or by phone.

The impact findings presented in this report are based on data collected from the final follow-up survey, which was administered to study youth between spring 2005 and winter 2006. This reflects a follow-up period of roughly 42 to 78 months after youth began participating in the study, depending on the year in which they began participating and the exact timing of the survey. The response rate on this survey ranged from 80 to 84 percent across the four study sites, leading to an 82 percent rate overall (Table III.1, middle panel).

In each site, the sample size available for this report is given by the product of the number of youth in the study sample (upper panel of Table III.1) and their corresponding response rate on the final follow-up survey (middle panel of Table III.1). As seen in the lower panel of Table III.1, the resulting sample size for this report ranges from 414 youth for *FUPTP* to 715 for *Teens in Control*. The total sample size across the four sites totals 2,057 youth.

¹ Copies of these surveys are available online at [<http://www.mathematica-mpr.com>].

Evidence suggests that the program and control groups are well matched, as would be expected given an experimental design. Across a wide range of baseline measures, only a minimal number of differences between the program and control groups were statistically significant—no more than expected by random chance. For example, of over 40 measures based on baseline data (see Appendix Table A.1), no more than seven in each site show a statistically significant difference between the program group and control group.

Sample Characteristics

The sample characteristics of youth in each site reflected both the targeting of the programs and the communities in which youth lived (Table III.2). In the two program sites serving middle schoolers, *My Choice, My Future!* and *ReCapturing the Vision*, sample youth averaged over 18 years of age by the time of the final follow-up survey. This is considerably older than the two program sites serving upper elementary school youth, *FUPTP* and *Teens in Control*, in which sample youth averaged only 15.5 years of age. While the *ReCapturing the Vision* sample included only girls, reflecting the targeting of the program, the gender mix in the other three sites was fairly close to even. The race/ethnicity of youth in the study samples largely reflected their communities' composition. More than 80 percent of the youth in the *My Choice, My Future!* sample were white, non-Hispanic, while high proportions of youth in the other three sites were African American or Hispanic.

Table III.2. Characteristics of the Final Analysis Sample

	<i>My Choice, My Future!</i>	<i>ReCapturing the Vision</i>	<i>FUPTP</i>	<i>Teens in Control</i>	All Four Sites
	Powhatan, VA	Miami, FL	Milwaukee, WI	Clarksdale, MS	
Age at Final Follow-Up (Mean)	18.5	18.2	15.5	15.6	16.9
Gender (Percent Female)	51	100	62	52	66
Race/Ethnicity (Percent)					
White, non-Hispanic	82	4	2	0	22
African American, non-Hispanic	11	63	76	87	59
Hispanic	3	20	7	7	9
Other	4	13	15	6	9
Baseline Family Situation (Percent)					
Parents married	67	34	26	31	39
Has mother figure	98	90	93	97	95
Has father figure	94	81	81	92	87
Unmarried sister got pregnant	2	15	17	15	12
Sibling dropped out of school	2	7	12	11	8
Sample Size	448	480	414	715	2,057

Source: Wave 1 Survey of Teen Activities and Attitudes (Mathematica Policy Research, Inc., 1999) administered at or near the time youth enrolled in the Title V, Section 510 Abstinence Education Program study sample.

Note: Data shown are weighted means.

Youth in the study sample come from backgrounds that put them at relatively high risk of having sexual intercourse at an early age. With the exception of *My Choice, My Future!*, one-third or fewer of the sample youth in each site reported at baseline having parents who were married. They also reported relatively high rates of life stressors, such as sisters getting pregnant or siblings dropping out of school. Moreover, although almost all youth reported that they had a mother figure (95 percent), only four out of every five youth in the *Recapturing the Vision* and *FUPTP* samples reported having a father figure.

OUTCOME VARIABLES

All outcome measures were based on data from the final follow-up survey. These measures fall into two categories (Table III.3):

1. ***Measures of Risk Behavior and Behavioral Consequences.*** These include the measures that are most central to the evaluation, including whether youth remained abstinent, expected to abstain in the future, and engaged in unprotected sex (Table III.3; top panel). They also include measures of potential consequences of teen sexual activity, such as pregnancy or reported STDs, and important behavioral correlates of teen sexual activity, such as alcohol and drug use.
2. ***Measures of Potential Mediators (Knowledge and Perceptions).*** Several potentially important mediators of teen sexual behavior, shown in the lower panel of Table III.3, were not available until the final follow-up survey. Therefore, along with the measures of risk behavior and behavioral consequences, they are also a main focus of this final impacts report. This new set of measures spans two broad categories: knowledge and perceptions. Measures of knowledge include the ability of youth to identify STDs, their understanding of potential risks of unprotected sex, and their knowledge of potential health consequences of STDs. Measures of perceptions focus on whether youth believe condoms or birth control pills are effective for preventing pregnancy and STDs.

ANALYTIC METHODS

For each outcome measure, program impacts were estimated as the difference in regression-adjusted mean values between the program and control groups. These impacts were estimated both overall and for each site individually. The overall estimate was obtained simply by averaging the estimated impacts for each of the four individual sites. This approach was preferred to weighting each site according to the size of its sample, which would have arbitrarily given some sites (most notably *Teens in Control*) more importance when computing a pooled estimate.

Table III.3. Outcome Variables

Variable	Definition
Measures of Risk Behavior and Behavioral Consequences	
Sexual Abstinence and Sexual Activity	
Remained Abstinent	Binary variable: equals 1 if youth reported never having had sexual intercourse; equals 0 if youth reported having had sexual intercourse (ever).
Abstinent Last 12 Months	Binary variable: equals 1 if youth reported not having had sex in last 12 months; equals 0 if youth reported having had sex in last 12 months.
Number of Sexual Partners	Categorical variable, with five categories: (1) remained abstinent; (2) one sexual partner ever; (3) two sexual partners ever; (4) three sexual partners ever; and (5) four or more sexual partners ever.
Age at First Intercourse	Continuous variable, equal to the age that youth who have not remained abstinent report having first had intercourse. Youth who have remained abstinent are assigned missing values (dropped from the analysis).
Expectations for Future Behavior	
Expect to Abstain Through High School	Binary variable: equals 1 if youth reported expecting to abstain through high school (including those who have previously had sex); equals 0 otherwise. Youth who were 18 or older at the time of the survey were dropped from the measure.
Expect to Abstain as a Teenager	Binary variable: equals 1 if youth reported expecting to abstain until age 20 (including those who have previously had sex); equals 0 otherwise. Youth who were 20 or older at the time of the survey were dropped from the measure.
Expect to Abstain Until Marriage	Binary variable: equals 1 if youth reported expecting to abstain until married (including those who have previously had sex); equals 0 otherwise.
Risks of STDs and Pregnancy	
Unprotected Sex at First Intercourse	Categorical variable, with three categories: (1) remained abstinent; (2) had sex and reported using a condom the first time; (3) had sex and reported not using a condom the first time.
Unprotected Sex Last 12 Months	Categorical variable, with four categories: (1) abstinent last 12 months; (2) had sexual intercourse last 12 months and always used condom; (3) had sexual intercourse last 12 months and sometimes used condom; and (4) had sexual intercourse last 12 months and never used condom.
Birth Control at First Intercourse	Categorical variable, with three categories: (1) remained abstinent; (2) had sex and reported using birth control the first time; (3) had sex and reported not using birth control the first time.
Birth Control Last 12 Months	Categorical variable, with four categories: (1) abstinent last 12 months; (2) had sexual intercourse last 12 months and always used birth control; (3) had sexual intercourse last 12 months and sometimes used birth control; and (4) had sexual intercourse last 12 months and never used birth control.
Possible Consequences of Teen Sex	
Ever Been Pregnant	Binary variable: equals 1 if respondent reported ever having been (or gotten someone) pregnant; equals 0 otherwise.
Ever Had a Baby	Binary variable: equals 1 if respondent reported ever having had a baby; equals 0 otherwise.
Ever Had a (Reported) STD	Binary variable: equals 1 if youth reported that a doctor said s/he had an STD; equals 0 otherwise.
Other Risk Behaviors	
Smoked Cigarette (Past Month)	Binary variable: equals 1 if respondent reported having smoked a cigarette at least once in last month; equals 0 otherwise.
Drank Alcohol (Past Month)	Binary variable: equals 1 if youth reported having drunk alcohol at least once in last month; equals 0 otherwise.
Used Marijuana (Ever)	Binary variable: equals 1 if youth reported ever having used marijuana; equals 0 otherwise.

Table III.3 (continued)

Variable	Definition
Potential Mediators of Teen Sexual Activity	
Ability to Identify STDs	
Overall Identification of STDs	Continuous (scale) variable: the percent of 13 diseases that are correctly identified as actual STDs (such as chlamydia) or false STDs (such as diabetes).
Identification of True STDs	Continuous (scale) variable: the percent of the nine actual STDs correctly identified.
Identification of False STDs	Continuous (scale) variable: the percent of the four non-STDs correctly identified.
Understanding of Pregnancy and STD Risks	
Knowledge of Unprotected Sex Risks	Continuous (scale) variable: the percent correct of two items, which asked the respondent whether one instance of unprotected sex can result in (1) a pregnancy, (2) an STD.
Knowledge of STD Consequences	Continuous (scale) variable: the percent correct of three items, which asked the respondent whether STDs can cause (1) cancer, (2) fertility problems, (3) increased risk for asthma.
Perceived Effectiveness of Condoms	
Perceived Effectiveness at Preventing Pregnancy	Categorical variable: respondent reported that when used correctly, condoms either usually, sometimes, or never prevent pregnancy, or that s/he was unsure.
Perceived Effectiveness at Preventing HIV	Categorical variable: respondent reported that when used correctly, condoms either usually, sometimes, or never prevent HIV, or that s/he was unsure.
Perceived Effectiveness at Preventing Chlamydia and Gonorrhea	Categorical variable: respondent reported that when used correctly, condoms either usually, sometimes, or never prevent chlamydia and gonorrhea, or that s/he was unsure.
Perceived Effectiveness at Preventing Herpes and HPV	Categorical variable: respondent reported that when used correctly, condoms either usually, sometimes, or never prevent herpes and HPV, or that s/he was unsure.
Perceived Effectiveness of Birth Control Pills	
Perceived Effectiveness at Preventing Pregnancy	Categorical variable: respondent reported that when used correctly, birth control pills either usually, sometimes, or never prevent pregnancy, or that s/he was unsure.
Perceived Effectiveness at Preventing HIV	Categorical variable: respondent reported that when used correctly, birth control pills either usually, sometimes, or never prevent HIV, or that s/he was unsure.
Perceived Effectiveness at Preventing Chlamydia and Gonorrhea	Categorical variable: respondent reported that when used correctly, birth control pills either usually, sometimes, or never prevent chlamydia and gonorrhea, or that s/he was unsure.
Perceived Effectiveness at Preventing Herpes and HPV	Categorical variable: respondent reported that when used correctly, birth control pills either usually, sometimes, or never prevent herpes and HPV, or that s/he was unsure.

Source: Wave 4 Survey of Teen Activities and Attitudes (Mathematica Policy Research, Inc., 2005), administered to youth 42 to 78 months after enrolling in the Title V, Section 510 Abstinence Education Program study sample.

Note: See Appendix C for the wording of the individual survey questions (and responses) on which the measures are based.

Multivariate Estimation

The regression analysis used weighted least squares models and pooled data across all four sites. Each regression model included a series of binary variables reflecting the interaction between program site and program status (program or control group). The site-specific estimate is obtained from the regression simply from the difference between the binary variables corresponding to that site's program and control groups. The pooled impact estimate for a given outcome is obtained from the average of these four program-control differences. The weights used in the regressions accounted for the variability in the probability of selection to the program or control groups as well as for youth who did not complete the final follow-up survey.² Standard errors from the models were calculated taking into account the variability associated with these weights.

In addition to these variables, the regression models included a large number of variables to control for individual demographic and background characteristics measured from the baseline survey (Table III.4). For the small fraction of the sample who did not complete a baseline survey (fewer than 5 percent), a supplemental survey was administered at the next survey to collect key demographic information such as age, gender, and race/ethnicity. For other covariates, missing data were imputed using the mean for the sample in a given program site.

Table III.4. Explanatory (Control) Variables Used in the Final Impact Analysis

Demographics and Background Characteristics	Baseline Contextual Factors	Baseline Measures of Behaviors and Potential Mediators of Teen Sex
Site	Communication with parents	Had sex
Enrollment cohort	Unmarried sister got pregnant	Perceived consequences of sex
Date of interview	Sibling dropped out of school	Views on abstinence
Responded to previous surveys	Religiosity	Ability to resist pressure for sex
Gender		Expectations to have sex
Age		Knowledge of STDs
Race/ethnicity		
Presence of mother figure		
Presence of father figure		
Parents married		

Along with site-level results, the report presents estimated impacts on behavioral outcomes for several subgroups of potential interest.³ Among these are subgroups defined by gender and several measures that might be linked to eventual behavior, such as baseline support for abstinence, religiosity, marital status of parents, and television viewing. All of these subgroups were defined from survey data collected at baseline, prior to any

² Selection weights were calculated as the inverse probability of selection to the group of assignment. Non-response weights were calculated using standard modeling techniques to estimate the probability of survey non-response as a function of baseline covariates.

³ Subgroups defined by race/ethnicity could not be investigated because of the very high correlation between program site and a given racial/ethnic group.

potential influence of the programs. A final subgroup, enrollment cohort, is also investigated because of important variation found across cohorts in an earlier DHHS study report (Maynard et al. 2005). The first of these subgroups includes youth enrolled in the 1999–2000 or the 2000–2001 cohorts; the second includes youth enrolled in the final, 2001–2002 cohort.

Impacts were estimated for one subgroup at time, following nearly the same methods as described above for the full sample. The only difference with these methods is that explanatory terms were added to the regression models reflecting the interaction between a given subgroup of interest (for example, gender) and each of the site dummies and the “site by treatment” interaction terms. Estimates for a given subgroup were then computed using the coefficients on these terms, following the same procedure described above.

Missing Outcomes Data

Although non-response on the individual survey questions was generally very low, typically just one or two percent, for certain outcomes it could still result in slightly biased estimates of outcome measures if left unaddressed. The first set of these questions pertain to knowledge questions—for example, “can you get pregnant if you have sexual intercourse only once?”—where there is a single correct answer. For these questions, it is likely that youth who completed most of the survey section on knowledge, but skipped an individual question or two, did so because they did not know the correct answer. Thus, in order not to understate the proportion of youth who were unsure of a correct answer, the response on individually-skipped knowledge questions was categorized as “don’t know/unsure.” In contrast, youth who skipped an entire section are excluded from the analysis for that set of outcomes.

A more serious form of missing data pertains to conditional questions, meaning that they are answered by youth only if they provide a particular response on a prior question or questions. For example, in order to answer the question on the number of sexual partners, the respondent must first indicate on the survey that s/he has had sexual intercourse. Since youth who have not had sexual intercourse can correctly be assigned a value of zero partners, this conditional wording means that all missing values for the question will pertain to youth who have had sexual intercourse. In turn, unless there are no missing data, the reported mean value for the full sample will be incorrect—in this case understating the mean number of sexual partners. To correct for this conditional item non-response, missing values were imputed following a commonly used “hotdeck procedure.” This procedure assigns a value on the item that was missed based on the reported values of youth with characteristics similar to those of the item non-respondents. Through this method, the estimates for the program and control groups preserve the natural variability of the sample.

Nonparticipation and Crossover

As noted in Chapter II, a sizeable proportion of youth assigned to the program group in the two sites with elective programs, *ReCapturing the Vision* and *FUPTP*, did not participate in any program classes or other services (35 percent and 43 percent, respectively). To address this program nonparticipation, impact estimates are presented two ways in the report. The

first is for the full program group. This estimate reflects the average effect of *having the opportunity* to participate in the program, whether or not the youth actually chose to participate. These estimates are featured throughout the report since it generalizes to the youth who were made eligible for the programs. The second is for only those youth in the program group who actually participated. These estimates are derived following the procedure developed by Bloom (1984), which divides the full-sample estimate by the participation rate. Because the standard errors and significance levels associated with the participant-only estimates are roughly similar to those for the full program group, impact estimates found not statistically significant for the full program group are typically not statistically significant for the participants either. As a result, the conclusions from the study do not differ substantively when based on one set of measures or the other.

Crossover of control group youth into the program group was rare, including at most 5 percent of the sample. For this reason, the report does not present estimates that account for crossover. To the extent that youth who did cross over experienced positive benefits from participating in the programs, the impact estimates reported are understated slightly.

Statistical Power

For the full sample, the statistical power of the study to detect impacts is high. Based on the observed explanatory power of the regression models, the study sample supports detection of true overall program impacts of roughly 0.08 standard deviations. (This is based on standard assumptions of 80 percent statistical power and 90 percent statistical confidence, two-tailed.) For a proportional outcome with a mean of 50 percent, this reflects an estimated impact of roughly 4 percentage points. Program impacts that are smaller in size may also be detected from the study sample, but the likelihood of doing so is below the 80 percent probability (power level) that is commonly preferred.

For the individual program sites, statistical power is naturally lower. This is particularly true in the two sites that experienced program nonparticipation, *ReCapturing the Vision* and *FUPTP*. For example, in the absence of nonparticipation, the size and allocation of the study sample would support detection of true site-specific impacts on the order of 0.16 standard deviations or larger for *ReCapturing the Vision* and 0.18 standard deviations for *FUPTP*. However, in light of the existing nonparticipation, the impacts on participants would need to be considerably larger—about 0.25 standard deviations for *ReCapturing the Vision* and 0.32 standard deviations for *FUPTP*—given equivalent levels of statistical power and confidence. This means the available samples in these two sites provide a high likelihood of detecting (that is, stating as statistically significant) true participant impacts only if they are fairly large; for example, for a proportional outcome with a mean of 50 percent, the minimum detectable impacts for participants are about 13 and 16 percentage points in the two respective sites. For the remaining two sites, *My Choice, My Future!* and *Teens in Control*, detectable impacts (at 80 percent power) are better—roughly 0.17 and 0.13 standard deviations, respectively.

Hypothesis and Sensitivity Testing

For each impact estimate, a two-tailed t -statistic tests the null hypothesis that there is no difference between the regression-adjusted means for the program and control groups. The associated p -value, which reflects the probability of obtaining the observed impact estimate when the null hypothesis of no effect is true, is used to judge the likelihood that a program had a measurable (statistically significant) impact. For categorical outcome variables, a t -test is conducted on the mean (proportion) for each response. In addition, an F -statistic tests the null hypothesis that there is no difference between the distributions of responses for the two experimental groups. This statistic is computed from a site-specific multinomial logistic regression of the categorical outcome variable on an indicator for program status and the covariates listed in Table III.4. The findings based on the F -statistics are consistent with those based on the individual t -test statistics.

Impact estimates with p -values less than 0.10, on two-tailed tests, are denoted in the report by asterisks and referred to in the text as statistically significant (Table III.5). While researchers sometimes use a lower p -value, 0.05 or less, to determine significance, this higher threshold allows a careful assessment of the findings across the range of outcomes being examined. The adoption of this threshold, however, does raise the likelihood of detecting significant impacts that have resulted merely by chance. Therefore, when interpreting the findings, attention is paid to whether significant impact estimates are isolated or whether they are part of a pattern of significant estimates that would point more strongly to a true program effect.

Additional analyses were conducted to examine the robustness of the impact estimates presented in the report. These included estimating impacts through logistic regression models (for binary outcomes) rather than linear probability models, and estimating impacts dropping various combinations of regression adjustment, data imputation, and sample weights. Across all these alternative estimates, findings were consistent with those presented in the report.

Table III.5. Conventions for Describing Statistical Significance of Program Impact Estimates

p -value of Impact Estimate	Symbol Used to Denote p -value	Impact Estimate Is Considered Statistically Significant from Zero
$p < 0.01$	***	Yes
$0.01 \leq p < 0.05$	**	Yes
$0.05 \leq p < 0.10$	*	Yes
$p \geq 0.10$	[none]	No

CHAPTER IV

IMPACTS ON SEXUAL ABSTINENCE AND TEEN RISK BEHAVIORS

An earlier DHHS study report (Maynard et al. 2005) examined the impact of the four focal programs near the end of the first school year that youth were enrolled in the study. At that time, youth in the study averaged only 12 years of age, far too young for researchers to assess the impact of the programs on sexual abstinence and activity. The earlier report therefore focused on whether the programs had impacts on any of several potential mediators of these behaviors, such as support for abstinence, communication with parents, and refusal skills. Findings indicated that programs did achieve short-term success on some but not all of these potential mediators; for example, program group youth were significantly more likely than control group youth to report views more supportive of abstinence and less supportive of teen sex, but they displayed no statistically significant differences in their refusal skills or communication with parents.

Using data from a final follow-up survey, collected an average of five years after youth enrolled in the study sample, this chapter examines whether the near-term gains achieved by the programs translated into longer-term impacts on behavior. Key among these are whether the programs increased the likelihood that youth abstained from sexual intercourse, reduced the extent of sexual activity among youth, and increased their expectations to abstain from sex in the future. In addition, the chapter examines the impact of the programs on potential consequences of teen sex, such as pregnancy, and risk behaviors that are correlated with teen sex, such as drug and alcohol use.

Findings indicate that, despite the effects seen after the first year, programs had no statistically significant impact on eventual behavior. Based on data from the final follow-up survey, youth in the program group were no more likely to abstain from sex than their control group counterparts; among those who reported having had sex, program and control group youth had similar numbers of sexual partners and had initiated sex at the same mean age. Youth in the program group, however, were no more likely to have engaged in unprotected sex than their control group counterparts. Finally, there were no differences in potential consequences of teen sex, including pregnancies, births, and reported STDs.

IMPACTS ON ABSTINENCE AND SEXUAL BEHAVIOR

► Program and control group youth reported similar rates of sexual abstinence.

As seen in Table IV.1, about half of both control and program group youth reported remaining sexually abstinent, and a slightly higher proportion reported having been abstinent during the 12 months prior to the survey (55 percent of control group youth versus 56 percent of program group youth). This small difference was not statistically significant.

None of the individual programs had statistically significant impacts on the rate of sexual abstinence, whether measured as either always remaining abstinent or being abstinent during the last 12 months. Across the four sites, differences between the program and control groups were modest (five points or less) and not consistent in direction. On both measures, *ReCapturing the Vision* displayed the largest positive difference between the groups, but neither difference was statistically significant. *Teens in Control* and *FUPTP* displayed negative, but not statistically significant, differences on both measures.

Table IV.1. Estimated Impacts on Abstinence from Sexual Intercourse, Overall and by Site

	Program Group (Percentage)	Control Group (Percentage)	Program-Control Difference (Percentage Points)	p-value
Four Programs Combined				
Remained abstinent (always)	49	49	0	0.91
Abstinent last 12 months	56	55	1	0.76
<i>My Choice, My Future!</i>				
Remained abstinent (always)	38	38	1	0.90
Abstinent last 12 months	45	44	1	0.79
<i>ReCapturing the Vision</i>				
Remained abstinent (always)	44	40	5	0.32
Abstinent last 12 months	48	43	5	0.28
<i>FUPTP</i>				
Remained abstinent (always)	60	62	-3	0.61
Abstinent last 12 months	65	67	-2	0.71
<i>Teens in Control</i>				
Remained abstinent (always)	53	57	-4	0.34
Abstinent last 12 months	66	68	-2	0.64

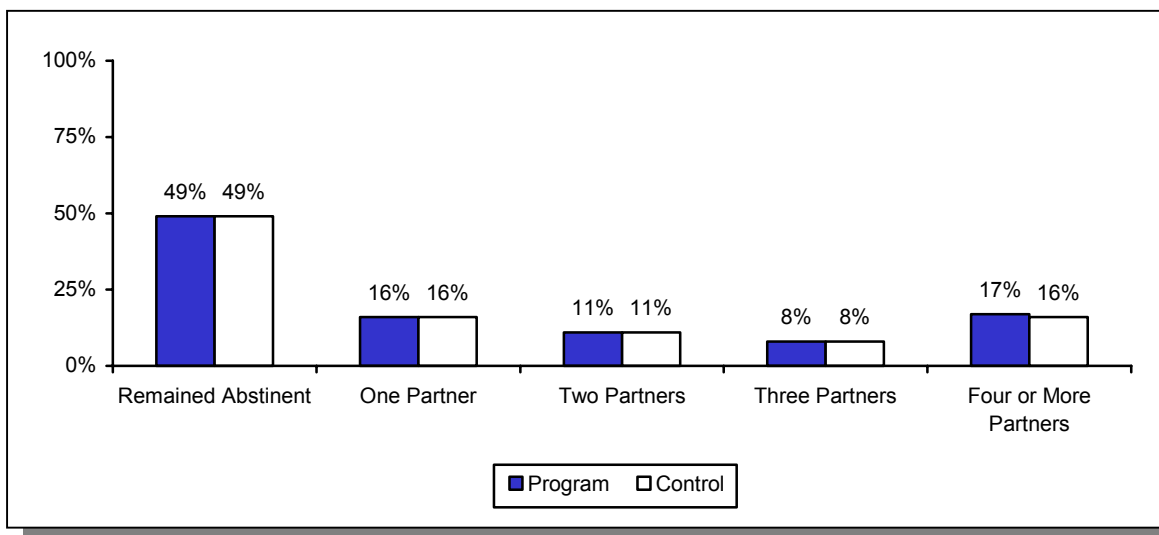
Source: Wave 4 Survey of Teen Activities and Attitudes (Mathematica Policy Research, Inc., 2005), administered to youth 42 to 78 months after enrolling in the Title V, Section 510 Abstinence Education Program study sample.

Note: All estimates are based on weighted regression models. For details on the covariates, see Appendix Table A.1. Sample sizes and R-square statistics are in Appendix Tables A.2 and A.3, respectively. Program-control difference may not equal difference in percentages due to rounding.

***p-value (of program-control difference) < 0.01; **p-value < 0.05; *p-value < 0.10, two-tailed test.

Program and control group youth also did not differ in the number of partners with whom they had sex. Comparing the program and control groups overall, the distributions of the number of reported sexual partners are nearly identical (Figure IV.1). About one-quarter of all youth in both groups had sex with three or more partners and about one in six had sex with four or more partners. Distributions for each of the four sites, shown in Appendix Table A.4, likewise show no statistically significant differences between the program and control groups.

Figure IV.1. Estimated Impacts on Reported Number of Sexual Partners



Source: Wave 4 Survey of Teen Activities and Attitudes (Mathematica Policy Research, Inc., 2005), administered to youth 42 to 78 months after enrolling in the Title V, Section 510 Abstinence Education Program study sample.

Note: All estimates are based on weighted regression models. For details on the covariates, see Appendix Table A.1. Sample sizes and R-square statistics are in Appendix Tables A.2 and A.3, respectively. Findings by site, as well as *F*-tests of the difference in the distribution of the outcome measure between control and program groups, are in Appendix Table A.4.

****p*-value (of program-control difference) < 0.01; ***p*-value < 0.05; **p*-value < 0.10, two-tailed test.

Programs did not affect the age at which sexually experienced youth first engaged in sexual intercourse (data not shown). Based on a question asking non-abstinent youth the age at which they first had sex, the reported mean age at first intercourse is identical between the program and control groups, 14.9 years.¹ This age is seemingly young, but recall that the sample is 16 years of age on average at the time of the final follow-up survey.

¹ This measure of the mean age at first intercourse is based on the subsample of program and control group youth that reported having had sex. An alternative to this measure is the proportion of youth who report having had sex by a particular age (by age 14, for example). Regardless of the age cutoff examined, the findings indicate no statistically significant difference between program and control group youth.

► **Program and control group youth did not differ in their expectations to abstain.**

Forty percent of program group youth reported that they expected to abstain from sex until marriage compared with 37 percent of control group youth, a difference that is not statistically significant (Table IV.2). This pattern is similar for the other two measures—expectations to abstain from sex through high school and as a teenager (until age 20). On each measure, program group youth had slightly higher expectations than control group youth, but the differences are not statistically significant.

Looking at the individual programs, one program, *FUPTP*, does display a large and statistically significant impact on expectations to abstain until marriage. Specifically, 43 percent of youth in the program group for *FUPTP* reported that they expect to abstain

Table IV.2. Estimated Impacts on Expectations to Abstain from Sexual Intercourse, Overall and by Site

	Program Group (Percentage)	Control Group (Percentage)	Program-Control Difference (Percentage Points)	p-value
Four Programs Combined				
Expect to abstain through high school	60	58	2	0.60
Expect to abstain as a teenager	45	44	1	0.66
Expect to abstain until marriage	40	37	3	0.25
<i>My Choice, My Future!</i>				
Expect to abstain through high school	56	50	5	0.48
Expect to abstain as a teenager	36	38	-2	0.66
Expect to abstain until marriage	30	34	-4	0.37
<i>ReCapturing the Vision</i>				
Expect to abstain through high school	69	63	6	0.34
Expect to abstain as a teenager	51	45	6	0.22
Expect to abstain until marriage	41	34	7	0.13
<i>FUPTP</i>				
Expect to abstain through high school	58	62	-4	0.49
Expect to abstain as a teenager	47	47	0	1.00
Expect to abstain until marriage	43	33	10	0.04**
<i>Teens in Control</i>				
Expect to abstain through high school	56	57	-1	0.73
Expect to abstain as a teenager	48	48	0	0.96
Expect to abstain until marriage	45	49	-3	0.38

Source: Wave 4 Survey of Teen Activities and Attitudes (Mathematica Policy Research, Inc., 2005), administered to youth 42 to 78 months after enrolling in the Title V, Section 510 Abstinence Education Program study sample.

Note: All estimates are based on weighted regression models. For details on the covariates, see Appendix Table A.1. Sample sizes and R-square statistics are in Appendix Tables A.2 and A.3, respectively. Program-control difference may not equal difference in percentages due to rounding.

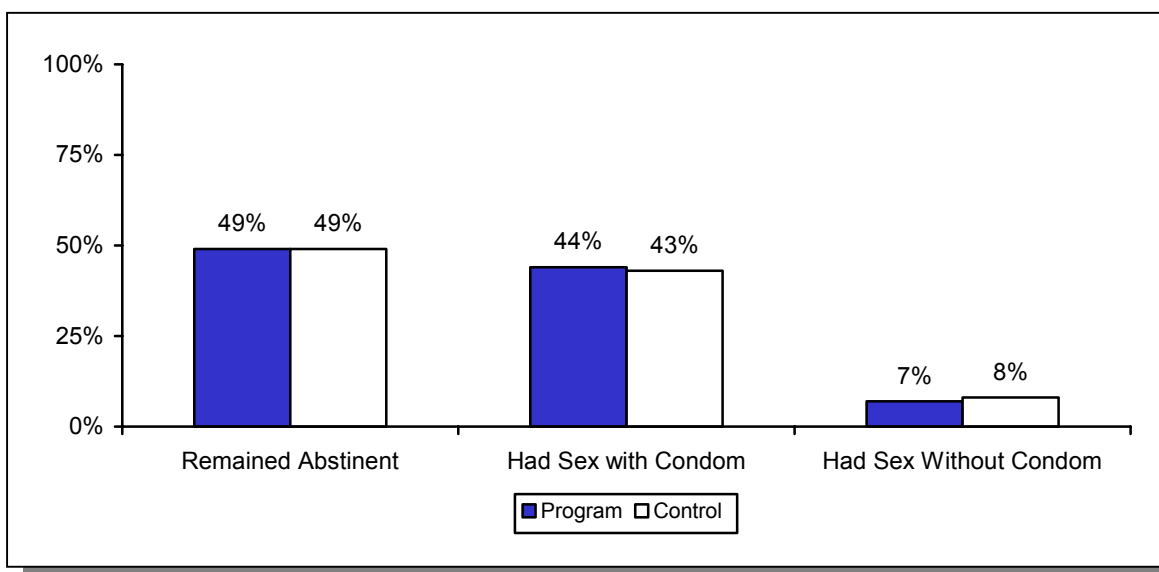
***p-value (of program-control difference) < 0.01; **p-value < 0.05; *p-value < 0.10, two-tailed test.

from sex until marriage compared with 33 percent of corresponding control group youth—a statistically significant difference of ten percentage points (p -value = 0.04). However, on the two other expectations measures, through high school and as teenagers, *FUPTP* displays no statistically significant impacts. In fact, the estimated impacts are not positive (-4 and 0, respectively). Findings for a second program, *ReCapturing the Vision*, are not statistically significant but the estimated impacts are somewhat large. On the marriage measure, for example, 41 percent of program group in *ReCapturing the Vision* reported that they would abstain until marriage compared to 34 percent of control group youth. The difference, seven percentage points, is not statistically significant (p -value = 0.13).

► **Program group youth were no more likely than control group youth to have unprotected sex.**

Eight percent of all control group youth and seven percent of all program group youth reported having had sexual intercourse and not using a condom the first time (Figure IV.2). There are similarly no differences when measured over the last 12 months—17 percent of youth in both groups reported having had sex in the last 12 months and using a condom only sometimes, and 4 percent reported having had sex in the last 12 months and never using a condom. (Figure IV.3). For all youth, this latter result is equivalent to about half of

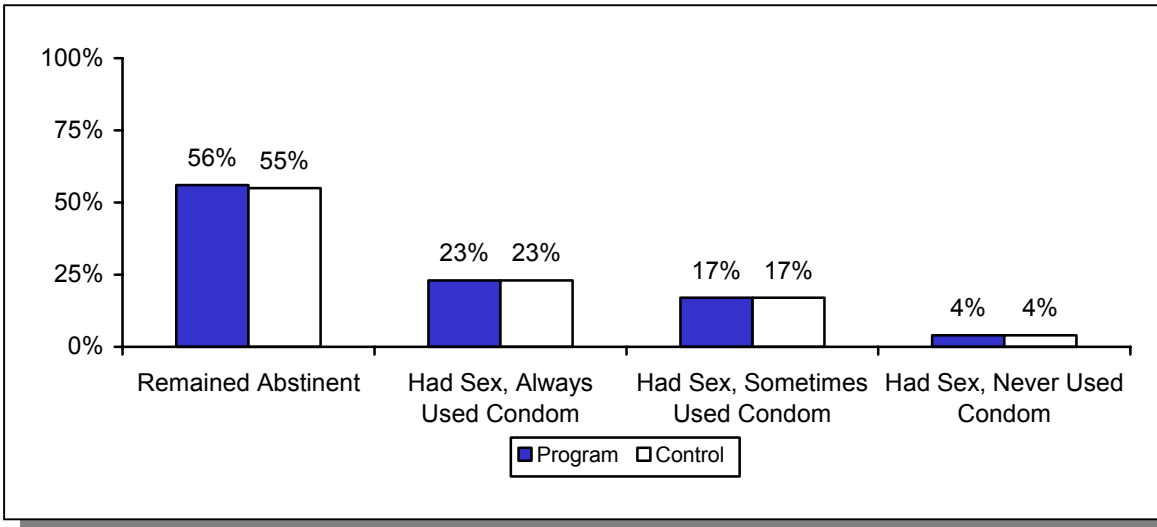
Figure IV.2. Estimated Impacts on Unprotected Sex at First Intercourse



Source: Wave 4 Survey of Teen Activities and Attitudes (Mathematica Policy Research, Inc., 2005), administered to youth 42 to 78 months after enrolling in the Title V, Section 510 Abstinence Education Program study sample.

Note: All estimates are based on weighted regression models. For details on the covariates, see Appendix Table A.1. Sample sizes and R-square statistics are in Appendix Tables A.2 and A.3, respectively. Findings by site, as well as F -tests of the difference in the distribution of the outcome measure between control and program groups, are in Appendix Table A.5.

*** p -value (of program-control difference) < 0.01; ** p -value < 0.05; * p -value < 0.10, two-tailed test.

Figure IV.3. Estimated Impacts on Unprotected Sex, Last 12 Months

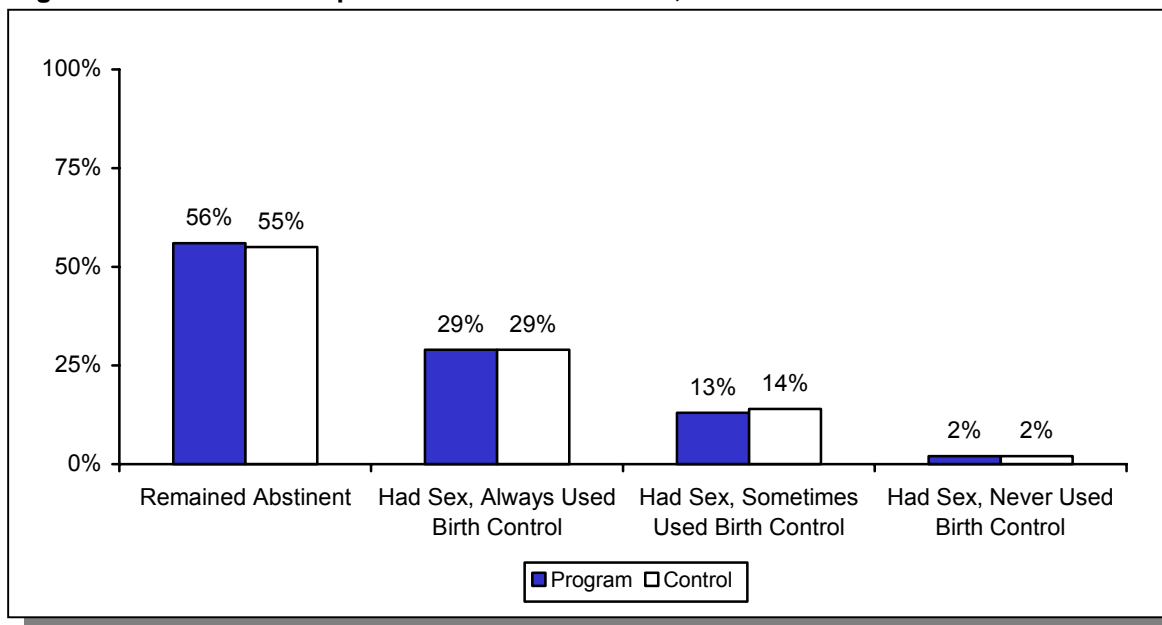
Source: Wave 4 Survey of Teen Activities and Attitudes (Mathematica Policy Research, Inc., 2005), administered to youth 42 to 78 months after enrolling in the Title V, Section 510 Abstinence Education Program study sample.

Note: All estimates are based on weighted regression models. For details on the covariates, see Appendix Table A.1. Sample sizes and R-square statistics are in Appendix Tables A.2 and A.3, respectively. Findings by site, as well as *F*-tests of the difference in the distribution of the outcome measure between control and program groups, are in Appendix Table A.6.

****p*-value (of program-control difference) < 0.01; ***p*-value < 0.05; **p*-value < 0.10, two-tailed test.

recently sexually active youth not always using a condom in the last 12 months. Across the individual programs, estimated impacts on unprotected sex, measured either at first intercourse or in the last 12 months, were likewise small and statistically insignificant (see Appendix Tables A.5 and A.6, respectively).

Programs likewise did not increase rates of unprotected sex when considering other forms of birth control (including those that only protect against pregnancy), such as birth control pills or Depo-Provera. For example, in both groups, slightly more than half of youth had remained abstinent in the last 12 months (as reported above) and an additional 29 percent of youth reported that they had had sexual intercourse and always used a form of birth control (Figure IV.4). This leaves only about one in six youth in both groups—15 percent in the program group and 16 percent in the control group—who reported that they had had sexual intercourse and had not always used a form of birth control. Across the individual programs, these distributions varied but displayed no statistically significant program impacts (see Appendix Tables A.7 and A.8 for findings at first intercourse and last 12 months, respectively).

Figure IV.4. Estimated Impacts on Birth Control Use, Last 12 Months

Source: Wave 4 Survey of Teen Activities and Attitudes (Mathematica Policy Research, Inc., 2005), administered to youth 42 to 78 months after enrolling in the Title V, Section 510 Abstinence Education Program study sample.

Note: All estimates are based on weighted regression models. For details on the covariates, see Appendix Table A.1. Sample sizes and R-square statistics are in Appendix Tables A.2 and A.3, respectively. Findings by site, as well as *F*-tests of the difference in the distribution of the outcome measure between control and program groups, are in Appendix Table A.8.

****p*-value (of program-control difference) < 0.01; ***p*-value < 0.05; **p*-value < 0.10, two-tailed test.

► Programs had no impact on reported pregnancies, births, or STDs.

Very few youth in the study sample reported ever having been pregnant or ever having had an STD, and there were no statistically significant differences between the program and control groups on these measures (Table IV.3). Ten percent of youth in both the program and control groups reported having been pregnant or gotten someone pregnant, and roughly half of them (five percent overall) reported that they had had a baby. With respect to STDs, only a small fraction of youth in both groups, about five percent overall, reported being told by a doctor that they had an STD. (Equal numbers of youth also reported being tested; not shown.) Across the individual program sites, rates of all these outcomes varied modestly and displayed no statistically significant program impacts.

Table IV.3. Estimated Impacts on Possible Behavioral Consequences of Teen Sex, Overall and by Site

	Program Group (Percentage)	Control Group (Percentage)	Program-Control Difference (Percentage Points)	p-value
Four Programs Combined				
Ever been pregnant	10	10	1	0.68
Ever had a baby	5	5	-1	0.56
Ever had a (reported) STD	5	4	1	0.53
<i>My Choice, My Future!</i>				
Ever been pregnant	6	6	0	0.84
Ever had a baby	2	2	-1	0.57
Ever had a (reported) STD	4	4	0	0.99
<i>ReCapturing the Vision</i>				
Ever been pregnant	18	19	-1	0.82
Ever had a baby	8	12	-4	0.28
Ever had a (reported) STD	6	4	2	0.34
<i>FUPTP</i>				
Ever been pregnant	10	8	2	0.48
Ever had a baby	5	5	0	0.83
Ever had a (reported) STD	6	4	2	0.41
<i>Teens in Control</i>				
Ever been pregnant	8	6	2	0.38
Ever had a baby	3	2	1	0.27
Ever had a (reported) STD	4	5	-1	0.46

Source: Wave 4 Survey of Teen Activities and Attitudes (Mathematica Policy Research, Inc., 2005), administered to youth 42 to 78 months after enrolling in the Title V, Section 510 Abstinence Education Program study sample.

Note: All estimates are based on weighted regression models. For details on the covariates, see Appendix Table A.1. Sample sizes and R-square statistics are in Appendix Tables A.2 and A.3, respectively. Program-control difference may not equal difference in percentages due to rounding.

***p-value (of program-control difference) < 0.01; **p-value < 0.05; *p-value < 0.10, two-tailed test.

IMPACTS ON OTHER RISKY BEHAVIOR

► Program and control group youth reported no differences in their drinking or marijuana use.

As shown in Table IV.4, 16 percent of program group youth and 19 percent of control group youth reported smoking cigarettes in the last month, a difference that is statistically significant (p -value = 0.07). However, with respect to alcohol and marijuana use, behaviors more closely associated with risk behavior, there are no statistically significant differences between the program and control group youth. Overall, about one in four youth in both groups reported drinking once a month or more, while 30 percent reported ever having used marijuana.

Table IV.4. Estimated Impacts on Other Risk Behaviors, Overall and by Site

	Program Group (Percentage)	Control Group Percentage)	Program-Control Difference (Percentage Points)	p-value
Four Programs Combined				
Smoked cigarettes (past month)	16	19	-3	0.07*
Drank alcohol (past month)	23	24	-1	0.72
Used marijuana (ever)	30	30	-1	0.76
My Choice, My Future!				
Smoked cigarettes (past month)	37	39	-2	0.71
Drank alcohol (past month)	46	46	-1	0.91
Used marijuana (ever)	45	46	-1	0.87
ReCapturing the Vision				
Smoked cigarettes (past month)	8	10	-2	0.41
Drank alcohol (past month)	19	24	-6	0.16
Used marijuana (ever)	21	27	-6	0.15
FUPTP				
Smoked cigarettes (past month)	9	11	-3	0.39
Drank alcohol (past month)	12	7	5	0.11
Used marijuana (ever)	31	26	5	0.30
Teens in Control				
Smoked cigarettes (past month)	11	16	-5	0.05*
Drank alcohol (past month)	17	19	-1	0.65
Used marijuana (ever)	21	22	-1	0.72

Source: Wave 4 Survey of Teen Activities and Attitudes (Mathematica Policy Research, Inc., 2005), administered to youth 42 to 78 months after enrolling in the Title V, Section 510 Abstinence Education Program study sample.

Note: All estimates are based on weighted regression models. For details on the covariates, see Appendix Table A.1. Sample sizes and R-square statistics are in Appendix Tables A.2 and A.3, respectively. Program-control difference may not equal difference in percentages due to rounding.

***p-value (of program-control difference) < 0.01; **p-value < 0.05; *p-value < 0.10, two-tailed test.

Alcohol and drug use varied considerably across the program sites, and this is due at least in part to the variation in the ages of the study youth. Within each site, however, program and control group youth reported no statistically significant differences in either behavior. Differences between the two groups also varied in direction. For example, program group youth in *ReCapturing the Vision* reported rates of alcohol use six percentage points lower than corresponding control group youth, while program group youth in *FUPTP* reported rates five points higher than corresponding control group youth. Neither difference is statistically significant (p -values = 0.16 and 0.11, respectively).

SUBGROUP IMPACTS

► For several subgroups examined, programs show no consistent evidence of impacts on sexual abstinence or other behavioral measures.

Estimated impacts across a series of subgroups, summarized in Appendix D, display few statistically significant impacts on any of the behavioral outcomes examined above for the full sample. Take, for example, the subgroup defined by whether youth have relatively high or low support for abstinence at baseline. As discussed later in Chapter VI, this measure proves to be an important predictor of sexual abstinence, and it might also be expected to affect the way that youth respond to program messages. However, as seen in Table IV.5, this is not the case. Differences between program and control group youth are small in both subgroups defined by the measure and are not statistically significant. A similar pattern of results is evident for other subgroups, including gender, religiosity, television viewing, and enrollment cohort, with a mix of positive and negative impact estimates that are small and rarely statistically significant (all shown in Appendix D).

Table IV.5. Estimated Impacts on Selected Behavioral Outcomes, by Support for Abstinence at Baseline

	Program Group (Percentage)	Control Group (Percentage)	Program-Control Difference (Percentage Points)	<i>p</i> -value
Higher (Baseline) Support for Abstinence				
Sexual Abstinence				
Remained abstinent (always)	55	53	2	0.49
Abstinent last 12 months	62	59	3	0.31
Expectations of Future Behavior				
Expect to abstain through high school	68	64	4	0.26
Expect to abstain until married	44	39	4	0.12
Lower (Baseline) Support for Abstinence				
Sexual Abstinence				
Remained abstinent (always)	39	44	-4	0.15
Abstinent last 12 months	47	51	-4	0.20
Expectations of Future Behavior				
Expect to abstain through high school	47	52	-4	0.31
Expect to abstain until married	32	34	-2	0.48

Source: Wave 4 Survey of Teen Activities and Attitudes (Mathematica Policy Research, Inc., 2005), administered to youth 42 to 78 months after enrolling in the Title V, Section 510 Abstinence Education Program study sample.

Note: All estimates are based on weighted regression models. For details on the covariates, see Appendix Table A.1. For complete results for the subgroup see Appendix Table D.1.

****p*-value (of program-control difference) < 0.01; ***p*-value < 0.05; **p*-value < 0.10, two-tailed test.

IMPACTS ON PARTICIPANTS ONLY

As discussed in Chapter II, participation was elective in two sites (*ReCapturing the Vision* and *FUPTP*), leading some youth not to participate despite being randomly chosen for the program group. The implication of this nonparticipation is that the estimates of program impacts for the subsample of participants will be larger than the estimates for the entire sample in these two sites. However, because there is a corresponding loss of statistical power when estimating impacts for the smaller, participant-only sample, the statistical significance associated with these participant-only impacts is roughly equal to those for the full sample. Thus, the benefit of examining impacts for the participants-only sample is merely in identifying any notable program-control group differences, regardless of significance, that might have been less evident for the full sample.

As highlighted by Table IV.6, the estimated impacts on a few of the behavioral measures are somewhat notable in size for the participant-only sample, although they are not

Table IV.6. Estimated Impacts on Selected Behavioral Outcomes, Participants Only

	<i>My Choice, My Future!</i>	<i>ReCapturing the Vision</i>	<i>FUPTP</i>	<i>Teens in Control</i>
Estimated Impacts for Full Program Group				
Sexual Abstinence				
Remained abstinent (always)	1	5	-3	-4
Abstinent last 12 months	1	5	-2	-2
Expectations of Future Behavior				
Expect to abstain through high school	5	6	-4	-1
Expect to abstain until married	-4	7	10**	-3
Estimated Impacts for Participants Only				
Sexual Abstinence				
Remained abstinent (always)	1	7	-4	-4
Abstinent last 12 months	1	8	-3	-2
Expectations of Future Behavior				
Expect to abstain through high school	5	9	-6	-1
Expect to abstain until married	-4	11	18**	-3
Sample Size Total				
Program Group Total	448	480	414	715
Program Group Participants	286	275	274	374
	286	180	157	374

Source: Wave 4 Survey of Teen Activities and Attitudes (Mathematica Policy Research, Inc., 2005), administered to youth 42 to 78 months after enrolling in the Title V, Section 510 Abstinence Education Program study sample.

Note: All estimates are based on weighted regression models. For details on the covariates, see Appendix Table A.1. For complete results for the subgroup see Appendix Table A.9. Study youth are counted as participants if they attended at least one program class. For *FUPTP*, however, the available program data excluded youth attending fewer than 25 percent of the classes for which they were eligible in a given school year. Thus, the participation count shown for this program is a lower bound.

****p*-value (of program-control difference) < 0.01; ***p*-value < 0.05; **p*-value < 0.10, two-tailed test.

statistically significant. (For complete results of the participant-only impact analysis, see Appendix Table A.9.) With regard to sexual abstinence, for example, participants in *ReCapturing the Vision* had rates 7 percentage points higher than their control group counterparts. In contrast, program group youth in *FUPTP* reported rates of sexual abstinence that were 4 percentage points lower than their control group counterparts and 3 points lower when measured as abstinent in the last 12 months.

Estimated impacts on expectations are also more notable in size when focusing on participants only, though they are rarely statistically significant. For *ReCapturing the Vision*, program participants were 9 percentage points more likely to expect to abstain from sex through high school and 11 percentage points more likely to expect to abstain until marriage than their control group counterparts. However, neither difference is statistically significant (respective p -values = 0.34 and 0.13; not shown). For *FUPTP*, participants were 18 percentage points more likely than their control group counterparts to expect to abstain until marriage, a difference that is statistically significant (p -value = 0.04; not shown). Participants were also six percentage points *less* likely to expect to abstain through high school; however, this difference is not statistically significant.

CHAPTER V

KNOWLEDGE AND PERCEPTIONS OF RISKS ASSOCIATED WITH TEEN SEX

While findings from the prior chapter show no evidence that programs affected behavior, results from an earlier DHHS study report had indicated that programs had statistically significant impacts on the health, family, and sex education services that youth received (Maynard et al. 2005). Perhaps most notable among these changes was a reported increase in the value of these services for understanding pregnancy and STD risks. Using data from the final follow-up survey, this chapter examines whether these changes in services resulted in sustained impacts on knowledge of STDs and the potential risks associated with sexual activity. In addition, the chapter examines whether programs affected youth perceptions about the effectiveness of condoms or birth control pills for preventing pregnancy and STDs.¹

Findings indicate that both program and control group youth had a good understanding of their risks for pregnancy but a less clear understanding of STDs, particularly with respect to their health consequences. Programs display some modest gains on measures of these outcomes. On a measure of STD identification, program group youth reported significantly higher average levels of knowledge than their control group counterparts. One program, *My Choice, My Future!*, is largely responsible for this result. *My Choice, My Future!* also displayed a significant impact on two knowledge scales associated with pregnancy and STD risks.

Additional findings indicate program and control group youth had similar perceptions of condom effectiveness for preventing pregnancy, but program group youth were less likely than control group youth to perceive condoms as effective at preventing STDs. The same pattern is evident for perceptions of birth control pills. While program and control group youth had similar perceptions of whether birth control pills are effective for preventing pregnancy, program group youth were less likely than control group youth to perceive them

¹ These potential mediators of sexual abstinence (knowledge and perceptions) were not measured until the final follow-up survey. Therefore, this is the first report to examine them. For updated impact findings on other potential mediators of sexual abstinence—all of which were examined in a prior DHHS study report by Maynard et al. (2005)—see Appendix E.

as effective at preventing STDs. As with the knowledge findings, *My Choice, My Future!* displays the most consistent evidence of affecting these perceptions.

KNOWLEDGE OF STD AND PREGNANCY RISKS

► Study youth correctly identified STDs only about two-thirds of the time. Programs increased this proportion by a modest amount.

On the final follow-up survey, youth were given a list of 13 diseases and asked whether or not each was a sexually transmitted disease; of these diseases, nine were actual STDs and four were not STDs (see Appendix C for the exact questions). Youth in the program group identified an average of 69 percent of these diseases correctly, as STDs or not, while youth in the control group identified an average of 67 percent correct. The difference is statistically significant (Table V.1). Comparing the four programs on this measure, *My Choice, My Future!*

Table V.1. Estimated Impacts on Identification of STDs, Overall and by Site

	Program Group (Mean Percentage)	Control Group (Mean Percentage)	Program-Control Difference (Percentage Points)	<i>p</i> -value
Four Programs Combined				
Overall identification of STDs	69	67	2	0.00***
Identification of true STDs	75	72	2	0.01***
Identification of false STDs	57	55	2	0.10
<i>My Choice, My Future!</i>				
Overall identification of STDs	83	75	8	0.00***
Identification of true STDs	85	77	8	0.00***
Identification of false STDs	78	70	8	0.00***
<i>ReCapturing the Vision</i>				
Overall identification of STDs	74	72	2	0.16
Identification of true STDs	79	76	3	0.11
Identification of false STDs	64	63	1	0.70
<i>FUPTP</i>				
Overall identification of STDs	63	65	-1	0.45
Identification of true STDs	70	70	0	0.90
Identification of false STDs	48	52	-4	0.22
<i>Teens in Control</i>				
Overall identification of STDs	57	56	1	0.55
Identification of true STDs	64	65	0	0.85
Identification of false STDs	39	36	4	0.11

Source: Wave 4 Survey of Teen Activities and Attitudes (Mathematica Policy Research, Inc., 2005), administered to youth 42 to 78 months after enrolling in the Title V, Section 510 Abstinence Education Program study sample.

Note: All estimates are based on weighted regression models. For details on the covariates, see Appendix Table A.1. Sample sizes and R-square statistics are in Appendix Tables A.2 and A.3, respectively. Program-control difference may not equal difference in percentages due to rounding.

****p*-value (of program-control difference) < 0.01; ***p*-value < 0.05; **p*-value < 0.10, two-tailed test.

displays the largest difference by far. It raised the rate of STD identification by an estimated eight points, from a mean of 75 percent for the control group to a mean of 83 percent for the program group.

Findings remain consistent when examining impacts separately for diseases that are STDs and those that are not. Overall, program group youth correctly identified a higher percentage of diseases of both types, though only the impact on true STDs remained statistically significant (Table V.1). This consistency suggests that programs did not simply raise the likelihood that youth believed *any* disease was transmitted sexually; rather, they had a beneficial long-term impact on STD identification.

► **Many study youth understood the risks of pregnancy and STDs from unprotected sex, but they often lacked an understanding of the potential health risks from STDs. Program and control group youth had similar levels of knowledge.**

On a two-item scale measuring their understanding of unprotected sex risks, youth in both the program and control groups had high scores (0.88) (Table V.2). Program and control group youth likewise reported similar levels of knowledge on a three-item scale measuring their understanding of potential health risks of STDs. However, their respective mean values on this scale were relatively low, 0.52 and 0.51, and corresponded to a typical youth answering only about half the items of the scale correctly. (See Appendix C for a list of the questions and coding of responses for these scales).

Despite the lack of an impact on these scales across the four programs, one program, *My Choice, My Future!*, shows consistent evidence of raising youths' knowledge. On both scales shown in Table V.2, the mean among program group youth in *My Choice, My Future!* was significantly higher than among their control group counterparts, reflecting a gain in knowledge attributable to the program. Other programs also displayed some statistically significant differences between program and control group youth on the two scales, but these differences are less consistent. For example, on the measure of knowledge of STD consequences, program group youth in *FUPTP* reported a mean score that is five points higher than their control group counterparts, a difference that is statistically significant. However, on the measure of unprotected sex risks, the difference in mean scores is only two points and not statistically significant. *Teens in Control* displays a similar pattern between these two scales, except that the differences between the program and control groups are in the opposite (negative) direction.

PERCEPTIONS OF CONDOM AND BIRTH CONTROL PILL EFFECTIVENESS

► **Most study youth reported that condoms were at least sometimes effective at preventing pregnancy. Programs had no impact on this perception.**

About half of program and control group youth responded that, when used correctly, condoms usually prevent pregnancy (Figure V.1). Most of the remainder, 38 percent,

Table V.2. Estimated Impacts on Knowledge of Pregnancy and STD Risks, Overall and by Site

	Program Group (Scale Mean)	Control Group (Scale Mean)	Program-Control Difference	p-value
Four Programs Combined				
Knowledge of unprotected sex risks	0.88	0.88	0.00	0.85
Knowledge of STD consequences	0.52	0.51	0.02	0.20
My Choice, My Future!				
Knowledge of unprotected sex risks	0.98	0.94	0.03	0.04**
Knowledge of STD consequences	0.60	0.55	0.05	0.05*
ReCapturing the Vision				
Knowledge of unprotected sex risks	0.92	0.95	-0.03	0.09*
Knowledge of STD consequences	0.56	0.56	0.00	0.90
FUPTP				
Knowledge of unprotected sex risks	0.88	0.86	0.02	0.47
Knowledge of STD consequences	0.52	0.47	0.05	0.08*
Teens in Control				
Knowledge of unprotected sex risks	0.74	0.75	-0.01	0.64
Knowledge of STD consequences	0.40	0.44	-0.04	0.07*

Source: Wave 4 Survey of Teen Activities and Attitudes (Mathematica Policy Research, Inc., 2005), administered to youth 42 to 78 months after enrolling in the Title V, Section 510 Abstinence Education Program study sample.

Note: All estimates are based on weighted regression models. For details on the covariates, see Appendix Table A.1. Sample sizes and R-square statistics are in Appendix Tables A.2 and A.3, respectively. Program-control difference may not equal difference in means due to rounding.

***p-value (of program-control difference) < 0.01; **p-value < 0.05; *p-value < 0.10, two-tailed test.

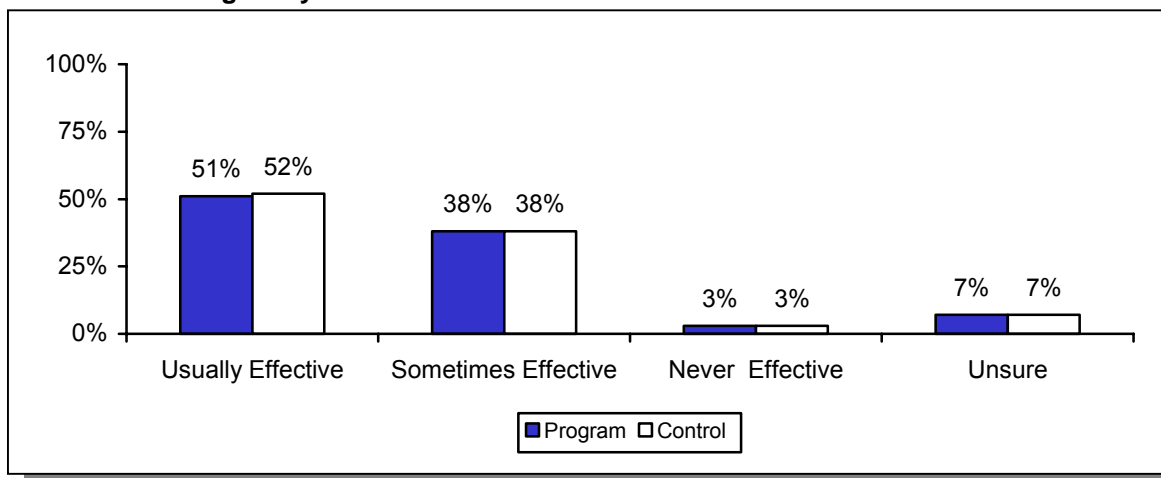
reported that condoms sometimes prevent pregnancy. Only three percent of youth thought that condoms never prevent pregnancy, while seven percent reported being unsure.

► **Many study youth reported being unsure about whether condoms prevent STDs. Overall, program group youth were less likely than control group youth to perceive condoms as effective at preventing STDs.**

Roughly one-quarter of youth in both the program and control groups reported being unsure about how effective condoms are at preventing chlamydia and gonorrhea or at preventing herpes and HPV (Figure V.2). In addition, a sizeable fraction in both groups, about one in seven, reported being unsure about condoms' effectiveness for preventing HIV. These findings are in sharp contrast to those for pregnancy (above), for which very few youth in either group reported being unsure about their effectiveness.

Youth in the program group were significantly less likely to report that condoms usually prevent STDs than those in the control group. And, for each STD type, this difference was

Figure V.1. Estimated Impacts on Perceived Effectiveness of Condoms for Preventing Pregnancy



Source: Wave 4 Survey of Teen Activities and Attitudes (Mathematica Policy Research, Inc., 2005), administered to youth 42 to 78 months after enrolling in the Title V, Section 510 Abstinence Education Program study sample.

Note: All estimates are based on weighted regression models. For details on the covariates, see Appendix Table A.1. Sample sizes and R-square statistics are in Appendix Tables A.2 and A.3, respectively. Findings by site, as well as *F*-tests of the difference in the distribution of the outcome measure between control and program groups, are in Appendix Table A.10.

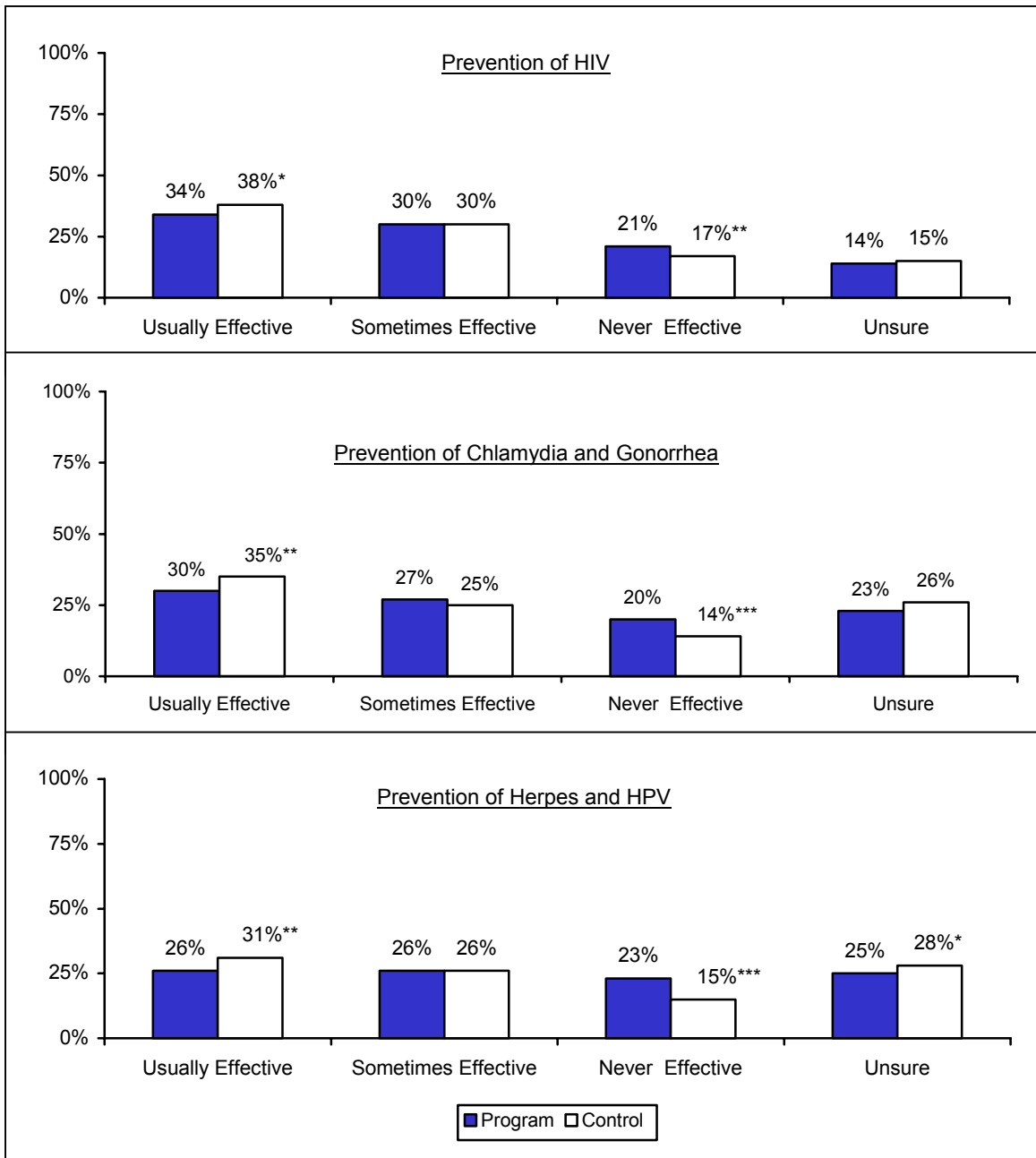
****p*-value (of program-control difference) < 0.01; ***p*-value < 0.05; **p*-value < 0.10, two-tailed test.

offset by a significantly higher proportion of program group youth reporting that condoms are never effective at prevention.² Specifically, programs raised the proportion of youth who reported that condoms never prevent HIV from an estimated 17 to 21 percent; the proportion who reported that condoms never prevent chlamydia and gonorrhea from an estimated 14 to 20 percent; and the proportion who reported that condoms never prevent herpes and HPV from an estimated 15 to 23 percent.

Findings at the site level, detailed in Appendix Tables A.11 through A.13, indicate that two programs, *My Choice, My Future!* and *Teens in Control*, are largely responsible for the impacts seen overall. The *My Choice, My Future!* findings mirror the overall results most closely—for all STDs examined, youth in the program group were significantly less likely than those in the control group to report that condoms are usually preventive, and they were

² For each STD category, youth who reported in the never effective category were significantly more likely to have remained abstinent than those who reported into one of the other categories. This difference merely reflects an association, not evidence of a causal relationship. Indeed, it is evident among both program and control group youth, suggesting it is related to factors other than program participation.

Figure V.2. Estimated Impacts on Perceived Effectiveness of Condoms for Preventing Sexually Transmitted Diseases



Source: Wave 4 Survey of Teen Activities and Attitudes (Mathematica Policy Research, Inc., 2005), administered to youth 42 to 78 months after enrolling in the Title V, Section 510 Abstinence Education Program study sample.

Note: All estimates are based on weighted regression models. For details on the covariates, see Appendix Table A.1. Sample sizes and R-square statistics are in Appendix Tables A.2 and A.3, respectively. Findings by site, as well as *F*-tests of the difference in the distribution of the outcome measure between control and program groups, are in Appendix Tables A.11 through A.13.

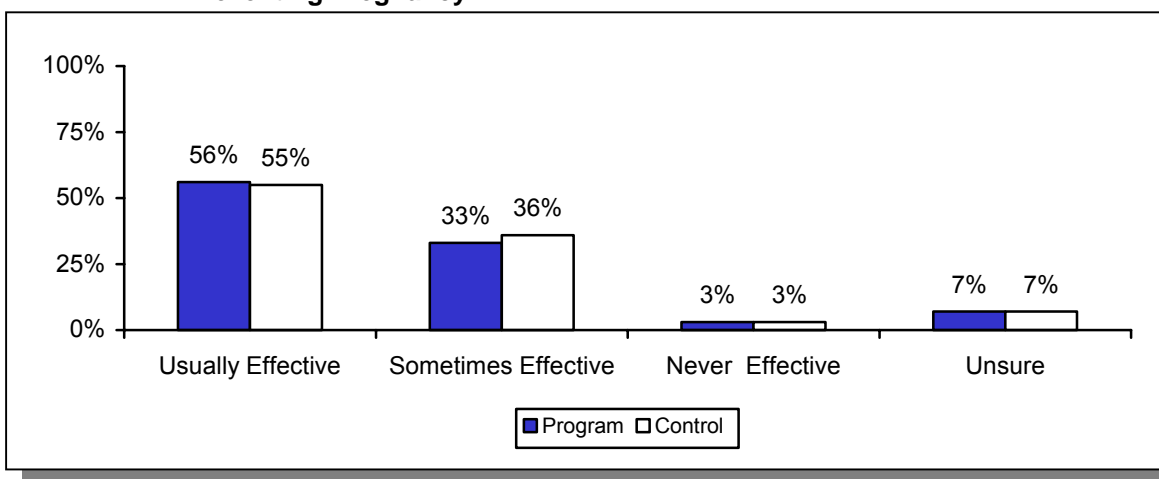
****p*-value (of program-control difference) < 0.01; ***p*-value < 0.05; **p*-value < 0.10, two-tailed test.

significantly more likely to report that condoms are never preventive. For *Teens in Control*, the same pattern of results holds, though the differences are less often statistically significant. *FUPTP* also displayed some statistically significant differences between program and control group youth. Most notably, program group youth in this site were more likely to report that condoms usually prevent HIV while also more likely to report that condoms never prevent herpes and HPV.

► **Most study youth reported that birth control pills were usually or sometimes effective at preventing pregnancy. Program and control group youth shared similar perceptions.**

Just over half of the youth in both the program and control groups reported that, when used properly, birth control pills usually prevent pregnancy (Figure V.3). Only three percent of youth in each group reported that birth control pills never prevent pregnancy, and seven percent were unsure about their effectiveness. At the site level, shown in Appendix Table A.14, program group youth in *FUPTP* were significantly more likely than control group youth to report birth control pills usually prevent pregnancy. This difference is not evident in the overall findings because it is offset by small, negative differences in the other three program sites (none are statistically significant).

Figure V.3. Estimated Impacts on Perceived Effectiveness of Birth Control Pills for Preventing Pregnancy



Source: Wave 4 Survey of Teen Activities and Attitudes (Mathematica Policy Research, Inc., 2005), administered to youth 42 to 78 months after enrolling in the Title V, Section 510 Abstinence Education Program study sample.

Note: All estimates are based on weighted regression models. For details on the covariates, see Appendix Table A.1. Sample sizes and R-square statistics are in Appendix Tables A.2 and A.3, respectively. Findings by site, as well as *F*-tests of the difference in the distribution of the outcome measure between control and program groups, are in Appendix Table A.14.

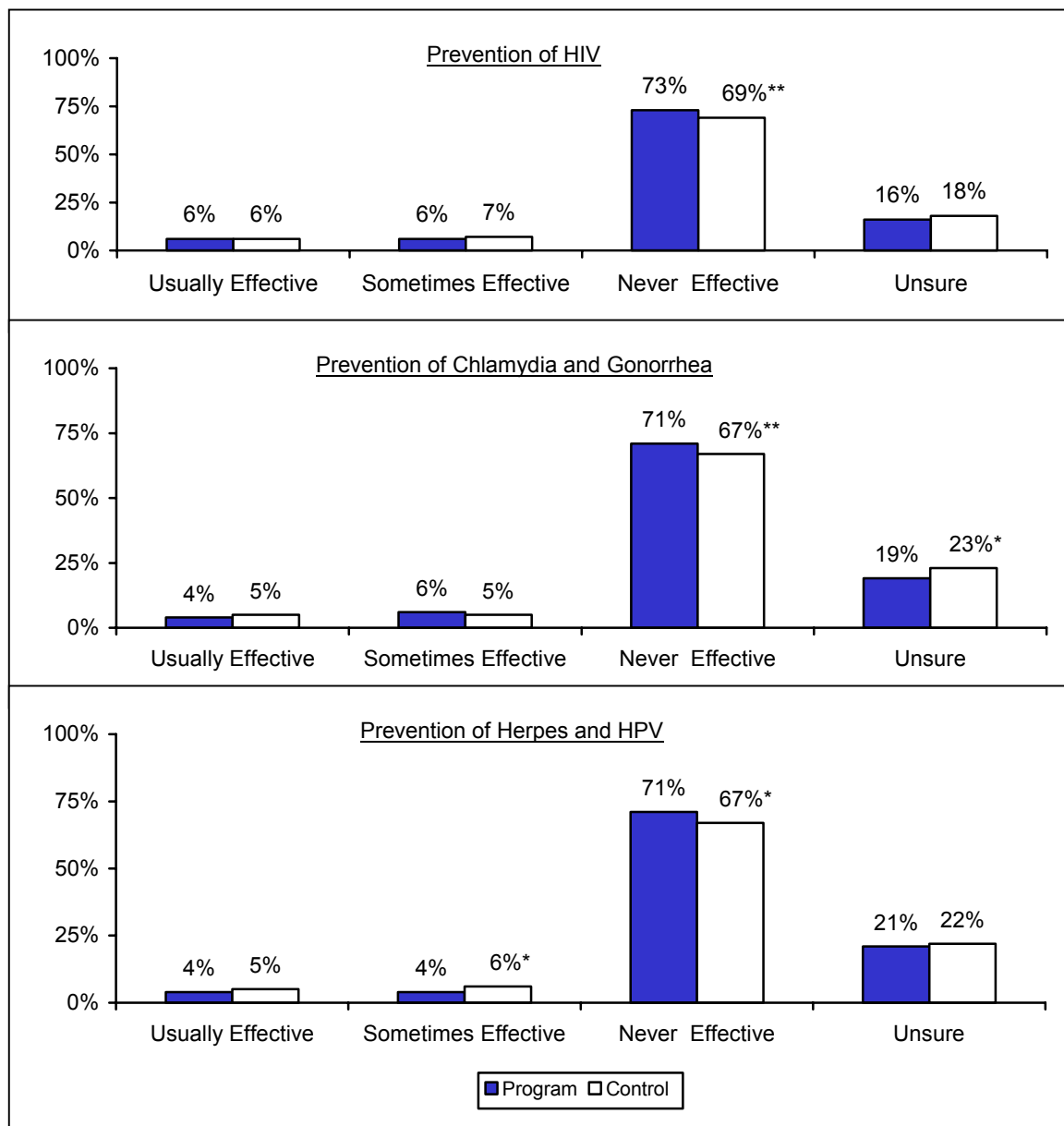
****p*-value (of program-control difference) < 0.01; ***p*-value < 0.05; **p*-value < 0.10, two-tailed test.

► **Program group youth were less likely than control group youth to perceive birth control pills as effective at preventing STDs.**

More than two out of three study participants reported, correctly, that birth control pills do not prevent STDs. For each STD investigated, a significantly higher proportion of youth in the program group than the control group reported this was the case (Figure V.4). For example, 73 percent of program group youth correctly reported that birth control pills never prevent HIV compared to 69 percent of control group youth, a statistically significant difference of four percentage points.

As with several previous measures, *My Choice, My Future!* is the main source for the difference seen overall in these perceptions (see Appendix Tables A.15 through A.17). For each STD type, the proportion of program group youth in *My Choice, My Future!* who reported that birth control pills never prevent STDs was significantly higher than that of the control group. Differences ranged from 8 to 11 percentage points. In contrast, the other three program sites display no statistically significant differences between the two groups for any of the STDs examined.

Figure V.4. Estimated Impacts on Perceived Effectiveness of Birth Control Pills for Preventing Sexually Transmitted Diseases



Source: Wave 4 Survey of Teen Activities and Attitudes (Mathematica Policy Research, Inc., 2005), administered to youth 42 to 78 months after enrolling in the Title V, Section 510 Abstinence Education Program study sample.

Note: All estimates are based on weighted regression models. For details on the covariates, see Appendix Table A.1. Sample sizes and R-square statistics are in Appendix Tables A.2 and A.3, respectively. Findings by site, as well as *F*-tests of the difference in the distribution of the outcome measure between control and program groups, are in Appendix Tables A.15 through A.17.

****p*-value (of program-control difference) < 0.01; ***p*-value < 0.05; **p*-value < 0.10, two-tailed test.

CHAPTER VI

PREDICTORS OF SEXUAL ABSTINENCE

The national evaluation of Title V, Section 510 abstinence education programs collected survey data on study youth over a four to six year period, depending on the year that they began to participate. At the time of enrollment in the study, youth were of middle school age or younger—in most cases, too young to be sexually active. Over the course of the evaluation, they aged into mid-to-later adolescence, when many youth are making decisions about their own sexual activity. To gain insight into the unfolding of these decisions over time and the effect of program participation on these decisions, the evaluation has included analyses of both short-term and longer-term program impacts.

A previous DHHS study report found that the four focal programs had an impact on several of their intended short-term outcomes, which were hypothesized to lower rates of teen sexual activity (Maynard et al. 2005). Most notably, relative to their peers in the control group, youth in the program group reported views more supportive of abstinence and less supportive of teen sex, and they demonstrated a heightened awareness of the possible negative consequences of teen sex. Program group youth were also significantly more likely than youth in the control group to make formal pledges to abstain from sex until marriage.

This chapter explores two potential explanations for the apparent inconsistency between short-term impacts on outcomes believed to be predictive of abstinence and the lack of longer-term impacts on abstinence: (1) these outcomes failed to affect, or mediate, sexual abstinence as hypothesized, and (2) the short-term impacts on these outcomes were simply too small or did not persist for long enough to have an impact on eventual sexual activity.

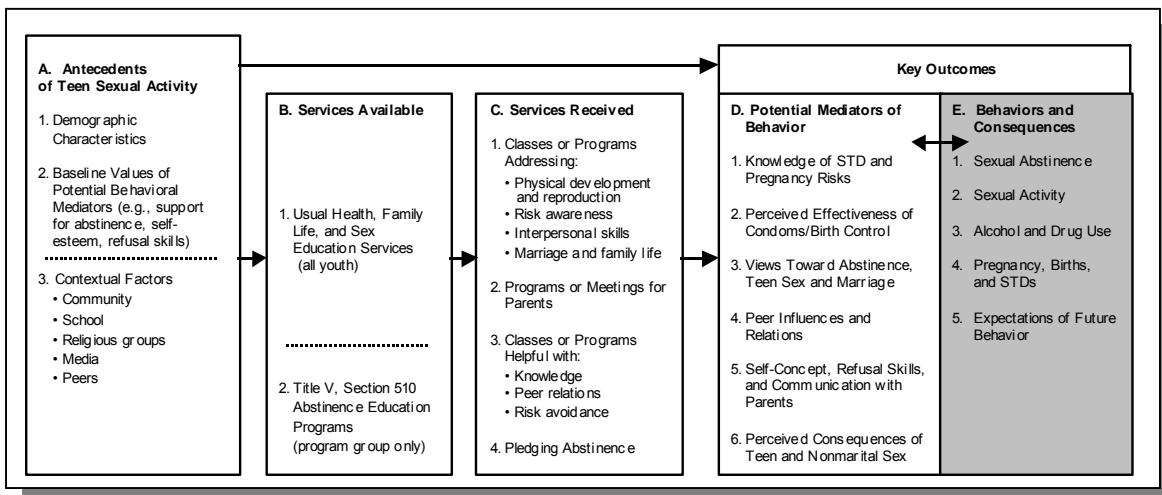
Notably, while the chapter provides insight into the links between potential mediators and sexual abstinence, *it cannot establish causality*. An observed relationship between a mediator and sexual abstinence might reflect the effect of unobserved factors correlated with that mediator rather than the causal impact of the mediator itself. For example, peer pressure could have a causal effect on sexual abstinence, in which case peer pressure and sexual abstinence would be correlated. But an observed correlation between peer pressure and sexual abstinence could also arise from youth with an unobserved propensity to engage in sexual activity selecting into peer groups in which peer pressure is high. The analytic approach, presented below, cannot disentangle these two explanations for any correlations between potential mediators and sexual abstinence.

METHODS

The evaluation draws on a rich longitudinal data set that includes multiple measures of attitudes and other possible mediators of youth behavior as well as of their behavioral outcomes. These data not only allow the analysis of program impacts over time, but also enable us to examine the pathways through which programs might have affected behaviors.

The logic model for the evaluation, presented in Chapter I and reproduced below (Figure VI.1), presents the pathways through which program effects were hypothesized to occur. Programs aimed to alter the level and nature of services youth received in ways that would influence potential mediators of teen sexual activity. Examples of these potential mediators include youth views toward abstinence, their relations with peers, and their perceived consequences of teen sex. The first year impact report examined program impacts on receipt of services (Box C) as well as on several potential mediators (Box D). The earlier chapters of this report estimate program impacts on long-term behavioral outcomes (Box E). This chapter focuses on the potential links between selected mediators (Box D) and teen sexual behavior (Box E).

Figure VI.1. Logic Model for Evaluating the Impact of Title V, Section 510 Programs



The relationships between mediators and sexual abstinence are estimated using a multiple regression model. The outcome of interest—whether youth have remained abstinent (measured at the time of the final follow-up survey)—is regressed against a set of covariates that measure several potential mediators of abstinence. These mediators are based on data from an initial follow-up survey, conducted six to nine months after youth enrolled in the study. Findings from the regression thus provide an estimate of whether a potential mediator of behavior, such as relations with peers, does in fact predict whether youth have abstained from sex three to five years later (the period between the initial and final follow-up surveys).

The analysis focuses on five groups of potential mediators, all measured from the initial follow-up survey data. They include (1) youth views toward abstinence, sex, and marriage;

(2) peer influences and relations; (3) self-concept, refusal skills, and communication with parents; (4) perceived consequences of teen sex; and (5) pledging to abstain from sex.¹ Ideally, the analysis would be expanded to include the other potential mediators of teen sex shown in Figure VI.1, such as knowledge of STD and pregnancy risks. However, measures of these potential mediators were not collected from the initial follow-up survey.

FINDINGS

Two potential mediators from the initial follow-up survey—views supportive of abstinence and friends’ support for abstinence—were significantly predictive of reported sexual abstinence on the final follow-up survey (Table VI.1). Specifically, youth reporting views more supportive of abstinence were more likely to report abstaining from sexual intercourse on the later survey. The magnitude is large; a one-unit increase in the measure is associated with an eight percentage point increase in the likelihood of remaining abstinent (p -value = 0.01). Likewise, having a network of close friends who are supportive of abstinence was strongly associated with increased sexual abstinence. A one-unit increase in support for abstinence among friends is associated with a five percentage point increase in the likelihood of remaining abstinent.

Of the remaining potential mediators, none is associated with sexual abstinence in the direction hypothesized in the logic model (Table VI.1). One measure, support for marriage, has a negative association with sexual abstinence, which is inconsistent with the logic model. The remaining measures—including self-concept, refusal skills, and communication with parents; perceived consequences of teen sex; and pledging—all bear no statistically significant association with later sexual abstinence. Perhaps the most surprising of these findings concerns the pledge, which two previous studies (Bearman and Bruckner 2001; Rector et al. 2004) found to be associated with delayed sexual initiation but this study finds to have no statistically significant association with later sexual abstinence.

Given that support for abstinence by youth and peer support for abstinence are the only significant long-term predictors of sexual abstinence found in this study, the remainder of this chapter focuses on these two measures (defined in Table VI.2) and how they changed over time. For findings on the other measures shown in Table VI.1, see Appendix E.

Changes in Youth Support for Abstinence Over Time

Support for abstinence among sample youth declined notably between the initial and final follow-up surveys, regardless of whether they were in the control or program group (Figure VI.2). Among youth in the control group, the mean score on a scale measuring views toward abstinence fell from 1.80 to 1.60. This change is equivalent to one-fifth of

¹ See Appendix Table E.1 for definitions of these measures. Pledging to abstain is shown in Box C of the logic model (services received) because it is often a component of programs’ curricula; however, the act of pledging may act as a mediator of future behavior, making it relevant for this analysis.

Table VI.1. Links Between Potential Mediators and Later Sexual Abstinence

Potential Mediator (Scale Measure)	Scale Range	Change in Rate of Abstinence for One Unit Change in Potential Mediator	p-value
Views on Abstinence, Teen Sex, and Marriage			
Support for abstinence	0-3 [least to most supportive]	8	0.01**
Support for teen sex (reversed)	0-3 [most to least supportive]	-1	0.65
Support for marriage	0-3 [least to most supportive]	-4	0.09*
Peer Influences and Relations			
Friends' support for abstinence	0-5 [least to most supportive]	5	0.00***
Peer pressure to have sex ^a	0-3 [least to most pressure]	-4	0.21
Self-Concept, Refusal Skills and Communication with Parents			
Self-esteem and control	0-3 [lowest to highest level]	3	0.35
Refusal skills ^a	0-2 [lowest to highest skills]	-3	0.57
Communication with parents	0-3 [least to most communication]	0	0.94
Perceived Consequences of Teen and non-Marital Sex			
Perceived personal consequences	0-3 [least to most consequences]	4	0.18
Perceived general consequences	0-2 [least to most consequences]	1	0.79
Pledging			
Pledged to abstain	0 or 1 [yes or no]	-3	0.37

Sources: The measures of potential mediators and the measure of sexual abstinence are based, respectively, on the Wave 2 and Wave 4 Surveys of Teen Activities and Attitudes (Mathematica Policy Research, Inc., 2000, 2005) administered to youth 6 to 12 months and 42 to 78 months, after enrollment in the Title V, Section 510 Abstinence Education Program study sample.

Note: See Appendix E for complete information on these measures. All estimates are adjusted based on weighted regression models. The estimated change represents an association between the two measures and should not be interpreted as causal, since it might be explained by other, unmeasured factors.

^aTeens in Control and FUPTP samples were not asked the questions used to construct these measures because of their young ages at the time of the Wave 2 survey. As a result, these estimates are based on a model pooling data across only the two older sites. All other estimates are based on a model pooling data across all four sites.

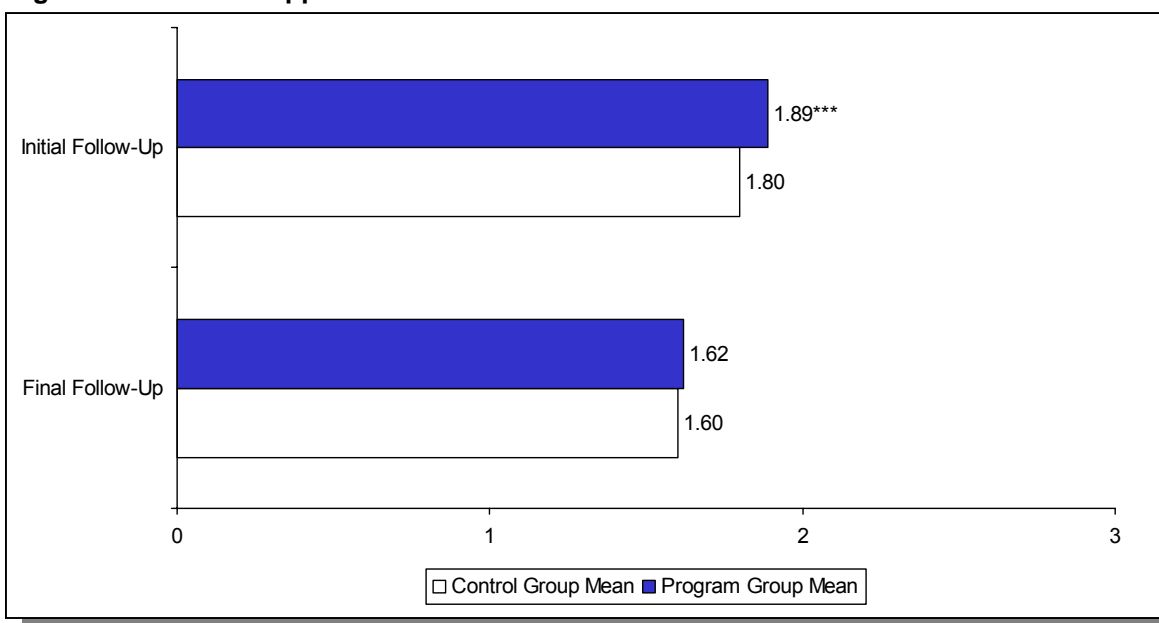
***p-value (of change shown) < 0.01; **p-value < 0.05; *p-value < 0.10, two-tailed test.

control group youth moving one unit on this scale measure; for example, from responding that they “agree” with the series of statements supportive of sexual abstinence (shown in Table VI.2) to responding that they “disagree.”

Among youth in the program group, the decline in support for abstinence was even greater than among control group youth, leading program impacts on this measure to disappear over time. At the time of the initial follow-up survey, program youth held views significantly more supportive of abstinence than youth in the control group (Figure VI.2; top panel). However, by the time of the final follow-up survey (three to five years later), views

Table VI.2. Measures Found Predictive of Sexual Abstinence: Scale Items and Definitions

Variable	Definition
Support for abstinence	Continuous (scale) variable, reflecting the average of five individual survey items: (a) having sexual intercourse is something only married people should do, (b) it is against my values to have sexual intercourse as an unmarried teen, (c) it would be okay for teens who have been dating for a long time to have sexual intercourse [reversed], (d) it is okay for teenagers to have sexual intercourse before marriage if they plan to get married [reversed], and (e) it is ok for unmarried teens to have sexual intercourse if they use birth control [reversed]. Responses are coded from 0 (strongly disagree) to 3 (strongly agree) and averaged.
Friends' support for Abstinence	Continuous (scale) variable, reflecting the average of three items: (a) number of five closest friends who think sex at your age is okay [reversed], (b) number who think someone should wait until marriage to have sex, and (c) number who have had sexual intercourse [reversed]. Responses are recoded to four interval measures: 0 (none), 1 (one or two), 3 (three or four), or 5 (all of them) and averaged.

Figure VI.2. Youth Support for Abstinence Over Time

Sources: Wave 2 and Wave 4 Surveys of Teen Activities and Attitudes (Mathematica Policy Research, Inc., 2000, 2005) administered to youth 6 to 12 months and 42 to 78 months, respectively, after enrollment in the Title V, Section 510 Abstinence Education Program study sample.

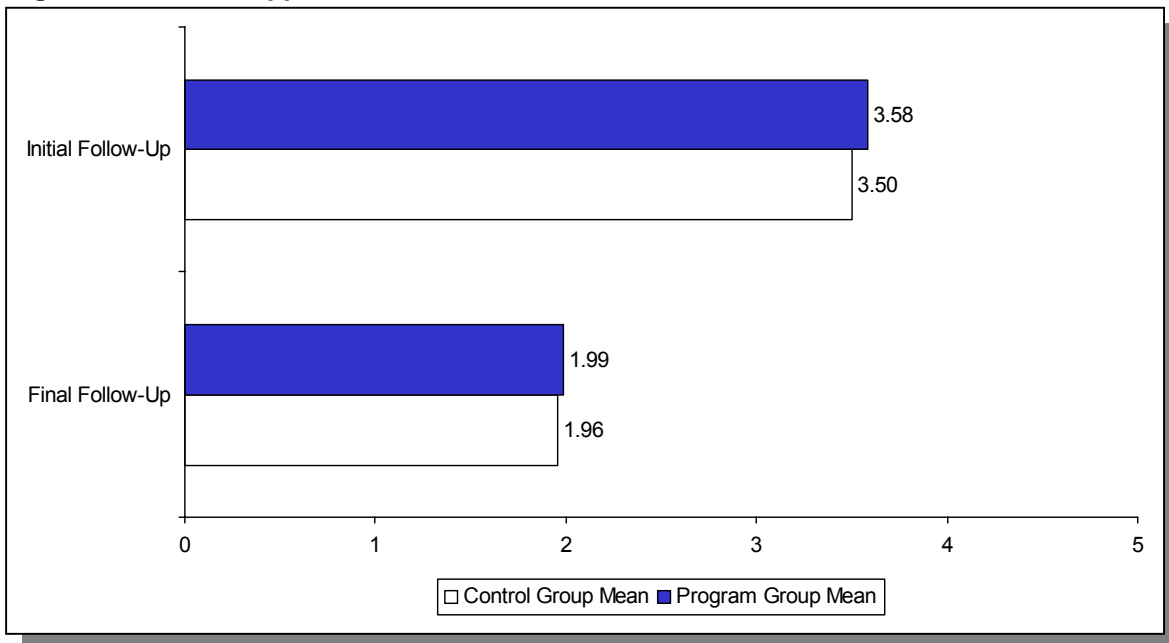
****p*-value (of change shown) < 0.01; ***p*-value < 0.05; **p*-value < 0.10, two-tailed test.

among program group youth had fallen from a mean of 1.89 on the scale to a mean of 1.62—a larger drop than the one seen for the control group youth. The result is that the difference in support for abstinence between the two experimental groups seen at the time of the initial follow-up survey is not statistically significant by the time of the final follow-up survey.

Changes in Friends' Support for Abstinence Over Time

Support for abstinence among friends also fell substantially between the two follow-up surveys (Figure VI.3). Based on a scale measure ranging from 0 to 5, youth in the control group averaged a score of 3.50 at the time of the initial follow-up survey. This is equivalent to youth reporting that three to four of their five closest friends had attitudes or behaviors supportive of abstinence. By the time of the final follow-up survey, this measure fell sharply to a mean score of 1.96, indicating that on average fewer than half of their friends held attitudes supportive of abstinence.

Figure VI.3. Peer Support for Abstinence Over Time



Sources: Wave 2 and Wave 4 Surveys of Teen Activities and Attitudes (Mathematica Policy Research, Inc., 2000, 2005) administered to youth 6 to 12 months and 42 to 78 months, respectively, after enrollment in the Title V, Section 510 Abstinence Education Program study sample.

*** p -value (of change shown) < 0.01; ** p -value < 0.05; * p -value < 0.10, two-tailed test.

Youth in the program group reported a similar decline in friends' support for abstinence, and the program had no impact on this measure, either in the short or longer term. At the time of the initial follow-up survey, youth in the program group reported slightly higher peer support for abstinence than those in the control group—a mean of

3.58 compared to 3.50—but the difference was not significant at conventional levels (p -value = 0.15). By the time of the final follow-up survey, friends' support had fallen slightly more among program group youth than control group youth, resulting in nearly identical levels of support between the two groups.

SUMMARY

Several potential mediators of teen sexual abstinence commonly addressed by Title V, Section 510 program curricula are found to have no association with sexual abstinence three to five years later. Notable among these are self-concept, refusal skills, and communication with parents; perceptions of negative consequences from teen sex; and pledging to abstain from sex. Two other potential mediators are found to be significantly associated with future sexual abstinence: youth support for abstinence and their friends' support for abstinence. Although the analysis cannot determine whether either of these associations is causal, findings suggest that promoting support for abstinence, both among youth and their friends, should be an important feature of future abstinence programs.

The programs evaluated in this report had at most a small impact on support for abstinence in the short term, and they had no impact on support for abstinence in the longer term. However, levels of support among both program and control group youth did change significantly over time. For example, at the end of their first school year in the study sample (the time of the first follow-up survey), most program group youth reported having a majority of friends supportive of abstinence. But by the time of the final follow-up survey—when most program youth had entered middle to late adolescence and all youth had completed the programs—only a small fraction had maintained this high level of peer support.

CHAPTER VII

CONCLUSIONS

This report examines the impacts of four selected Title V, Section 510 abstinence education programs on adolescent sexual activity and related knowledge and behavioral outcomes. The impact findings show no overall impact on teen sexual activity, no differences in rates of unprotected sex, and some impacts on knowledge of STDs and perceived effectiveness of condoms and birth control pills. This chapter summarizes these main impact results, considers some important lessons learned from the evaluation, and ends with a look ahead.

SUMMARY OF IMPACT RESULTS

The main objective of Title V, Section 510 abstinence education programs is to teach abstinence from sexual activity outside of marriage. The impact results from the four selected programs show no impacts on rates of sexual abstinence. About half of all study youth had remained abstinent at the time of the final follow-up survey, and program and control group youth had similar rates of sexual abstinence. Moreover, the average age at first sexual intercourse and the number of sexual partners were almost identical for program and control youth.

Some policymakers and health educators have questioned the Title V, Section 510 abstinence education programs, believing that the focus on abstinence may put teens at risk of having unprotected sex. The evaluation findings suggest that this is not the case. Program and control group youth did not differ in their rates of unprotected sex, either at first intercourse or over the last 12 months. Less than 10 percent of all study youth (8 percent of control group youth and 7 percent of program group youth) reported having unprotected sex at first intercourse. Over the last 12 months, 21 percent of both program and control group youth reported having sex and not always using a condom.

Findings on behavioral outcomes for each of the four individual sites likewise indicate few statistically significant differences between program and control group youth. In each site, most differences between youth in the program and control groups were small and inconsistent in direction. *ReCapturing the Vision* displayed the largest positive differences with respect to abstinence from sex; 48 percent of program youth in this site reported being abstinent in the last 12 months compared with 43 percent of control group youth.

ReCapturing the Vision also displayed a positive difference of seven points in the proportion of youth who reported expecting to abstain from sex until marriage. Neither of these differences is statistically significant. Given the smaller sample sizes available for estimating impacts at the site level, however, the study cannot rule out modest site-specific impacts on these outcomes.

Many Title V, Section 510 abstinence education programs focus on the risks of STDs, and the evaluation results show some improvements in knowledge of STDs. Program group youth correctly identified a significantly higher proportion of STDs than control group youth, and program group youth were significantly more likely than control group youth to report (correctly) that birth control pills are never effective at preventing STDs (including HIV, chlamydia and gonorrhea, and herpes and human papillomavirus [HPV]). For both outcomes, *My Choice, My Future!* is the main source of the differences seen overall.

Program group youth, however, were less likely than control group youth to perceive condoms as effective at preventing STDs. Compared with control group youth, program group youth were less likely to report that condoms are usually effective at preventing HIV, chlamydia and gonorrhea, and herpes and HPV. Furthermore, program group youth were more likely than control group youth to report that condoms are never effective at preventing these STDs. As above, *My Choice, My Future!* is a main source of these overall impacts.

LESSONS LEARNED

The national evaluation of Title V, Section 510 abstinence education programs has been conducted over a period of nine years. It started just after the funding authorization in 1998 and focused on the “first generation” of the A-H abstinence education programs. The evaluation has included both implementation and impact analyses, with multiple site visits to observe the programs and longitudinal follow-up of study youth over a period of four to six years. Several prior DHHS study reports document the implementation experiences of the schools and communities operating the programs and first year impacts of the programs on potential mediating outcomes (Devaney et al. 2002; Maynard et al. 2005; Clark and Devaney 2006). These reports, together with this final impact report, highlight several important considerations for addressing persistent concerns associated with teen sexual activity.

Teens Have Important Gaps in Knowledge of STDs

Program and control group youth appear better informed about the risks of pregnancy than about the risks or consequences of contracting STDs. Although a high proportion of youth reported that having unprotected sex just once could result in an STD, 47 percent of sexually active youth had unprotected sex in the previous 12 months. Moreover, on a scale measuring their understanding of the health consequences of STDs, youth on average got only about half of the answers correct; on a scale measuring STD identification, youth were correct only about two-thirds of the time. In summary, there is a lack of knowledge of the consequences of STDs among both groups.

Targeting Youth at Young Ages May Not Be Sufficient

As with the four programs in this study, most Title V, Section 510 abstinence education programs have been implemented in upper elementary and middle schools. In addition, most Title V, Section 510 programs are completed before youth enter high school, when rates of sexual activity increase and many teens are either contemplating or having sex. Findings from this study provide no evidence that abstinence programs implemented in upper elementary and middle schools are effective at reducing the rate of teen sexual activity several years later. However, the findings provide no information on the effects programs might have if they were implemented for high school youth or began at earlier ages but served youth through high school.

Peer Support for Abstinence Erodes as Youth Move Through Adolescence

At the time when most Title V, Section 510 abstinence education programs are completed and youth enter their adolescent years, support for abstinence among their friends falls dramatically. For example, survey data from the start of the impact study show that nearly all youth had friends who exhibited attitudes and behaviors supportive of abstinence. Four years later, however, the typical youth in the study reported that only two of his or her five closest friends remained supportive of abstinence.

Youth who participate in Title V, Section 510 programs may also find themselves unable to maintain their peer networks as they advance from elementary to middle school or from middle school up through high school. In some urban settings, for example, the parent(s) of a child attending a particular middle school might have the option of sending that child to potentially dozens of high schools in the school district. Alternatively, in many other communities, children from several elementary (or middle) schools might feed into a single middle (or high) school. To the extent that the Title V, Section 510 abstinence programs aim to influence peer networks, this dispersal or dilution of peer networks after youth complete the programs presents a significant challenge to sustaining positive change.

LOOKING AHEAD

This evaluation highlights the challenges faced by programs aiming to reduce adolescent sexual activity. Nationally, about half of all high school youth report having had sex, and more than one in five students report having had four or more sexual partners by the time they complete high school. One-quarter of sexually active adolescents nationwide have an STD, and many STDs are lifelong viral infections with no cure. Findings from this study speak to the continued need for rigorous research on how to combat the high rate of teen sexual activity and its negative consequences.

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APPENDIX A
SUPPORTING TABLES FOR
THE IMPACT ANALYSIS

Table A.1. Ranges, Means, and Standard Deviations of Control (Baseline) Variables for the Analysis

<i>My Choice, My Future!, Powhatan, VA</i>					
Variable Descriptor	Range	Means		p-value (Program-Control)	Standard Deviation
		Control Group	Program Group		
Child Demographics					
Gender: girl	{0,1}	0.48	0.54	0.25	--
Enrollment cohort: 1999	{0,1}	0.30	0.35	0.28	--
Enrollment cohort: 2000	{0,1}	0.36	0.32	0.40	--
Enrollment cohort: 2001^	{0,1}	0.33	0.32	0.82	--
Age 13 or younger	{0,1}	0.00	0.00	1.00	--
Age 14	{0,1}	0.00	0.00	1.00	--
Age 15	{0,1}	0.00	0.00	1.00	--
Age 16	{0,1}	0.05	0.09	0.10*	--
Age 17	{0,1}	0.28	0.24	0.29	--
Age 18	{0,1}	0.34	0.26	0.10*	--
Age 19 or older	{0,1}	0.32	0.38	0.20	--
Age: don't know	{0,1}	0.01	0.03	0.20	--
Race/ethnicity: white	{0,1}	0.83	0.80	0.47	--
Race/ethnicity: Hispanic	{0,1}	0.03	0.03	0.89	--
Race/ethnicity: African American^	{0,1}	0.12	0.10	0.66	--
Race/ethnicity: other	{0,1}	0.02	0.06	0.03**	--
Major Life Events					
Unmarried sister got pregnant in the past year	{0,1}	0.02	0.02	0.93	--
Sibling dropped out of school in the past year	{0,1}	0.02	0.01	0.52	--
Views Toward Abstinence					
Normative and personal values toward abstinence	[1,4]	1.90	1.96	0.34	0.57
Cultural Influences					
Religiosity: low	{0,1}	0.20	0.18	0.62	--
Religiosity: medium^	{0,1}	0.57	0.56	0.77	--
Religiosity: high	{0,1}	0.22	0.23	0.78	--
Health and Sex Education					
Knowledge of STDs	[0,11]	4.39	4.66	0.29	2.54
Household Demographics and Familial Influences					
Parents married	{0,1}	0.69	0.65	0.37	--
Presence of mother figure	{0,1}	0.98	0.97	0.48	--
Presence of father figure	{0,1}	0.94	0.94	0.76	--
Comfortable talking to parents about sex	{0,1}	0.39	0.40	0.81	--
Norms, Values, and Intentions					
Consequences of having sex: high	{0,1}	0.10	0.11	0.73	--
Consequences of having sex: medium^	{0,1}	0.54	0.51	0.63	--
Consequences of having sex: low	{0,1}	0.36	0.37	0.78	--

Table A.1 (continued)

Variable Descriptor	Range	Means		<i>p</i> -value (Program-Control)	Standard Deviation
		Control Group	Program Group		
Chance will have sex next year	{0,1,2}	0.41	0.49	0.22	--
Change will have sex before end of high school	{0,1,2}	0.69	0.75	0.37	--
Ability to resist pressure for sex	[0,2]	0.67	0.64	0.61	--
Risk-Related Behaviors					
Had sex	{0,1}	0.14	0.15	0.84	--
Involved in petting	{0,1}	0.39	0.41	0.71	--
Baseline Data					
Baseline data collected at Wave 2	{0,1}	0.00	0.00	1.00	--
Missing baseline data	{0,1}	0.01	0.02	0.52	--
Timing of Final Follow-up Interview					
Final follow-up interview in January or February	{0,1}	0.03	0.03	0.96	--
Final follow-up interview in March or April	{0,1}	0.00	0.00	1.00	--
Final follow-up interview in May or June	{0,1}	0.36	0.36	0.86	--
Final follow-up interview in July or August [^]	{0,1}	0.27	0.23	0.38	--
Final follow-up interview in September or October	{0,1}	0.23	0.26	0.55	--
Final follow-up interview in November or December	{0,1}	0.11	0.13	0.56	--

Table A.1 (continued)

<i>ReCapturing the Vision, Miami, FL</i>					
Variable Descriptor	Range	Means		<i>p</i> -value (Program-Control)	Standard Deviation
		Control Group	Program Group		
Child Demographics					
Gender: girl	{0,1}	1.00	1.00	1.00	--
Enrollment cohort: 1999	{0,1}	0.39	0.40	0.70	--
Enrollment cohort: 2000	{0,1}	0.35	0.32	0.48	--
Enrollment cohort: 2001 [^]	{0,1}	0.26	0.28	0.75	--
Age 13 or younger	{0,1}	0.00	0.00	1.00	--
Age 14	{0,1}	0.00	0.00	1.00	--
Age 15	{0,1}	0.00	0.00	0.32	--
Age 16	{0,1}	0.13	0.16	0.23	--
Age 17	{0,1}	0.28	0.25	0.59	--
Age 18	{0,1}	0.26	0.28	0.74	--
Age 19 or older	{0,1}	0.25	0.23	0.53	--
Age: don't know	{0,1}	0.08	0.08	0.87	--
Race/ethnicity: white	{0,1}	0.05	0.03	0.37	--
Race/ethnicity: Hispanic	{0,1}	0.22	0.18	0.21	--
Race/ethnicity: African American [^]	{0,1}	0.60	0.67	0.13	--
Race/ethnicity: other	{0,1}	0.13	0.12	0.85	--
Major Life Events					
Unmarried sister got pregnant in the past year	{0,1}	0.19	0.12	0.06*	--
Sibling dropped out of school in the past year	{0,1}	0.09	0.04	0.07*	--
Views Toward Abstinence					
Normative and personal values toward abstinence	[1,4]	1.73	1.76	0.51	0.48
Cultural Influences					
Religiosity: low	{0,1}	0.12	0.07	0.13	--
Religiosity: medium [^]	{0,1}	0.50	0.57	0.13	--
Religiosity: high	{0,1}	0.30	0.27	0.54	--
Health and Sex Education					
Knowledge of STDs	[0,11]	4.93	4.96	0.88	2.56
Household Demographics and Familial Influences					
Parents married	{0,1}	0.35	0.32	0.45	--
Presence of mother figure	{0,1}	0.90	0.91	0.88	--
Presence of father figure	{0,1}	0.81	0.81	0.89	--
Comfortable talking to parents about sex	{0,1}	0.36	0.41	0.31	--
Norms, Values, and Intentions					
Consequences of having sex: high	{0,1}	0.12	0.14	0.64	--
Consequences of having sex: medium [^]	{0,1}	0.62	0.63	0.85	--
Consequences of having sex: low	{0,1}	0.26	0.23	0.57	--

Table A.1 (continued)

Variable Descriptor	Range	Means		<i>p</i> -value (Program-Control)	Standard Deviation
		Control Group	Program Group		
Chance will have sex next year	{0,1,2}	0.33	0.21	0.01***	--
Change will have sex before end of high school	{0,1,2}	0.54	0.42	0.03**	--
Ability to resist pressure for sex	[0,2]	0.42	0.36	0.15	--
Risk-Related Behaviors					
Had sex	{0,1}	0.07	0.11	0.20	--
Involved in petting	{0,1}	0.25	0.22	0.35	--
Baseline Data					
Baseline data collected at Wave 2	{0,1}	0.03	0.02	0.41	--
Missing baseline data	{0,1}	0.08	0.07	0.57	--
Timing of Final Follow-up Interview					
Final follow-up interview in January or February	{0,1}	0.13	0.08	0.09*	--
Final follow-up interview in March or April	{0,1}	0.00	0.00	1.00	--
Final follow-up interview in May or June	{0,1}	0.14	0.12	0.42	--
Final follow-up interview in July or August [^]	{0,1}	0.12	0.18	0.07*	--
Final follow-up interview in September or October	{0,1}	0.31	0.30	0.75	--
Final follow-up interview in November or December	{0,1}	0.29	0.32	0.57	--

Table A.1 (continued)

Families United to Prevent Teen Pregnancy (FUPTP), Milwaukee, WI					
Variable Descriptor	Range	Means		<i>p</i> -value (Program-Control)	Standard Deviation
		Control Group	Program Group		
Child Demographics					
Gender: girl	{0,1}	0.62	0.62	0.96	--
Enrollment cohort: 1999	{0,1}	0.31	0.35	0.44	--
Enrollment cohort: 2000	{0,1}	0.46	0.39	0.29	--
Enrollment cohort: 2001 [^]	{0,1}	0.24	0.26	0.71	--
Age 13 or younger	{0,1}	0.20	0.16	0.29	--
Age 14	{0,1}	0.20	0.19	0.77	--
Age 15	{0,1}	0.15	0.25	0.03**	--
Age 16	{0,1}	0.23	0.16	0.22	--
Age 17	{0,1}	0.10	0.14	0.19	--
Age 18	{0,1}	0.02	0.04	0.28	--
Age 19 or older	{0,1}	0.03	0.03	0.71	--
Age: don't know	{0,1}	0.07	0.04	0.30	--
Race/ethnicity: white	{0,1}	0.02	0.02	0.85	--
Race/ethnicity: Hispanic	{0,1}	0.08	0.06	0.51	--
Race/ethnicity: African American [^]	{0,1}	0.71	0.80	0.05*	--
Race/ethnicity: other	{0,1}	0.19	0.11	0.08*	--
Major Life Events					
Unmarried sister got pregnant in the past year	{0,1}	0.21	0.14	0.16	--
Sibling dropped out of school in the past year	{0,1}	0.13	0.12	0.71	--
Views Toward Abstinence					
Normative and personal values toward abstinence	[1,4]	2.05	1.94	0.05*	0.50
Cultural Influences					
Religiosity: low	{0,1}	0.05	0.07	0.34	--
Religiosity: medium [^]	{0,1}	0.53	0.51	0.71	--
Religiosity: high	{0,1}	0.35	0.37	0.74	--
Health and Sex Education					
Knowledge of STDs	[0,11]	2.87	3.39	0.08*	2.77
Household Demographics and Familial Influences					
Parents married	{0,1}	0.24	0.27	0.42	--
Presence of mother figure	{0,1}	0.91	0.95	0.30	--
Presence of father figure	{0,1}	0.81	0.81	0.99	--
Comfortable talking to parents about sex	{0,1}	0.38	0.46	0.15	--
Norms, Values, and Intentions					
Consequences of having sex: high	{0,1}	0.24	0.29	0.25	--
Consequences of having sex: medium [^]	{0,1}	0.53	0.51	0.77	--
Consequences of having sex: low	{0,1}	0.23	0.19	0.42	--

Table A.1 (continued)

Variable Descriptor	Range	Means		<i>p</i> -value (Program-Control)	Standard Deviation
		Control Group	Program Group		
Chance will have sex next year	{0,1,2}	n.a.	n.a.	n.a.	n.a.
Change will have sex before end of high school	{0,1,2}	n.a.	n.a.	n.a.	n.a.
Ability to resist pressure for sex	[0,2]	n.a.	n.a.	n.a.	n.a.
Risk-Related Behaviors					
Had sex	{0,1}	n.a.	n.a.	n.a.	n.a.
Involved in petting	{0,1}	n.a.	n.a.	n.a.	n.a.
Baseline Data					
Baseline data collected at Wave 2	{0,1}	0.01	0.04	0.10	--
Missing baseline data	{0,1}	0.06	0.04	0.38	--
Timing of Final Follow-up Interview					
Final follow-up interview in January or February	{0,1}	0.14	0.15	0.91	--
Final follow-up interview in March or April	{0,1}	0.00	0.00	1.00	--
Final follow-up interview in May or June	{0,1}	0.18	0.18	0.98	--
Final follow-up interview in July or August [^]	{0,1}	0.36	0.25	0.04**	--
Final follow-up interview in September or October	{0,1}	0.09	0.09	0.86	--
Final follow-up interview in November or December	{0,1}	0.23	0.33	0.04**	--

Table A.1 (continued)

Teens in Control, Clarksdale, MS					
Variable Descriptor	Range	Means		<i>p</i> -value (Program-Control)	Standard Deviation
		Control Group	Program Group		
Child Demographics					
Gender: girl	{0,1}	0.51	0.53	0.75	--
Enrollment cohort: 1999	{0,1}	0.27	0.25	0.62	--
Enrollment cohort: 2000	{0,1}	0.35	0.36	0.95	--
Enrollment cohort: 2001 [^]	{0,1}	0.38	0.39	0.69	--
Age 13 or younger	{0,1}	0.08	0.07	0.64	--
Age 14	{0,1}	0.23	0.25	0.51	--
Age 15	{0,1}	0.33	0.30	0.35	--
Age 16	{0,1}	0.23	0.26	0.33	--
Age 17	{0,1}	0.10	0.08	0.37	--
Age 18	{0,1}	0.01	0.01	0.56	--
Age 19 or older	{0,1}	0.00	0.01	0.70	--
Age: don't know	{0,1}	0.02	0.03	0.36	--
Race/ethnicity: white	{0,1}	0.00	0.00	0.32	--
Race/ethnicity: Hispanic	{0,1}	0.08	0.06	0.45	--
Race/ethnicity: African American [^]	{0,1}	0.86	0.87	0.71	--
Race/ethnicity: other	{0,1}	0.06	0.06	0.87	--
Major Life Events					
Unmarried sister got pregnant in the past year	{0,1}	0.16	0.14	0.40	--
Sibling dropped out of school in the past year	{0,1}	0.12	0.10	0.55	--
Views Toward Abstinence					
Normative and personal values toward abstinence	[1,4]	2.12	2.10	0.58	0.51
Cultural Influences					
Religiosity: low	{0,1}	0.04	0.04	0.99	--
Religiosity: medium [^]	{0,1}	0.51	0.45	0.14	--
Religiosity: high	{0,1}	0.43	0.48	0.22	--
Health and Sex Education					
Knowledge of STDs	[0,11]	2.89	3.35	0.02**	2.51
Household Demographics and Familial Influences					
Parents married	{0,1}	0.32	0.29	0.30	--
Presence of mother figure	{0,1}	0.97	0.97	0.96	--
Presence of father figure	{0,1}	0.94	0.91	0.26	--
Comfortable talking to parents about sex	{0,1}	0.28	0.30	0.59	--
Norms, Values, and Intentions					
Consequences of having sex: high	{0,1}	0.29	0.29	0.94	--
Consequences of having sex: medium [^]	{0,1}	0.53	0.53	0.95	--
Consequences of having sex: low	{0,1}	0.18	0.19	0.87	--

Table A.1 (continued)

Variable Descriptor	Range	Means		<i>p</i> -value (Program-Control)	Standard Deviation
		Control Group	Program Group		
Chance will have sex next year	{0,1,2}	n.a.	n.a.	n.a.	n.a.
Change will have sex before end of high school	{0,1,2}	n.a.	n.a.	n.a.	n.a.
Ability to resist pressure for sex	[0,2]	n.a.	n.a.	n.a.	n.a.
Risk-Related Behaviors					
Had sex	{0,1}	n.a.	n.a.	n.a.	n.a.
Involved in petting	{0,1}	n.a.	n.a.	n.a.	n.a.
Baseline Data					
Baseline data collected at Wave 2	{0,1}	0.00	0.00	0.74	--
Missing baseline data	{0,1}	0.02	0.02	0.48	--
Timing of Final Follow-up Interview					
Final follow-up interview in January or February	{0,1}	0.00	0.00	1.00	--
Final follow-up interview in March or April	{0,1}	0.14	0.11	0.27	--
Final follow-up interview in May or June	{0,1}	0.50	0.54	0.25	--
Final follow-up interview in July or August [^]	{0,1}	0.28	0.24	0.29	--
Final follow-up interview in September or October	{0,1}	0.08	0.10	0.38	--
Final follow-up interview in November or December	{0,1}	0.00	0.00	1.00	--

Source: Wave 1 and Wave 4 Survey of Teen Activities and Attitudes (Mathematica Policy Research, Inc., 1999, 2005), administered to youth at baseline and 42 to 78 months after enrolling in the Title V, Section 510 Abstinence Education Program study sample.

Notes: Statistics based on weighted sample.
The base category (omitted from the regression) is identified by ^.
n.a. = not available. Youth in the two program sites that focused on upper elementary youth, *FUPTP* and *Teens in Control*, were not asked these questions in the baseline survey because of their young ages.

****p*-value (of program-control difference) < 0.01; ***p*-value < 0.05; **p*-value < 0.10, two-tailed test.

Table A.2. Sample Sizes for Analysis of Selected Outcome Measures

Outcome Measure Category	<i>My Choice, My Future!</i>	<i>ReCapturing the Vision</i>	<i>FUPTP</i>	<i>Teens in Control</i>
	Powhatan, VA	Miami, FL	Milwaukee, WI	Clarksdale, MS
Sexual behavior	447	479	413	714
Smoking	447	478	413	700
Alcohol use	446	480	413	711
Marijuana use	446	480	411	708
Identification of STDs	447	480	414	708
Knowledge of STD consequences	445	479	414	709
Perceived effectiveness of condoms	445	479	413	710
Perceived effectiveness of birth control pills	446	479	414	705
Knowledge of the consequences of unprotected sex	448	480	414	715
Expect to abstain through high school ^a	165	256	390	703
Expect to abstain as a teenager	427	462	413	713
Expect to abstain until marriage	447	479	413	714

Source: Wave 4 Survey of Teen Activities and Attitudes (Mathematica Policy Research, Inc., 2005), administered to youth 42 to 78 months after enrolling in the Title V, Section 510 Abstinence Education Program study sample.

^aThis measure pertained only to youth still in high school at the time of the final follow-up (Wave 4) survey, resulting in relatively small sample sizes in the two programs serving relatively older youth (*My Choice, My Future!* and *ReCapturing the Vision*).

Table A.3. R-Squares for Outcome Variables

	R ² for All Four Programs
Sexual Abstinence and Sexual Activity	
Remained abstinent (always)	0.62
Abstinent last 12 months	0.58
Four or more sexual partners ever	0.31
Two or more partners in last 12 months	0.29
Expectations for Future Behavior	
Expect to abstain through high school	0.67
Expect to abstain as a teenager	0.54
Expect to abstain until marriage	0.48
Unprotected Sex and Birth Control	
Unprotected sex at first intercourse	0.16
Unprotected sex at least once during the last 12 months	0.38
Birth control not used at first intercourse	0.15
Sex without birth control at least once during the last 12 months	0.29
Possible Consequences of Teen Sex	
Ever been pregnant	0.26
Ever had a baby	0.20
Ever had a (reported) STD	0.13
Other Risk Behaviors	
Smoked cigarettes (past month)	0.37
Drank alcohol (past month)	0.41
Used marijuana (ever)	0.45
Ability to Identify STDs	
Overall identification of STDs	0.95
Identification of true STDs	0.93
Identification of false STDs	0.83
Understanding of Pregnancy and STD Risks	
Knowledge of unprotected sex risks	0.93
Knowledge of STD consequences	0.81
Perceived Effectiveness of Condoms	
Never effective for preventing pregnancy	0.11
Never effective for preventing HIV	0.27
Never effective for preventing chlamydia and gonorrhea	0.24
Never effective for preventing herpes and HPV	0.27
Perceived Effectiveness of Birth Control Pills	
Never effective for preventing pregnancy	0.12
Never effective for preventing HIV	0.78
Never effective for preventing chlamydia and gonorrhea	0.77
Never effective for preventing herpes and HPV	0.77

Source: Wave 4 Survey of Teen Activities and Attitudes (Mathematica Policy Research, Inc., 2005), administered to youth 42 to 78 months after enrolling in the Title V, Section 510 Abstinence Education Program study sample.

Table A.4. Number of Sex Partners, Overall and by Site

	Program Group (Percentage)	Control Group (Percentage)	Program-Control Difference (Percentage Points)	p-value
Four Programs Combined				
Remained abstinent (always)	49	49	0	0.91
One partner	16	16	1	0.70
Two partners	11	11	-1	0.64
Three partners	8	8	0	0.91
Four or more partners	17	16	0	0.79
		<i>F</i> -test of distributional differences		0.98
<i>My Choice, My Future!</i>				
Remained abstinent (always)	38	38	1	0.90
One partner	21	15	7	0.07 *
Two partners	9	15	-6	0.06 *
Three partners	8	11	-3	0.36
Four or more partners	22	21	1	0.70
		<i>F</i> -test of distributional differences		0.20
<i>ReCapturing the Vision</i>				
Remained abstinent (always)	44	40	5	0.32
One partner	19	24	-4	0.27
Two partners	13	13	0	0.96
Three partners	10	11	0	0.92
Four or more partners	13	13	0	0.98
		<i>F</i> -test of distributional differences		0.80
<i>FUPTP</i>				
Remained abstinent (always)	60	62	-3	0.61
One partner	12	10	2	0.55
Two partners	10	10	0	0.94
Three partners	5	3	2	0.35
Four or more partners	14	16	-1	0.75
		<i>F</i> -test of distributional differences		0.90
<i>Teens in Control</i>				
Remained abstinent (always)	53	57	-4	0.34
One partner	13	15	-2	0.52
Two partners	10	7	3	0.11
Three partners	7	7	0	0.84
Four or more partners	17	15	2	0.55
		<i>F</i> -test of distributional differences		0.49

Source: Wave 4 Survey of Teen Activities and Attitudes (Mathematica Policy Research, Inc., 2005), administered to youth 42 to 78 months after enrolling in the Title V, Section 510 Abstinence Education Program study sample.

Note: All estimates are based on weighted regression models. For details on the covariates used in these regressions, see Appendix Table A.1. Sample sizes and R-square statistics are in Appendix Tables A.2 and A.3, respectively. Program-control difference may not equal difference in percentages due to rounding. *F*-tests of distributional differences are computed from multinomial logistic regressions of the categorical outcome variable on an indicator for program status and the covariates listed in Table A.1.

****p*-value (of program-control difference) < 0.01; ***p*-value < 0.05; **p*-value < 0.10, two-tailed test.

Table A.5. Impacts on Sex and Unprotected Sex at First Intercourse, Overall and by Site

	Program Group (Percentage)	Control Group (Percentage)	Program-Control Difference (Percentage Points)	p-value
Four Programs Combined				
Remained abstinent (always)	49	49	0	0.91
Had sex, used condom first time	44	43	1	0.59
Had sex, no condom first time	7	8	-1	0.45
		<i>F</i> -test of distributional differences		0.40
<i>My Choice, My Future!</i>				
Remained abstinent (always)	38	38	1	0.90
Had sex, used condom first time	53	53	0	0.98
Had sex, no condom first time	9	9	-1	0.81
		<i>F</i> -test of distributional differences		0.98
<i>ReCapturing the Vision</i>				
Remained abstinent (always)	44	40	5	0.32
Had sex, used condom first time	52	53	-1	0.80
Had sex, no condom first time	4	7	-3	0.15
		<i>F</i> -test of distributional differences		0.10 *
<i>FUPTP</i>				
Remained abstinent (always)	60	62	-3	0.61
Had sex, used condom first time	36	32	4	0.39
Had sex, no condom first time	5	6	-2	0.47
		<i>F</i> -test of distributional differences		0.69
<i>Teens in Control</i>				
Remained abstinent (always)	53	57	-4	0.34
Had sex, used condom first time	36	35	2	0.67
Had sex, no condom first time	10	8	2	0.35
		<i>F</i> -test of distributional differences		0.51

Source: Wave 4 Survey of Teen Activities and Attitudes (Mathematica Policy Research, Inc., 2005), administered to youth 42 to 78 months after enrolling in the Title V, Section 510 Abstinence Education Program study sample.

Note: All estimates are based on weighted regression models. For details on the covariates used in these regressions, see Appendix Table A.1. Sample sizes and R-square statistics are in Appendix Tables A.2 and A.3, respectively. Program-control difference may not equal difference in percentages due to rounding. *F*-tests of distributional differences are computed from multinomial logistic regressions of the categorical outcome variable on an indicator for program status and the covariates listed in Table A.1.

****p*-value (of program-control difference) < 0.01; ***p*-value < 0.05; **p*-value < 0.10, two-tailed test.

Table A.6. Impacts on Sex and Unprotected Sex in the Last 12 Months, Overall and by Site

	Program Group (Percentage)	Control Group (Percentage)	Program-Control Difference (Percentage Points)	p-value
Four Programs Combined				
Abstinent last 12 months	56	55	1	0.76
Had sex, always used condom	23	23	-1	0.77
Had sex, sometimes used condom	17	17	0	0.88
Had sex, never used condom	4	4	0	0.84
		<i>F</i> -test of distributional differences		0.95
My Choice, My Future!				
Abstinent last 12 months	45	44	1	0.79
Had sex, always used condom	25	25	-1	0.84
Had sex, sometimes used condom	24	24	0	0.98
Had sex, never used condom	7	7	0	0.87
		<i>F</i> -test of distributional differences		0.96
ReCapturing the Vision				
Abstinent last 12 months	48	43	5	0.28
Had sex, always used condom	24	28	-4	0.37
Had sex, sometimes used condom	21	23	-2	0.52
Had sex, never used condom	7	5	1	0.56
		<i>F</i> -test of distributional differences		0.59
FUPTP				
Abstinent last 12 months	65	67	-2	0.71
Had sex, always used condom	22	20	1	0.75
Had sex, sometimes used condom	12	11	1	0.77
Had sex, never used condom	2	2	-1	0.73
		<i>F</i> -test of distributional differences		0.98
Teens in Control				
Abstinent last 12 months	66	68	-2	0.64
Had sex, always used condom	20	19	1	0.80
Had sex, sometimes used condom	12	11	0	0.85
Had sex, never used condom	3	2	0	0.73
		<i>F</i> -test of distributional differences		0.98

Source: Wave 4 Survey of Teen Activities and Attitudes (Mathematica Policy Research, Inc., 2005), administered to youth 42 to 78 months after enrolling in the Title V, Section 510 Abstinence Education Program study sample.

Note: All estimates are based on weighted regression models. For details on the covariates used in these regressions, see Appendix Table A.1. Sample sizes and R-square statistics are in Appendix Tables A.2 and A.3, respectively. Program-control difference may not equal difference in percentages due to rounding. *F*-tests of distributional differences are computed from multinomial logistic regressions of the categorical outcome variable on an indicator for program status and the covariates listed in Table A.1.

****p*-value (of program-control difference) < 0.01; ***p*-value < 0.05; **p*-value < 0.10, two-tailed test.

Table A.7. Impacts on Sex and Birth Control Use at First Intercourse, Overall and by Site

	Program Group (Percentage)	Control Group (Percentage)	Program-Control Difference (Percentage Points)	<i>p</i> -value
Four Programs Combined				
Remained abstinent (always)	49	49	0	0.91
Had sex, used birth control first time	45	44	2	0.47
Had sex, no birth control first time	6	7	-1	0.25
		<i>F</i> -test of distributional differences		0.17
<i>My Choice, My Future!</i>				
Remained abstinent (always)	38	38	1	0.90
Had sex, used birth control first time	56	54	2	0.64
Had sex, no birth control first time	6	8	-3	0.33
		<i>F</i> -test of distributional differences		0.60
<i>ReCapturing the Vision</i>				
Remained abstinent (always)	44	40	5	0.32
Had sex, used birth control first time	53	54	-1	0.78
Had sex, no birth control first time	3	7	-3	0.16
		<i>F</i> -test of distributional differences		0.15
<i>FUPTP</i>				
Remained abstinent (always)	60	62	-3	0.61
Had sex, used birth control first time	36	32	5	0.35
Had sex, no birth control first time	4	6	-2	0.36
		<i>F</i> -test of distributional differences		0.54
<i>Teens in Control</i>				
Remained abstinent (always)	53	57	-4	0.34
Had sex, used birth control first time	37	36	1	0.77
Had sex, no birth control first time	10	7	3	0.23
		<i>F</i> -test of distributional differences		0.42

Source: Wave 4 Survey of Teen Activities and Attitudes (Mathematica Policy Research, Inc., 2005), administered to youth 42 to 78 months after enrolling in the Title V, Section 510 Abstinence Education Program study sample.

Note: All estimates are based on weighted regression models. For details on the covariates used in these regressions, see Appendix Table A.1. Sample sizes and R-square statistics are in Appendix Tables A.2 and A.3, respectively. Program-control difference may not equal difference in percentages due to rounding. *F*-tests of distributional differences are computed from multinomial logistic regressions of the categorical outcome variable on an indicator for program status and the covariates listed in Table A.1.

****p*-value (of program-control difference) < 0.01; ***p*-value < 0.05; **p*-value < 0.10, two-tailed test.

Table A.8. Impacts on Sex and Birth Control Use in the Last 12 Months, Overall and by Site

	Program Group (Percentage)	Control Group (Percentage)	Program-Control Difference (Percentage Points)	p-value
Four Programs Combined				
Abstinent last 12 months	56	55	1	0.76
Had sex, always used birth control	29	29	0	0.90
Had sex, sometimes used birth control	13	14	-1	0.71
Had sex, never used birth control	2	2	0	0.61
		<i>F</i> -test of distributional differences		0.92
<i>My Choice, My Future!</i>				
Abstinent last 12 months	45	44	1	0.79
Had sex, always used birth control	40	40	0	0.97
Had sex, sometimes used birth control	14	14	0	0.96
Had sex, never used birth control	1	3	-1	0.30
		<i>F</i> -test of distributional differences		0.85
<i>ReCapturing the Vision</i>				
Abstinent last 12 months	48	43	5	0.28
Had sex, always used birth control	31	33	-2	0.69
Had sex, sometimes used birth control	18	20	-2	0.55
Had sex, never used birth control	3	3	-1	0.61
		<i>F</i> -test of distributional differences		0.59
<i>FUPTP</i>				
Abstinent last 12 months	65	67	-2	0.71
Had sex, always used birth control	25	23	2	0.72
Had sex, sometimes used birth control	9	10	-1	0.87
Had sex, never used birth control	1	1	1	0.47
		<i>F</i> -test of distributional differences		0.67
<i>Teens in Control</i>				
Abstinent last 12 months	66	68	-2	0.64
Had sex, always used birth control	21	20	1	0.76
Had sex, sometimes used birth control	11	10	0	0.91
Had sex, never used birth control	2	2	0	0.69
		<i>F</i> -test of distributional differences		0.98

Source: Wave 4 Survey of Teen Activities and Attitudes (Mathematica Policy Research, Inc., 2005), administered to youth 42 to 78 months after enrolling in the Title V, Section 510 Abstinence Education Program study sample.

Note: All estimates are based on weighted regression models. For details on the covariates used in these regressions, see Appendix Table A.1. Sample sizes and R-square statistics are in Appendix Tables A.2 and A.3, respectively. Program-control difference may not equal difference in percentages due to rounding. *F*-tests of distributional differences are computed from multinomial logistic regressions of the categorical outcome variable on an indicator for program status and the covariates listed in Table A.1.

****p*-value (of program-control difference) < 0.01; ***p*-value < 0.05; **p*-value < 0.10, two-tailed test.

Table A.9. Estimated Impacts on Behavioral Outcomes, Participants Only

Descriptor of Measure	My Choice, My Future Powhatan, VA		ReCapturing the Vision Miami, FL		FUJTP Milwaukee, WI		Teens in Control Clarksdale, MS	
	Mean Difference	p-value	Mean Difference	p-value	Mean Difference	p-value	Mean Difference	p-value
Sexual Abstinence and Sexual Activity								
Remained abstinent (always)	1	0.90	7	0.32	-4	0.61	-4	0.34
Abstinent last 12 months	1	0.79	8	0.28	-3	0.71	-2	0.64
Four or more sexual partners ever	1	0.70	0	0.98	-2	0.75	2	0.55
Two or more sexual partners last 12 months	-5	0.24	-1	0.78	-1	0.85	1	0.80
Expectations of Future Behavior								
Expect to abstain through high school	5	0.48	9	0.34	-6	0.49	-1	0.73
Expect to abstain as a teenager	-2	0.66	9	0.22	0	1.00	0	0.96
Expect to abstain until married	-4	0.37	11	0.13	18	0.04	-3	0.38
Unprotected Sex and Birth Control Use								
Unprotected sex at first intercourse	-1	0.81	-5	0.15	-3	0.47	2	0.35
Unprotected sex at least once last 12 months	0	0.94	-2	0.79	1	0.91	1	0.74
Birth control not used at first intercourse	-3	0.33	-5	0.16	-4	0.36	3	0.23
Sex without birth control at least once last 12 months	-1	0.70	-5	0.42	0	0.97	1	0.79
Possible Consequences of Teen Sex								
Ever been pregnant	0	0.84	-1	0.82	4	0.48	2	0.38
Ever had a baby	-1	0.57	-5	0.28	1	0.83	1	0.27
Ever had a (reported) STD	0	0.99	3	0.34	3	0.41	-1	0.46

Table A.9 (continued)

Descriptor of Measure	My Choice, My Future!		ReCapturing the Vision		FUPTP		Teens in Control	
	Mean Difference	p-value	Mean Difference	p-value	Mean Difference	p-value	Mean Difference	p-value
			Powhatan, VA	Miami, FL	Milwaukee, WI	Clarksdale, MS		
Other Risk Behaviors								
Smoked cigarette (past month)	-2	0.71	-4	0.41	-5	0.39	-5	0.05 *
Drank alcohol (past month)	-1	0.91	-8	0.16	8	0.11	-1	0.65
Used marijuana (ever)	-1	0.87	-9	0.15	9	0.30	-1	0.72
Sample Size Total	448		480		414		715	
Control Group	162		205		140		341	
Program Group	286		275		274		374	
Participants	286		180		157		374	
Nonparticipants	0		95		117		0	

Source: Wave 4 Survey of Teen Activities and Attitudes (Mathematica Policy Research, Inc., 2005), administered to youth 42 to 78 months after enrolling in the Title V, Section 510 Abstinence Education Program study sample.

Note: All estimates are based on weighted regression models. For details on the covariates used in these regressions, see Appendix Table A.1. Sample sizes and R-square statistics are in Appendix Tables A.2 and A.3, respectively.

***p-value (of program-control difference) < 0.01; **p-value < 0.05; *p-value < 0.10, two-tailed test.

Table A.10. Impacts on Perceived Effectiveness of Condoms for Preventing Pregnancy, Overall and by Site

	Program Group (Percentage)	Control Group (Percentage)	Program-Control Difference (Percentage Points)	p-value
Four Programs Combined				
Usually	51	52	-1	0.63
Sometimes	38	38	0	0.88
Never	3	3	1	0.49
Unsure	7	7	0	0.83
		<i>F</i> -test of distributional differences		0.72
<i>My Choice, My Future!</i>				
Usually	56	60	-4	0.40
Sometimes	41	39	2	0.67
Never	1	0	1	0.17
Unsure	2	1	1	0.42
		<i>F</i> -test of distributional differences		0.10 *
<i>ReCapturing the Vision</i>				
Usually	57	57	0	0.97
Sometimes	34	34	0	0.98
Never	4	3	1	0.50
Unsure	4	6	-1	0.56
		<i>F</i> -test of distributional differences		0.88
<i>FUPTP</i>				
Usually	47	47	0	0.96
Sometimes	37	38	-1	0.83
Never	4	3	1	0.74
Unsure	12	12	1	0.84
		<i>F</i> -test of distributional differences		0.91
<i>Teens in Control</i>				
Usually	44	44	0	0.91
Sometimes	41	40	1	0.87
Never	4	4	-1	0.66
Unsure	11	11	0	0.84
		<i>F</i> -test of distributional differences		0.97

Source: Wave 4 Survey of Teen Activities and Attitudes (Mathematica Policy Research, Inc., 2005), administered to youth 42 to 78 months after enrolling in the Title V, Section 510 Abstinence Education Program study sample.

Note: All estimates are based on weighted regression models. For details on the covariates used in these regressions, see Appendix Table A.1. Sample sizes and R-square statistics are in Appendix Tables A.2 and A.3, respectively. Program-control difference may not equal difference in percentages due to rounding. *F*-tests of distributional differences are computed from multinomial logistic regressions of the categorical outcome variable on an indicator for program status and the covariates listed in Table A.1.

****p*-value (of program-control difference) < 0.01; ***p*-value < 0.05; **p*-value < 0.10, two-tailed test.

Table A.11. Impacts on Perceived Effectiveness of Condoms for Preventing HIV, Overall and by Site

	Program Group (Percentage)	Control Group (Percentage)	Program-Control Difference (Percentage Points)	<i>p</i> -value	
Four Programs Combined					
Usually	34	38	-4	0.07	*
Sometimes	30	30	0	0.97	
Never	21	17	5	0.01	**
Unsure	14	15	-1	0.76	
		<i>F</i> -test of distributional differences		0.02	**
<i>My Choice, My Future!</i>					
Usually	27	41	-14	0.00	***
Sometimes	37	31	6	0.18	
Never	31	18	14	0.00	***
Unsure	5	11	-6	0.03	**
		<i>F</i> -test of distributional differences		0.00	***
<i>ReCapturing the Vision</i>					
Usually	44	47	-3	0.52	
Sometimes	30	28	3	0.53	
Never	15	16	-1	0.70	
Unsure	10	9	2	0.56	
		<i>F</i> -test of distributional differences		0.87	
<i>FUPTP</i>					
Usually	38	28	10	0.06	*
Sometimes	22	33	-11	0.03	**
Never	20	16	3	0.40	
Unsure	20	22	-2	0.64	
		<i>F</i> -test of distributional differences		0.07	*
<i>Teens in Control</i>					
Usually	28	37	-9	0.01	**
Sometimes	31	29	2	0.50	
Never	18	16	3	0.39	
Unsure	23	19	4	0.17	
		<i>F</i> -test of distributional differences		0.07	*

Source: Wave 4 Survey of Teen Activities and Attitudes (Mathematica Policy Research, Inc., 2005), administered to youth 42 to 78 months after enrolling in the Title V, Section 510 Abstinence Education Program study sample.

Note: All estimates are based on weighted regression models. For details on the covariates used in these regressions, see Appendix Table A.1. Sample sizes and R-square statistics are in Appendix Tables A.2 and A.3, respectively. Program-control difference may not equal difference in percentages due to rounding. *F*-tests of distributional differences are computed from multinomial logistic regressions of the categorical outcome variable on an indicator for program status and the covariates listed in Table A.1.

****p*-value (of program-control difference) < 0.01; ***p*-value < 0.05; **p*-value < 0.10, two-tailed test.

Table A.12. Impacts on Perceived Effectiveness of Condoms for Preventing Chlamydia and Gonorrhea, Overall and by Site

	Program Group (Percentage)	Control Group (Percentage)	Program-Control Difference (Percentage Points)	<i>p</i> -value	
Four Programs Combined					
Usually	30	35	-5	0.03	**
Sometimes	27	25	2	0.37	
Never	20	14	6	0.00	***
Unsure	23	26	-3	0.15	
		<i>F</i> -test of distributional differences		0.00	***
<i>My Choice, My Future!</i>					
Usually	25	33	-9	0.04	**
Sometimes	37	28	9	0.05	**
Never	28	13	15	0.00	***
Unsure	11	26	-15	0.00	***
		<i>F</i> -test of distributional differences		0.00	***
<i>ReCapturing the Vision</i>					
Usually	41	47	-6	0.20	
Sometimes	28	25	3	0.52	
Never	14	13	1	0.76	
Unsure	18	15	2	0.50	
		<i>F</i> -test of distributional differences		0.75	
<i>FUPTP</i>					
Usually	31	27	4	0.41	
Sometimes	20	23	-3	0.55	
Never	19	18	1	0.76	
Unsure	30	32	-3	0.61	
		<i>F</i> -test of distributional differences		0.73	
<i>Teens in Control</i>					
Usually	24	31	-7	0.03	**
Sometimes	22	23	-1	0.65	
Never	19	13	5	0.06	*
Unsure	35	32	3	0.35	
		<i>F</i> -test of distributional differences		0.07	*

Source: Wave 4 Survey of Teen Activities and Attitudes (Mathematica Policy Research, Inc., 2005), administered to youth 42 to 78 months after enrolling in the Title V, Section 510 Abstinence Education Program study sample.

Note: All estimates are based on weighted regression models. For details on the covariates used in these regressions, see Appendix Table A.1. Sample sizes and R-square statistics are in Appendix Tables A.2 and A.3, respectively. Program-control difference may not equal difference in percentages due to rounding. *F*-tests of distributional differences are computed from multinomial logistic regressions of the categorical outcome variable on an indicator for program status and the covariates listed in Table A.1.

****p*-value (of program-control difference) < 0.01; ***p*-value < 0.05; **p*-value < 0.10, two-tailed test.

Table A.13. Impacts on Perceived Effectiveness of Condoms for Preventing Herpes and HPV, Overall and by Site

	Program Group (Percentage)	Control Group (Percentage)	Program-Control Difference (Percentage Points)	<i>p</i> -value	
Four Programs Combined					
Usually	26	31	-5	0.03	**
Sometimes	26	26	1	0.77	
Never	23	15	7	0.00	***
Unsure	25	28	-3	0.10	*
		<i>F</i> -test of distributional differences		0.00	***
<i>My Choice, My Future!</i>					
Usually	20	33	-13	0.00	***
Sometimes	37	26	11	0.02	**
Never	33	18	16	0.00	***
Unsure	10	23	-13	0.00	***
		<i>F</i> -test of distributional differences		0.00	***
<i>ReCapturing the Vision</i>					
Usually	35	37	-2	0.65	
Sometimes	29	23	6	0.17	
Never	14	15	-1	0.80	
Unsure	22	25	-3	0.47	
		<i>F</i> -test of distributional differences		0.66	
<i>FUPTP</i>					
Usually	27	26	0	0.96	
Sometimes	18	29	-10	0.03	**
Never	25	12	12	0.00	***
Unsure	30	33	-2	0.65	
		<i>F</i> -test of distributional differences		0.01	**
<i>Teens in Control</i>					
Usually	23	26	-3	0.33	
Sometimes	21	25	-4	0.25	
Never	18	16	3	0.41	
Unsure	37	33	4	0.23	
		<i>F</i> -test of distributional differences		0.39	

Source: Wave 4 Survey of Teen Activities and Attitudes (Mathematica Policy Research, Inc., 2005), administered to youth 42 to 78 months after enrolling in the Title V, Section 510 Abstinence Education Program study sample.

Note: All estimates are based on weighted regression models. For details on the covariates used in these regressions, see Appendix Table A.1. Sample sizes and R-square statistics are in Appendix Tables A.2 and A.3, respectively. Program-control difference may not equal difference in percentages due to rounding. *F*-tests of distributional differences are computed from multinomial logistic regressions of the categorical outcome variable on an indicator for program status and the covariates listed in Table A.1.

****p*-value (of program-control difference) < 0.01; ***p*-value < 0.05; **p*-value < 0.10, two-tailed test.

Table A.14. Impacts on Perceived Effectiveness of Birth Control Pills for Preventing Pregnancy, Overall and by Site

	Program Group (Percentage)	Control Group (Percentage)	Program-Control Difference (Percentage Points)	<i>p</i> -value	
Four Programs Combined					
Usually	56	55	1	0.55	
Sometimes	33	36	-2	0.32	
Never	3	3	0	0.62	
Unsure	7	7	1	0.65	
		<i>F</i> -test of distributional differences		0.77	
<i>My Choice, My Future!</i>					
Usually	63	68	-5	0.25	
Sometimes	34	30	4	0.41	
Never	2	0	2	0.05	**
Unsure	1	2	-1	0.64	
		<i>F</i> -test of distributional differences		0.27	
<i>ReCapturing the Vision</i>					
Usually	62	64	-1	0.78	
Sometimes	31	28	3	0.45	
Never	2	3	-1	0.55	
Unsure	5	6	-1	0.53	
		<i>F</i> -test of distributional differences		0.85	
<i>FUPTP</i>					
Usually	56	41	15	0.01	***
Sometimes	33	49	-16	0.00	***
Never	4	4	0	0.93	
Unsure	8	7	1	0.73	
		<i>F</i> -test of distributional differences		0.04	**
<i>Teens in Control</i>					
Usually	43	46	-3	0.49	
Sometimes	35	36	0	0.92	
Never	5	5	0	1.00	
Unsure	16	13	3	0.27	
		<i>F</i> -test of distributional differences		0.73	

Source: Wave 4 Survey of Teen Activities and Attitudes (Mathematica Policy Research, Inc., 2005), administered to youth 42 to 78 months after enrolling in the Title V, Section 510 Abstinence Education Program study sample.

Note: All estimates are based on weighted regression models. For details on the covariates used in these regressions, see Appendix Table A.1. Sample sizes and R-square statistics are in Appendix Tables A.2 and A.3, respectively. Program-control difference may not equal difference in percentages due to rounding. *F*-tests of distributional differences are computed from multinomial logistic regressions of the categorical outcome variable on an indicator for program status and the covariates listed in Table A.1.

****p*-value (of program-control difference) < 0.01; ***p*-value < 0.05; **p*-value < 0.10, two-tailed test.

Table A.15. Impacts on Perceived Effectiveness of Birth Control Pills for Preventing HIV, Overall and by Site

	Program Group (Percentage)	Control Group (Percentage)	Program-Control Difference (Percentage Points)	<i>p</i> -value
Four Programs Combined				
Usually	6	6	0	0.94
Sometimes	6	7	-2	0.15
Never	73	69	4	0.04 **
Unsure	16	18	-2	0.15
		<i>F</i> -test of distributional differences		0.24
<i>My Choice, My Future!</i>				
Usually	3	1	2	0.13
Sometimes	1	4	-2	0.15
Never	90	81	8	0.01 **
Unsure	6	14	-8	0.01 ***
		<i>F</i> -test of distributional differences		0.02 **
<i>ReCapturing the Vision</i>				
Usually	4	5	-2	0.30
Sometimes	3	6	-3	0.18
Never	87	81	5	0.15
Unsure	7	7	0	0.95
		<i>F</i> -test of distributional differences		0.59
<i>FUPTP</i>				
Usually	8	9	-1	0.78
Sometimes	7	10	-2	0.40
Never	65	59	5	0.30
Unsure	20	22	-2	0.65
		<i>F</i> -test of distributional differences		0.37
<i>Teens in Control</i>				
Usually	7	7	0	0.80
Sometimes	11	9	1	0.60
Never	53	55	-2	0.54
Unsure	30	29	1	0.87
		<i>F</i> -test of distributional differences		0.92

Source: Wave 4 Survey of Teen Activities and Attitudes (Mathematica Policy Research, Inc., 2005), administered to youth 42 to 78 months after enrolling in the Title V, Section 510 Abstinence Education Program study sample.

Note: All estimates are based on weighted regression models. For details on the covariates used in these regressions, see Appendix Table A.1. Sample sizes and R-square statistics are in Appendix Tables A.2 and A.3, respectively. Program-control difference may not equal difference in percentages due to rounding. *F*-tests of distributional differences are computed from multinomial logistic regressions of the categorical outcome variable on an indicator for program status and the covariates listed in Table A.1.

****p*-value (of program-control difference) < 0.01; ***p*-value < 0.05; **p*-value < 0.10, two-tailed test.

Table A.16. Impacts on Perceived Effectiveness of Birth Control Pills for Preventing Chlamydia and Gonorrhea, Overall and by Site

	Program Group (Percentage)	Control Group (Percentage)	Program-Control Difference (Percentage Points)	<i>p</i> -value	
Four Programs Combined					
Usually	4	5	-1	0.15	
Sometimes	6	5	0	0.71	
Never	71	67	4	0.03	**
Unsure	19	23	-3	0.06	*
		<i>F</i> -test of distributional differences		0.12	
<i>My Choice, My Future!</i>					
Usually	1	1	0	0.72	
Sometimes	3	5	-2	0.34	
Never	91	82	10	0.00	***
Unsure	5	13	-8	0.00	***
		<i>F</i> -test of distributional differences		0.03	**
<i>ReCapturing the Vision</i>					
Usually	3	2	1	0.70	
Sometimes	4	3	0	0.84	
Never	82	83	-2	0.65	
Unsure	12	11	1	0.82	
		<i>F</i> -test of distributional differences		0.86	
<i>FUPTP</i>					
Usually	6	10	-4	0.16	
Sometimes	8	6	2	0.49	
Never	61	55	6	0.24	
Unsure	26	30	-4	0.41	
		<i>F</i> -test of distributional differences		0.21	
<i>Teens in Control</i>					
Usually	5	7	-2	0.24	
Sometimes	9	8	1	0.57	
Never	51	48	3	0.45	
Unsure	35	37	-2	0.59	
		<i>F</i> -test of distributional differences		0.51	

Source: Wave 4 Survey of Teen Activities and Attitudes (Mathematica Policy Research, Inc., 2005), administered to youth 42 to 78 months after enrolling in the Title V, Section 510 Abstinence Education Program study sample.

Note: All estimates are based on weighted regression models. For details on the covariates used in these regressions, see Appendix Table A.1. Sample sizes and R-square statistics are in Appendix Tables A.2 and A.3, respectively. Program-control difference may not equal difference in percentages due to rounding. *F*-tests of distributional differences are computed from multinomial logistic regressions of the categorical outcome variable on an indicator for program status and the covariates listed in Table A.1.

****p*-value (of program-control difference) < 0.01; ***p*-value < 0.05; **p*-value < 0.10, two-tailed test.

Table A.17. Impacts on Perceived Effectiveness of Birth Control Pills for Preventing Herpes and HPV, Overall and by Site

	Program Group (Percentage)	Control Group (Percentage)	Program-Control Difference (Percentage Points)	<i>p</i> -value	
Four Programs Combined					
Usually	4	5	-1	0.54	
Sometimes	4	6	-2	0.08	*
Never	71	67	3	0.09	*
Unsure	21	22	-1	0.64	
		<i>F</i> -test of distributional differences		0.23	
<i>My Choice, My Future!</i>					
Usually	1	1	0	0.71	
Sometimes	2	5	-4	0.06	*
Never	93	82	11	0.00	***
Unsure	5	12	-8	0.00	***
		<i>F</i> -test of distributional differences		0.00	***
<i>ReCapturing the Vision</i>					
Usually	3	4	-1	0.76	
Sometimes	2	3	-1	0.52	
Never	82	84	-2	0.55	
Unsure	13	9	4	0.18	
		<i>F</i> -test of distributional differences		0.16	
<i>FUPTP</i>					
Usually	7	8	-1	0.64	
Sometimes	5	8	-3	0.29	
Never	60	56	3	0.50	
Unsure	28	27	1	0.86	
		<i>F</i> -test of distributional differences		0.47	
<i>Teens in Control</i>					
Usually	5	6	-1	0.69	
Sometimes	8	8	0	0.99	
Never	48	47	1	0.82	
Unsure	39	39	0	0.97	
		<i>F</i> -test of distributional differences		0.97	

Source: Wave 4 Survey of Teen Activities and Attitudes (Mathematica Policy Research, Inc., 2005), administered to youth 42 to 78 months after enrolling in the Title V, Section 510 Abstinence Education Program study sample.

Note: All estimates are based on weighted regression models. For details on the covariates used in these regressions, see Appendix Table A.1. Sample sizes and R-square statistics are in Appendix Tables A.2 and A.3, respectively. Program-control difference may not equal difference in percentages due to rounding. *F*-tests of distributional differences are computed from multinomial logistic regressions of the categorical outcome variable on an indicator for program status and the covariates listed in Table A.1.

****p*-value (of program-control difference) < 0.01; ***p*-value < 0.05; **p*-value < 0.10, two-tailed test.

APPENDIX B

**OUTLINES OF CURRICULA USED BY THE
FOUR PROGRAMS INCLUDED
IN THIS REPORT**

My Choice, My Future! Curriculum

Duran, Maureen Gallagher. *Reasonable Reasons to Wait: The Keys to Character*. Chantilly, VA: A Better Choice in Education, 1997.

Unit and Description

- 1. Character Counts (5 lessons).** This section is designed to help students define good character traits and ways to practice them.
- 2. Reasonable Reasons to Wait (2 lessons).** This section is designed to help students with their personal development and to understand the “bridges to adulthood,” the advantages of premarital abstinence, the outcomes and consequences of the sexual decision-making process, positive ways to stop unhealthy habits, how premarital sex can jeopardize the future, and the benefits of ceasing any premarital sex and regaining self-control.
- 3. Moving with the Crowd (3 lessons).** This section is designed to expose students to the influences that affect their decisions about sexual behavior, especially peer pressure. It is intended to help them develop methods of coping with negative peer pressure and to distinguish between needs and desires.
- 4. Dynamics of Dating (4 lessons).** This section is designed to help students understand the purposes and responsibilities of dating by identifying ways to develop and build friendships, engaging in non-dating activities, and recognizing dating situations that could lead to acquaintance rape.
- 5. STD Free (2 lessons).** This section teaches the facts of STDs and how STDs affect relationships and the future.
- 6. Foundations of Relationships (1 lesson).** This section is designed to help students understand the differences between healthy and unhealthy relationships, emotional immaturity, and the qualities needed for a long-lasting relationship.
- 7. Marvelous Marriages (1 lesson).** This section teaches students the ingredients needed for a lifelong marital commitment, with emphasis on effective communication, self-control, and how to resolve marital mishaps.
- 8. Parenthood Prerequisites (1 lesson).** This section is designed to teach students the responsibilities and requirements of being a good parent and why parenthood may not be the best thing for a teenager. It also discusses the benefits of adoption for teens who experience an unwanted pregnancy.
- 9. Human Development (2 lessons).** This section teaches students about human and fetal development, the choices that affect the development of their potential, and how drugs and alcohol will affect their lives.

Note: The *Reasonable Reasons to Wait* curriculum includes a parent manual as well as worksheets for parents and students to do together. *My Choice, My Future!* does not cover the

final two units in the *Reasonable Reasons to Wait* curriculum, on parenthood and human development.

Boston University, College of Communication and School of Education. *The Art of Loving Well: A Character Education Curriculum for Today's Teenagers*. Boston, MA: The Loving Well Project, 1993.

The Art of Loving Well is an anthology of short stories, poetry, classic fairy tales, and myths which have been collected in one book to facilitate learning about relationships.

Units

1. **Early Loves and Losses**
2. **Romance**
3. **Commitment and Marriage**

Family Life Pregnancy Care Center. *WAIT Training Workshop*. Effingham, IL, n.d.

Unit and Description

1. **Building the Classroom Climate.** This unit focuses on developing communication skills and a sense of oneself.
2. **Defining Love.** This unit focuses on how to define love in terms of one's own feelings; the differences between love, lust, and infatuation; and the qualities of teenage relationships.
3. **What About Sexuality.** This unit discusses the benefits of sex within the context of marriage, the definition of sexuality, differences between men and women, and between needs and desires, and attaining hopes and dreams.
4. **The Media and Their Influence.** This unit examines advertising, sexuality, and the motivations behind approaches used in advertising.
5. **To Wait or Not to Wait.** This unit explores questions related to the timing and choice of having sex and sources of advice.
6. **Bonding and Intimacy.** This unit examines how teens can misuse sex and get into a "relationship roller-coaster," how to make connections between teens and parents, and activities targeting the sexually active teen.

7. **The Consequences of Teen Sex and the Freedoms of Waiting.** This unit examines the building blocks of healthy relationships, the risks of AIDS, and the acceptance of virginity.
8. **Sexual Refusal Skills and Assertiveness Training.** This unit explores ways to say “no” to sex and alternatives to sexual activity.
9. **Commitment and Marriage.** This unit focuses on the benefits of marriage and an understanding of the value of a life partner.
10. **Worth the Wait.** This unit focuses on a summary of the curriculum and provides students with information on additional resources.

ReCapturing the Vision Curriculum

Del Rosario, Jacqueline. *ReCapturing the Vision*. Miami, FL: Empowerment Concepts, Inc., 2003.

Chapter and Description

1. **Positively You.** This unit works with girls to help them see themselves and their bodies as beautiful and to accept who they are.
2. **First Impressions.** This unit teaches girls to become aware of the image they portray through their behaviors and communication. It helps girls develop their own image, including determining their best appearance and learning manners and table etiquette.
3. **Knowing What I Believe.** This unit helps girls to define their morals and values and how to resist negative influences and pressures.
4. **Working Things Out—Conflict Resolution.** This unit focuses on critical thinking skills, making choices, and approaches to conflict resolution, including identifying solutions and effectively communicating. It helps girls to understand their own emotions and the perspectives of others.
5. **Harnessing Your Dreams.** This unit helps girls to define and determine how to achieve their future short-term and long-term goals in personal, academic, professional, and financial areas.
6. **Getting the Job Done.** This unit helps girls to assess how ready they are for transition to adulthood, by combining their communication skills, morals and values, and goals for the future. They explore the world of work through mock interviews, job searches, and writing their resumes.

Del Rosario, Jacqueline. *Vessels of Honor*. Miami, FL: Empowerment Concepts, Inc., 1999.

Chapter and Description

1. **Honor.** This section is designed to teach students to value themselves and to understand which behaviors are honorable.
2. **Just Say No.** This section is designed to teach students effective communication to support their choice to abstain from premarital sex, including voice, facial expression, and body language.

- 3. Refusal—Ending Mixed Messages.** This section centers on developing a skit that entails a “refusal situation” and is designed to help students become comfortable with conveying such messages.
- 4. Consequences.** This section examines the consequences of premarital sexual activity—for children, for the mother, for society, and for the future husband.
- 5. Sexual Conflict Resolution.** This section is designed to help students strengthen their resolve to remain abstinent—to develop the tools and strategies to resolve sexual conflicts. It teaches a four-step process: identify the problem that is creating pressure to engage in sexual activity, develop alternatives, choose the best plan, and implement and evaluate an alternative.
- 6. Dealing with Peer Pressure.** This section is designed to help students deal with pressure from their peers to engage in premarital sexual activity.
- 7. Relationships.** This section examines the choices involved in choosing good relationships. It is designed to help students postpone serious dating that can threaten their decision to remain abstinent, learn appropriate conduct for dating, develop a plan to deal with feelings of love and the decision to remain abstinent, and satisfy social needs through friends rather than through relationships with the opposite sex.
- 8. Your Changing Body.** This section teaches students about reproduction and male and female body parts.
- 9. Sexual Abuse.** This section is designed to familiarize students with the issue of sexual abuse and to identify and avoid possible danger in this area.
- 10. Date Rape.** This section is designed to teach students the definition of date rape and to identify behaviors that put them at risk.
- 11. Choosing a Mate.** This section is designed to teach students what it takes to make a commitment to a partner and to resolve problems that arise in marriages.
- 12. Marriage.** This section is designed to instill in students the value of marriage. Students make their own wedding plans.

Families United to Prevent Teen Pregnancy (FUPTP) Curriculum

Rosalie Manor. *Families United to Prevent Teen Pregnancy. A Life Options Model Curriculum for Youth*. Milwaukee, WI: Rosalie Manor, Inc., n.d.

Chapter and Description

- 1. Group Building.** This section includes a series of exercises to help program participants get to know one another better.
- 2. Self-Esteem.** This section is designed to help participants recognize their own special abilities and qualities. Good self-esteem will help them behave according to their values and make choices in their best interest.
- 3. Values.** This section is designed to help participants understand their own values, to understand how their activities and behaviors reflect these values, and to communicate their values to others. This is particularly important in the context of intimate relationships. Abstinence can help improve the quality of life, health, and relationships as well as help participants meet their future goals.
- 4. Goal-Setting.** This section is designed to help participants understand their dreams and talents and translate them into obtainable goals. Participants are taught how to break goals down into practical steps. They are also helped to identify steps toward the goal of abstinence.
- 5. Decision-Making.** This section is designed to teach participants decision-making skills by looking at options and consequences of particular actions before choosing them. Abstinence is a decision; the influences affecting this decision, as well as the consequences and responsibilities, are covered.
- 6. Risk-Taking Behavior.** This section is designed to look at the consequences of certain risk-taking behaviors, including alcohol, drugs, suicide, violence, and premarital sexual activity. The consequences of these are discussed, as well as how to make good choices in each area.
- 7. Communication Skills.** This section focuses on developing communication skills in order to establish meaningful, effective relationships. It emphasizes that sexual intimacy, often confused as a way to have a meaningful relationship, should be saved for marriage.
- 8. Relationships and Sexuality.** This section focuses on the need to belong and be loved, parental relationships, the importance and influence of friends, the special nature of male-female relationships, and the role of the community. It focuses on how to develop positive relationships that will help self-concept, reinforce values, enhance family, expand friendships, and strengthen community. This section is designed to provide missing pieces of belonging and support for those with unmet needs. It also discusses the history and importance of marriage.

Appendix B: Outlines of Curricula Used by the Four Programs Included in this Report

9. Adolescent Development and Anatomy. This section focuses on providing participants with a basic understanding of the human reproductive system and on how physical changes during adolescence can affect relationships with peers and parents. It also covers how to deal with pressure to have sex.

10. Sexually Transmitted Diseases. This section focuses on the signs, symptoms, and treatment of the common sexually transmitted diseases, based on the acknowledgment that this information could be a greater deterrent to sexual activity for some teens than anything else.

11. Social Skills. This section focuses on teaching participants essential survival and life skills to facilitate positive interaction with family, peers, and school staff. It includes discussion of dining skills, safety issues, nutrition, and employment skills.

Teens in Control Curriculum

Howard, Marion, and Marie Mitchell. *Postponing Sexual Involvement: An Educational Series for Young Teens*. Atlanta, GA: Adolescent Reproductive Health Center, 1990.

Note: The curriculum includes video segments and a separate workbook/education series for parents consisting of two sessions (Social and Peer Pressures; Learning Assertiveness Techniques). This parent series is not currently being used.

Chapter and Description

- 1. The Risks of Early Sexual Involvement.** This section covers the reasons why teens become sexually involved and why they should wait, alternative ways to meet their needs, factual information about sexual involvement (including a short video on facts of reproduction and STDs), and tools for analyzing and solving a problem regarding sexual involvement.
- 2. Social Pressures.** This section covers social pressures confronting youth, especially from media images. It is designed to give them experience resisting pressures, to identify and understand internal pressures, and to learn to resist these by “talking inside your head.”
- 3. Peer Pressures.** This section is designed to increase students’ awareness of peer pressures; teach ways to respond to pressures (provide support for saying “no”); understand different kinds of relationships; and determine appropriate limits on physical expressions of affection.
- 4. Learning Assertiveness Techniques.** This section is designed to help students set limits in a relationship through the use of some common assertiveness techniques and to give them practice in assertively responding to pressure.
- 5. Reinforcing Skills.** This section uses a series of skits and games to reinforce the skills learned in the previous sections—primarily the assertiveness techniques to deal with pressure.
- 6. Annex: Additional Skills Practice**

Young, Michael, and T. Young. *Sex Can Wait*. Los Altos, CA: ETR Associates, 1994.

Chapter and Description

- 1. Knowing Myself: Self-Concept/Self-Esteem (6 lessons).** This section provides activities to help students understand their sense of self and to combat negative feelings and increase positive feelings about themselves. It includes “positive self-talk and affirmations,” praise for each other, and activities to bridge the gap between the “perceived and ideal self.”
- 2. Knowing Myself: Puberty (4 lessons).** This section is designed to help students understand the psychological, emotional, hormonal, and physical changes taking place within them.
- 3. Knowing Myself: Values and Decision-Making (2 lessons).** This section is designed to help students judge the worth of a value, to identify and internalize family values, to understand the importance of values in life and the relationship between values and decision-making, and provide a decision-making structure to guide them.
- 4. Relating to Others: Communication (5 lessons).** This section is designed to teach students different styles of communication and the benefits of assertive communication, negotiation skills, how to repeat back what you hear, how nonverbal messages affect communication, listening skills, qualities of good friends, and how to deal with negative peer pressure.
- 5. Relating to Others: My Sexual Self (2 lessons).** This section is designed to teach students acceptance of the normalcy of sexual thoughts and feelings, why they should chose abstinence as the best option rather than a sexual relationship, an awareness of the risks associated with sexual involvement, an understanding of sexual pressures, and the risks of STDs.
- 6. Planning My Future: Goal Setting and Life Planning (4 lessons).** This section helps students develop skills to formulate goals and achieve them, to visualize a positive future, and to understand that sexual abstinence can be an important strategy in reaching their goals.

APPENDIX C

SURVEY QUESTIONS UNDERLYING THE OUTCOME MEASURES USED FOR THE FINAL IMPACT ANALYSIS

BEHAVIORAL OUTCOMES

SEXUAL ABSTINENCE AND ACTIVITY¹

Measure 1: Remained Abstinent

4.10 Have you ever had sexual intercourse? Sexual intercourse means “going all the way” and is the act that makes babies.

- 0 “Respondent reports that s/he has never had sexual intercourse”
- 1 “Respondent reports that s/he has had sexual intercourse”

Measure 2: Abstinent During the Last 12 Months

6.07 With how many different people have you had sexual intercourse in the past 12 months?

- 0 “Respondent reports no sexual partners in the past 12 months”
- 1 “Respondent reports one or more sexual partners in the past 12 months”

Measure 3: Number of Sexual Partners Ever

6.06 With how many different people have you ever had sexual intercourse, even if only once?

- 0 “Respondent reports no sexual partners”
- 1 “Respondent reports that s/he has had sex with one partner”
- 2 “Respondent reports that s/he has had sex with two partners”
- 3 “Respondent reports that s/he has had sex with three partners”
- ≥4 “Respondent reports that s/he has had sex with four or more partners”

Measure 4: Number of Sexual Partners in the Last 12 Months

6.07 With how many different people have you had sexual intercourse in the last 12 months?

- 0 “Respondent reports no sexual partners in the last 12 months”
- 1 “Respondent reports that s/he has had sex with one partner in the last 12 months”

¹ With the exception of the question about abstinence (Measure 1), which was asked of all respondents, the questions that comprise these measures of sexual activity were only asked of respondents who reported ever having had sex. These questions were coded as either 0 or missing, as appropriate, for those respondents who did not report having had sex.

- 2 “Respondent reports that s/he has had sex with two partners in the last 12 months”
- 3 “Respondent reports that s/he has had sex with three partners in the last 12 months”
- ≥4 “Respondent reports that s/he has had sex with four or more partners in the last 12 months”

Measure 5: Age at First Intercourse

6.02 How old were you when you had sexual intercourse for the first time?

_____ “Respondent reports age at first sexual intercourse”

EXPECTATIONS FOR FUTURE BEHAVIOR

Measure 1: Expectations to Abstain through High School²

If the respondent reported never having had sexual intercourse:

- 5.01a Do you think you will abstain from sexual intercourse from now until you complete high school?
- 0 “Respondent reports that s/he does not expect to abstain from now until s/he completes high school”
 - 1 “Respondent reports that s/he does expect to abstain from now until s/he completes high school”

If the respondent reported having had sexual intercourse:

- 6.01a Even though you have already had sex, do you think you will abstain from sexual intercourse from now until you complete high school?
- 0 “Respondent reports that s/he does not expect to abstain from now until s/he completes high school”
 - 1 “Respondent reports that s/he does expect to abstain from now until s/he completes high school”

² Reported for respondents less than 18 years of age.

Measure 2: Expectations to Abstain as a Teenager³

If the respondent reported never having had sexual intercourse:

5.01a Do you think you will abstain from sexual intercourse from now until you are at least 20 years old?

- 0 “Respondent reports that s/he does not expect to abstain from now until s/he is at least 20 years old”
- 1 “Respondent reports that s/he does expect to abstain from now until s/he is at least 20 years old”

If the respondent reported having had sexual intercourse:

6.01a Even though you have already had sex, do you think you will abstain from sexual intercourse from now until you are at least 20 years old?

- 0 “Respondent reports that s/he does not expect to abstain from now until s/he is at least 20 years old”
- 1 “Respondent reports that s/he does expect to abstain from now until s/he is at least 20 years old”

Measure 3: Expectations to Abstain Until Marriage

If the respondent reported never having had sexual intercourse:

5.01a Do you think you will abstain from sexual intercourse from now until you are married?

- 0 “Respondent reports that s/he does not expect to abstain from now until s/he is married”
- 1 “Respondent reports that s/he does expect to abstain from now until s/he is married”

If the respondent reported having had sexual intercourse:

6.01a Even though you have already had sex, do you think you will abstain from sexual intercourse from now until you are married?

- 0 “Respondent reports that s/he does not expect to abstain from now until s/he is married”
- 1 “Respondent reports that s/he does expect to abstain from now until s/he is married”

³ Reported for respondents less than 20 years of age.

UNPROTECTED SEX AND BIRTH CONTROL⁴**Measure 1: Unprotected Sex at First Intercourse**

6.05 Think about the first time you had sexual intercourse. Did you or your partner use any of the following that first time? (condom, birth control pill, Depo-Provera or Norplant, morning after pill, other)

0 “Respondent reports that a condom was not used at first intercourse”

1 “Respondent reports using a condom at first intercourse”

Measure 2: Unprotected Sex During the Last 12 Months

6.11 On how many of these occasions [of sexual intercourse in the last 12 months] did you or your partner use a condom?

Never “Respondent reports that condoms were not used on *any* occasions of sexual intercourse in the past 12 months”

Sometimes “Respondent reports that condoms were used on *some* occasions of sexual intercourse in the past 12 months”, or
“Respondent reports that condoms were used on *half* of the occasions of sexual intercourse in the past 12 months”, or
“Respondent reports that condoms were used on *most* of the occasions of sexual intercourse in the past 12 months”

Always “Respondent reports that condoms were used on *all* occasions of sexual intercourse in the past 12 months”

Measure 3: Birth Control Use at First Intercourse

6.05 Think about the first time you had sexual intercourse. Did you or your partner use any of the following that first time? (condom, birth control pill, Depo-Provera or Norplant, morning after pill, other)

0 “Respondent reports that no birth control was used at first intercourse”

1 “Respondent reports that birth control was used at first intercourse”

⁴ These questions were only asked of respondents who reported ever having had sex. They were coded as either 0 or missing, as appropriate, for those respondents who did not report having had sex.

Measure 4: Birth Control Use During the Last 12 Months

6.11 On how many of these occasions [of sexual intercourse in the last 12 months] did you or your partner use some form of birth control or pregnancy protection?

- | | |
|-----------|--|
| Never | “Respondent reports that some form of birth control was not used on <i>any</i> occasions of sexual intercourse in the past 12 months” |
| Sometimes | “Respondent reports that some form of birth control was used on <i>some</i> occasions of sexual intercourse in the past 12 months”, or
“Respondent reports that some form of birth control was used on <i>half</i> of the occasions of sexual intercourse in the past 12 months”, or
“Respondent reports that some form of birth control was used on <i>most</i> of the occasions of sexual intercourse in the past 12 months” |
| Always | “Respondent reports that some form of birth control was used on <i>all</i> occasions of sexual intercourse in the past 12 months” |

POSSIBLE CONSEQUENCES OF TEEN SEXUAL ACTIVITY⁵

Measure 1: Ever Been Pregnant

If respondent is male:

6.14 Have you ever gotten someone pregnant? Be sure to answer yes if your girlfriend is currently pregnant or any past pregnancy ended in a birth, an abortion, a stillbirth, a miscarriage, or a live birth after which the baby died.

- 0 “Respondent reports that he has never gotten anyone pregnant”
1 “Respondent reports that he has gotten someone pregnant”

If respondent is female:

6.14 Are you pregnant now?

- 0 “Respondent reports that she is not currently pregnant”
1 “Respondent reports that she is currently pregnant”

6.15 Have you been pregnant in the past?

- 0 “Respondent reports that she has not been pregnant in the past”
1 “Respondent reports that she has been pregnant in the past”

⁵ These questions were only asked of respondents who reported ever having had sex. They were coded as either 0 or missing, as appropriate, for those respondents who did not report having had sex.

Measure 2: Ever Had a Baby

If respondent is male:

6.18 How many of these pregnancies resulted in a live birth?

- 0 “Respondent reports that none of these pregnancies resulted in a live birth”
- 1 “Respondent reports that one or more of these pregnancies resulted in a live birth”

If respondent is female:

6.16 Have you ever had a baby?

- 0 “Respondent reports that she has never had a baby”
- 1 “Respondent reports that she has had a baby”

Measure 3: Ever Had an STD

6.13 Have you ever been told by a doctor or a nurse that you had any of the following sexually transmitted diseases (STDs)? [STDs listed include Chlamydia, Syphilis, Gonorrhea, HIV or AIDs, Genital herpes, and Genital warts (or HPV).]

- 0 “Respondent reports that s/he has never been told by a doctor or nurse that s/he had any of these STDs”
- 1 “Respondent reports s/he has been told by a doctor or nurse that s/he had one or more of these STDs”

OTHER BEHAVIORAL RISKS

Measure 1: Smoked Cigarettes in the Last Month

4.3 During the past month, have you smoked cigarettes?

- 0 “Respondent reports that s/he has not smoked cigarettes in the last month”
- 1 “Respondent reports that s/he has smoked cigarettes in the last month”

Measure 2: Drank Alcohol in the Last Month

4.4a How often in your life have you drunk alcohol, like beer or wine or liquor?⁶

- 1 “Respondent reports that s/he has drunk alcohol only a few times”
- 2 “Respondent reports that s/he drinks alcohol one or two times a month”
- 3 “Respondent reports that s/he drinks alcohol about once a week”
- 4 “Respondent reports that s/he drinks alcohol a few times a week”

If the respondent reported drinking alcohol at least one or two times per month, it was reported that s/he had drunk alcohol in the last month.

Measure 3: Ever Used Marijuana

4.5 Have you ever used marijuana?

- 0 “Respondent reports that s/he has never used marijuana”
- 1 “Respondent reports that s/he has used marijuana”

⁶ This question was asked only of respondents who reported ever having drunk alcohol.

KNOWLEDGE OUTCOMES

STD IDENTIFICATION

Measure 1: Overall Identification of STDs

This measure reports the percent of the following questions answered correctly by the respondent. “Not sure” responses were considered incorrect.

3.1 Which of the following is a sexually transmitted disease (STD)?

AIDS or HIV	Yes
Diabetes	No
Gonorrhea	Yes
Genital herpes	Yes
Multiple sclerosis	No
Syphilis	Yes
Chlamydia	Yes
Crabs	Yes
Tuberculosis	No
Genital warts	Yes
Hepatitis B	Yes
Jaundice	No
Human papillomavirus (HPV)	Yes

Measure 2: Identification of True STDs

This measure reports the percent of the true STDs listed in Question 3.1 (above) that were identified correctly as an STD by the respondent: AIDS or HIV, Gonorrhea, Genital Herpes, Syphilis, Chlamydia, Crabs, Genital Warts, Hepatitis B, Human Papillomavirus (HPV).

Measure 3: Identification of False STDs

This measure reports the percent of the false STDs listed in Question 3.1 (above) that were identified correctly as a non-STD by the respondent: Diabetes, Multiple Sclerosis, Tuberculosis, Jaundice.

KNOWLEDGE OF POTENTIAL RISKS AND CONSEQUENCES OF SEXUAL ACTIVITY

Measure 1: Knowledge of Unprotected Sex Risks

- 3.5 If you had sexual intercourse only once without using a condom or other birth control, could you get a sexually transmitted disease?
- 0 “Respondent reports that you cannot get an STD from having sexual intercourse only once without using a condom or other birth control” or “Respondent reports that s/he does not know”
 - 1 “Respondent reports that you can get an STD from having sexual intercourse only once without using a condom or other birth control”
- 3.6 If you had sexual intercourse only once without using a condom or other birth control, could you get pregnant?
- 0 “Respondent reports that you cannot get pregnant from having sexual intercourse only once without using a condom or other birth control” or “Respondent reports that s/he does not know”
 - 1 “Respondent reports that you can get pregnant from having sexual intercourse only once without using a condom or other birth control”

Measure 2: Knowledge of STD Consequences

This measure reports the percent of the following questions answered correctly by the respondent. “Don’t know” responses were considered incorrect.

- 3.2a For each of the following, please tell me if sexually transmitted diseases (STDs) can cause this or not... Can sexually transmitted diseases (STDs) cause some kinds of cancer?
- 0 “Respondent reports that STDs cannot cause some kinds of cancer” or “Respondent reports that s/he does not know”
 - 1 “Respondent reports that STDs can cause some kinds of cancer”
- 3.2b For each of the following, please tell me if sexually transmitted diseases (STDs) can cause this or not.... Can sexually transmitted diseases (STDs) cause problems with fertility; that is, problems getting pregnant?
- 0 “Respondent reports that STDs cannot cause problems with fertility” or “Respondent reports that s/he does not know”
 - 1 “Respondent reports that STDs can cause problems with fertility”
- 3.2c For each of the following, please tell me if sexually transmitted diseases (STDs) can cause this or not... Can sexually transmitted diseases (STDs) cause increased risk for asthma?

- 0 “Respondent reports that STDs can cause increased risk for asthma” or
 “Respondent reports that s/he does not know”
- 1 “Respondent reports that STDs cannot cause increased risk for asthma”

PERCEIVED EFFECTIVENESS OF CONDOMS

Measures 1–4: Perceived Effectiveness at Preventing Pregnancy
Perceived Effectiveness at Preventing HIV
Perceived Effectiveness at Preventing Chlamydia and Gonorrhea
Perceived Effectiveness at Preventing Herpes and HPV

These measures are based on the following question:

3.3 Mark the answer that comes closest to what you think.

If a condom is used correctly...

Mark (X) one answer for each	Usually	Sometimes	Never	Not Sure
a. it prevents girls from getting pregnant	2	1	0	-1
b. it prevents HIV	2	1	0	-1
c. it prevents chlamydia and gonorrhea	2	1	0	-1
d. it prevents herpes and HPV	2	1	0	-1

PERCEIVED EFFECTIVENESS OF BIRTH CONTROL PILLS

Measures 1–4: Perceived Effectiveness at Preventing Pregnancy
Perceived Effectiveness at Preventing HIV
Perceived Effectiveness at Preventing Chlamydia and Gonorrhea
Perceived Effectiveness at Preventing Herpes and HPV

These measures are based on the following question:

3.4 Mark the answer that comes closest to what you think.

If birth control pills are used correctly...

Mark (X) one answer for each	Usually	Sometimes	Never	Not Sure
a. they prevent girls from getting pregnant	2	1	0	-1
b. they prevent HIV	2	1	0	-1
c. they prevent chlamydia and gonorrhea	2	1	0	-1
d. they prevent herpes and HPV	2	1	0	-1

APPENDIX D
ESTIMATED IMPACTS FOR
SELECTED SUBGROUPS

Table D.1. Estimated Impacts on Behavioral Outcomes, by Support for Abstinence at Baseline

	Program Group (Percentage)	Control Group (Percentage)	Program-Control Difference (Percentage Points)	p-value	
Higher (Baseline) Support for Abstinence					
Sexual Abstinence and Sexual Activity					
Remained abstinent (always)	55	53	2	0.49	
Abstinent last 12 months	62	59	3	0.31	
Four or more sexual partners ever	11	13	-2	0.29	
Two or more sexual partners last 12 months	10	15	-5	0.02	**
Expectations of Future Behavior					
Expect to abstain through high school	68	64	4	0.26	
Expect to abstain as a teenager	51	50	1	0.78	
Expect to abstain until married	44	39	4	0.12	
Unprotected Sex and Birth Control Use					
Unprotected sex at first intercourse	6	7	-1	0.57	
Unprotected sex at least once last 12 months	18	19	-1	0.73	
Birth control not used at first intercourse	5	6	-1	0.43	
Sex without birth control at least once last 12 months	12	14	-2	0.36	
Possible Consequences of Teen Sex					
Ever been pregnant	9	9	0	0.99	
Ever had a baby	5	5	0	0.88	
Ever had a (reported) STD	5	4	1	0.52	
Other Risk Behaviors					
Smoked cigarette (past month)	13	15	-2	0.30	
Drank alcohol (past month)	20	20	0	0.85	
Used marijuana (ever)	24	28	-3	0.20	
Lower (Baseline) Support for Abstinence					
Sexual Abstinence					
Remained abstinent (always)	39	44	-4	0.15	
Abstinent last 12 months	47	51	-4	0.20	
Four or more sexual partners ever	25	20	4	0.08	*
Two or more sexual partners last 12 months	23	19	4	0.13	

Table D.1 (continued)

	Program Group (Percentage)	Control Group (Percentage)	Program-Control Difference (Percentage Points)	<i>p</i> -value
Expectations of Future Behavior				
Expect to abstain through high school	47	52	-4	0.31
Expect to abstain as a teenager	37	37	0	0.97
Expect to abstain until married	32	34	-2	0.48
Unprotected Sex and Birth Control Use				
Unprotected sex at first intercourse	8	8	0	0.97
Unprotected sex at least once last 12 months	27	25	3	0.35
Birth control not used at first intercourse	7	7	-1	0.71
Sex without birth control at least once last 12 months	19	18	2	0.45
Possible Consequences of Teen Sex				
Ever been pregnant	13	10	3	0.21
Ever had a baby	5	5	0	0.96
Ever had a (reported) STD	4	4	0	0.86
Other Risk Behaviors				
Smoked cigarette (past month)	20	24	-4	0.11
Drank alcohol (past month)	28	28	0	0.91
Used marijuana (ever)	37	33	3	0.24

Source: Wave 4 Survey of Teen Activities and Attitudes (Mathematica Policy Research, Inc., 2005), administered to youth 42 to 78 months after enrolling in the Title V, Section 510 Abstinence Education Program study sample.

Note: All estimates are based on weighted regression models. For details on the covariates used in these regressions, see Appendix Table A.1. Sample sizes and R-square statistics are in Appendix Tables A.2 and A.3, respectively. Program-control difference may not equal difference in percentages due to rounding.

****p*-value (of program-control difference) < 0.01; ***p*-value < 0.05; **p*-value < 0.10, two-tailed test.

Table D.2. Estimated Impacts on Behavioral Outcomes, by Gender

	Program Group (Percentage)	Control Group (Percentage)	Program-Control Difference (Percentage Points)	<i>p</i> -value	
Respondent Is Female					
Sexual Abstinence and Sexual Activity					
Remained abstinent (always)	53	60	-8	0.02	**
Abstinent last 12 months	59	65	-6	0.06	*
Four or more sexual partners ever	11	12	-1	0.78	
Two or more sexual partners last 12 months	11	12	-1	0.61	
Expectations of Future Behavior					
Expect to abstain through high school	64	66	-2	0.63	
Expect to abstain as a teenager	49	51	-3	0.49	
Expect to abstain until married	43	44	-1	0.76	
Unprotected Sex and Birth Control Use					
Unprotected sex at first intercourse	7	5	2	0.21	
Unprotected sex at least once last 12 months	22	18	3	0.22	
Birth control not used at first intercourse	6	5	1	0.58	
Sex without birth control at least once last 12 months	14	12	2	0.41	
Possible Consequences of Teen Sex					
Ever been pregnant	8	8	0	0.87	
Ever had a baby	4	4	1	0.59	
Ever had a (reported) STD	6	5	1	0.57	
Other Risk Behaviors					
Smoked cigarette (past month)	16	20	-4	0.19	
Drank alcohol (past month)	23	21	2	0.44	
Used marijuana (ever)	28	26	2	0.61	
Respondent Is Male					
Sexual Abstinence					
Remained abstinent (always)	48	42	6	0.13	
Abstinent last 12 months	58	51	7	0.07	*
Four or more sexual partners ever	26	24	2	0.59	
Two or more sexual partners last 12 months	24	26	-2	0.56	

Table D.2 (continued)

	Program Group (Percentage)	Control Group (Percentage)	Program-Control Difference (Percentage Points)	p-value
Expectations of Future Behavior				
Expect to abstain through high school	47	45	2	0.65
Expect to abstain as a teenager	38	35	2	0.57
Expect to abstain until married	36	33	3	0.40
Unprotected Sex and Birth Control Use				
Unprotected sex at first intercourse	9	11	-3	0.28
Unprotected sex at least once last 12 months	17	20	-4	0.23
Birth control not used at first intercourse	7	10	-2	0.27
Sex without birth control at least once last 12 months	12	15	-3	0.30
Possible Consequences of Teen Sex				
Ever been pregnant	7	5	2	0.30
Ever had a baby	2	2	0	0.95
Ever had a (reported) STD	3	4	-1	0.64
Other Risk Behaviors				
Smoked cigarette (past month)	22	25	-2	0.51
Drank alcohol (past month)	27	28	0	0.88
Used marijuana (ever)	38	38	0	0.94

Source: Wave 4 Survey of Teen Activities and Attitudes (Mathematica Policy Research, Inc., 2005), administered to youth 42 to 78 months after enrolling in the Title V, Section 510 Abstinence Education Program study sample.

Note: Because *ReCapturing the Vision* only serves girls, the program's data were not included in this subgroup analysis. All estimates are based on weighted regression models. For details on the covariates used in these regressions, see Appendix Table A.1. Sample sizes and R-square statistics are in Appendix Tables A.2 and A.3, respectively. Program-control difference may not equal difference in percentages due to rounding.

***p-value (of program-control difference) < 0.01; **p-value < 0.05; *p-value < 0.10, two-tailed test.

Table D.3. Estimated Impacts on Behavioral Outcomes, by Parents' Marital Status at Baseline

	Program Group (Percentage)	Control Group (Percentage)	Program-Control Difference (Percentage Points)	p-value
Parents Married at Baseline				
Sexual Abstinence and Sexual Activity				
Remained abstinent (always)	55	51	4	0.22
Abstinent last 12 months	61	58	3	0.41
Four or more sexual partners ever	14	15	-1	0.60
Two or more sexual partners last 12 months	15	13	2	0.51
Expectations of Future Behavior				
Expect to abstain through high school	63	60	4	0.42
Expect to abstain as a teenager	45	45	0	0.95
Expect to abstain until married	43	43	1	0.83
Unprotected Sex and Birth Control Use				
Unprotected sex at first intercourse	7	8	0	0.86
Unprotected sex at least once last 12 months	19	20	-1	0.79
Birth control not used at first intercourse	6	7	-1	0.61
Sex without birth control at least once last 12 months	12	14	-3	0.26
Possible Consequences of Teen Sex				
Ever been pregnant	7	9	-2	0.44
Ever had a baby	2	4	-3	0.10
Ever had a (reported) STD	4	3	0	0.77
Other Risk Behaviors				
Smoked cigarette (past month)	16	18	-2	0.45
Drank alcohol (past month)	24	24	0	0.96
Used marijuana (ever)	29	26	4	0.24
Parents Not Married at Baseline				
Sexual Abstinence				
Remained abstinent (always)	46	48	-1	0.62
Abstinent last 12 months	54	54	0	0.96
Four or more sexual partners ever	18	16	1	0.55
Two or more sexual partners last 12 months	16	20	-4	0.11

Table D.3 (continued)

	Program Group (Percentage)	Control Group (Percentage)	Program-Control Difference (Percentage Points)	<i>p</i> -value
Expectations of Future Behavior				
Expect to abstain through high school	57	58	-1	0.79
Expect to abstain as a teenager	46	43	3	0.37
Expect to abstain until married	38	35	3	0.36
Unprotected Sex and Birth Control Use				
Unprotected sex at first intercourse	6	8	-3	0.09 *
Unprotected sex at least once last 12 months	23	22	1	0.78
Birth control not used at first intercourse	4	8	-4	0.03 **
Sex without birth control at least once last 12 months	17	17	0	0.93
Possible Consequences of Teen Sex				
Ever been pregnant	12	10	2	0.21
Ever had a baby	6	6	0	0.96
Ever had a (reported) STD	5	4	1	0.48
Other Risk Behaviors				
Smoked cigarette (past month)	16	21	-5	0.05 **
Drank alcohol (past month)	23	25	-2	0.52
Used marijuana (ever)	29	33	-4	0.14

Source: Wave 4 Survey of Teen Activities and Attitudes (Mathematica Policy Research, Inc., 2005), administered to youth 42 to 78 months after enrolling in the Title V, Section 510 Abstinence Education Program study sample.

Note: All estimates are based on weighted regression models. For details on the covariates used in these regressions, see Appendix Table A.1. Sample sizes and R-square statistics are in Appendix Tables A.2 and A.3, respectively. Program-control difference may not equal difference in percentages due to rounding.

****p*-value (of program-control difference) < 0.01; ***p*-value < 0.05; **p*-value < 0.10, two-tailed test.

Table D.4. Estimated Impacts on Behavioral Outcomes, by Religiosity at Baseline

	Program Group (Percentage)	Control Group (Percentage)	Program-Control Difference (Percentage Points)	<i>p</i> -value
Higher (Baseline) Religiosity				
Sexual Abstinence and Sexual Activity				
Remained abstinent (always)	55	58	-3	0.49
Abstinent last 12 months	62	62	0	0.94
Four or more sexual partners ever	12	8	4	0.13
Two or more sexual partners last 12 months	12	15	-3	0.26
Expectations of Future Behavior				
Expect to abstain through high school	67	74	-7	0.14
Expect to abstain as a teenager	54	55	-1	0.89
Expect to abstain until married	47	50	-3	0.50
Unprotected Sex and Birth Control Use				
Unprotected sex at first intercourse	8	7	1	0.62
Unprotected sex at least once last 12 months	18	19	0	0.97
Birth control not used at first intercourse	7	6	1	0.73
Sex without birth control at least once last 12 months	13	15	-1	0.63
Possible Consequences of Teen Sex				
Ever been pregnant	7	10	-3	0.26
Ever had a baby	3	5	-2	0.18
Ever had a (reported) STD	3	5	-2	0.28
Other Risk Behaviors				
Smoked cigarette (past month)	11	14	-3	0.32
Drank alcohol (past month)	18	19	-1	0.68
Used marijuana (ever)	20	22	-2	0.55
Lower (Baseline) Religiosity				
Sexual Abstinence				
Remained abstinent (always)	47	46	1	0.77
Abstinent last 12 months	54	53	1	0.70
Four or more sexual partners ever	18	19	-1	0.79
Two or more sexual partners last 12 months	17	18	0	0.87

Table D.4 (continued)

	Program Group (Percentage)	Control Group (Percentage)	Program-Control Difference (Percentage Points)	p-value
Expectations of Future Behavior				
Expect to abstain through high school	58	52	5	0.14
Expect to abstain as a teenager	42	40	2	0.59
Expect to abstain until married	37	32	5	0.07 *
Unprotected Sex and Birth Control Use				
Unprotected sex at first intercourse	7	8	-1	0.38
Unprotected sex at least once last 12 months	23	22	0	0.93
Birth control not used at first intercourse	6	7	-2	0.19
Sex without birth control at least once last 12 months	15	16	-1	0.72
Possible Consequences of Teen Sex				
Ever been pregnant	12	9	2	0.19
Ever had a baby	5	5	0	0.89
Ever had a (reported) STD	5	4	2	0.12
Other Risk Behaviors				
Smoked cigarette (past month)	18	21	-3	0.13
Drank alcohol (past month)	25	26	-1	0.69
Used marijuana (ever)	33	33	0	0.96

Source: Wave 4 Survey of Teen Activities and Attitudes (Mathematica Policy Research, Inc., 2005), administered to youth 42 to 78 months after enrolling in the Title V, Section 510 Abstinence Education Program study sample.

Note: All estimates are based on weighted regression models. For details on the covariates used in these regressions, see Appendix Table A.1. Sample sizes and R-square statistics are in Appendix Tables A.2 and A.3, respectively. Program-control difference may not equal difference in percentages due to rounding.

***p-value (of program-control difference) < 0.01; **p-value < 0.05; *p-value < 0.10, two-tailed test.

Table D.5. Estimated Impacts on Behavioral Outcomes, by Level of TV Viewing at Baseline

	Program Group (Percentage)	Control Group (Percentage)	Program-Control Difference (Percentage Points)	p-value
Higher (Baseline) Level of TV Viewing				
Sexual Abstinence and Sexual Activity				
Remained abstinent (always)	48	44	4	0.29
Abstinent last 12 months	55	49	6	0.12
Four or more sexual partners ever	19	16	3	0.37
Two or more sexual partners last 12 months	16	19	-3	0.34
Expectations of Future Behavior				
Expect to abstain through high school	61	55	6	0.23
Expect to abstain as a teenager	48	40	8	0.04 **
Expect to abstain until married	38	33	5	0.18
Unprotected Sex and Birth Control Use				
Unprotected sex at first intercourse	7	9	-2	0.42
Unprotected sex at least once last 12 months	21	21	0	0.99
Birth control not used at first intercourse	3	8	-5	0.02 **
Sex without birth control at least once last 12 months	13	15	-2	0.41
Possible Consequences of Teen Sex				
Ever been pregnant	12	13	-1	0.64
Ever had a baby	6	7	-1	0.71
Ever had a (reported) STD	4	5	-1	0.60
Other Risk Behaviors				
Smoked cigarette (past month)	16	19	-4	0.22
Drank alcohol (past month)	21	23	-3	0.42
Used marijuana (ever)	27	33	-6	0.11
Lower (Baseline) Level of TV Viewing				
Sexual Abstinence				
Remained abstinent (always)	50	53	-3	0.35
Abstinent last 12 months	57	59	-2	0.43
Four or more sexual partners ever	17	16	0	0.90
Two or more sexual partners last 12 months	16	16	0	0.96

Table D.5 (continued)

	Program Group (Percentage)	Control Group (Percentage)	Program-Control Difference (Percentage Points)	<i>p</i> -value
Expectations of Future Behavior				
Expect to abstain through high school	61	60	1	0.76
Expect to abstain as a teenager	45	47	-2	0.48
Expect to abstain until married	41	40	1	0.60
Unprotected Sex and Birth Control Use				
Unprotected sex at first intercourse	7	7	0	0.84
Unprotected sex at least once last 12 months	21	22	-1	0.83
Birth control not used at first intercourse	7	7	0	0.86
Sex without birth control at least once last 12 months	15	17	-1	0.49
Possible Consequences of Teen Sex				
Ever been pregnant	9	8	2	0.32
Ever had a baby	3	4	-1	0.51
Ever had a (reported) STD	5	4	2	0.20
Other Risk Behaviors				
Smoked cigarette (past month)	16	20	-3	0.13
Drank alcohol (past month)	24	25	-1	0.77
Used marijuana (ever)	30	29	1	0.67

Source: Wave 4 Survey of Teen Activities and Attitudes (Mathematica Policy Research, Inc., 2005), administered to youth 42 to 78 months after enrolling in the Title V, Section 510 Abstinence Education Program study sample.

Note: All estimates are based on weighted regression models. For details on the covariates used in these regressions, see Appendix Table A.1. Sample sizes and R-square statistics are in Appendix Tables A.2 and A.3, respectively. Program-control difference may not equal difference in percentages due to rounding.

****p*-value (of program-control difference) < 0.01; ***p*-value < 0.05; **p*-value < 0.10, two-tailed test.

Table D.6. Estimated Impacts on Behavioral Outcomes, by Cohort

	Program Group (Percentage)	Control Group (Percentage)	Program-Control Difference (Percentage Points)	p-value
Cohorts 1999 and 2000				
Sexual Abstinence and Sexual Activity				
Remained abstinent (always)	45	46	0	0.92
Abstinent last 12 months	53	52	1	0.75
Four or more sexual partners ever	18	18	0	0.96
Two or more sexual partners last 12 months	16	20	-3	0.14
Expectations of Future Behavior				
Expect to abstain through high school	61	52	9	0.06 *
Expect to abstain as a teenager	46	43	3	0.29
Expect to abstain until married	39	38	2	0.56
Unprotected Sex and Birth Control Use				
Unprotected sex at first intercourse	7	7	-1	0.73
Unprotected sex at least once last 12 months	24	25	-1	0.54
Birth control not used at first intercourse	6	7	-1	0.43
Sex without birth control at least once last 12 months	17	17	-1	0.76
Possible Consequences of Teen Sex				
Ever been pregnant	13	12	2	0.37
Ever had a baby	6	7	-1	0.66
Ever had a (reported) STD	5	4	1	0.37
Other Risk Behaviors				
Smoked cigarette (past month)	15	22	-7	0.00 ***
Drank alcohol (past month)	23	26	-2	0.27
Used marijuana (ever)	30	33	-3	0.22
Cohort 2001				
Sexual Abstinence				
Remained abstinent (always)	56	57	0	0.90
Abstinent last 12 months	63	63	0	0.98
Four or more sexual partners ever	15	13	2	0.50
Two or more sexual partners last 12 months	15	12	3	0.27

Table D.6 (continued)

	Program Group (Percentage)	Control Group (Percentage)	Program-Control Difference (Percentage Points)	<i>p</i> -value
Expectations of Future Behavior				
Expect to abstain through high school	61	62	-1	0.88
Expect to abstain as a teenager	43	47	-3	0.42
Expect to abstain until married	42	37	4	0.24
Unprotected Sex and Birth Control Use				
Unprotected sex at first intercourse	7	9	-2	0.32
Unprotected sex at least once last 12 months	17	14	3	0.26
Birth control not used at first intercourse	6	8	-2	0.31
Sex without birth control at least once last 12 months	11	13	-1	0.60
Possible Consequences of Teen Sex				
Ever been pregnant	4	6	-2	0.44
Ever had a baby	1	2	0	0.75
Ever had a (reported) STD	4	4	0	0.75
Other Risk Behaviors				
Smoked cigarette (past month)	18	13	4	0.10
Drank alcohol (past month)	24	20	3	0.31
Used marijuana (ever)	29	23	5	0.12

Source: Wave 4 Survey of Teen Activities and Attitudes (Mathematica Policy Research, Inc., 2005), administered to youth 42 to 78 months after enrolling in the Title V, Section 510 Abstinence Education Program study sample.

Note: All estimates are based on weighted regression models. For details on the covariates used in these regressions, see Appendix Table A.1. Sample sizes and R-square statistics are in Appendix Tables A.2 and A.3, respectively. Program-control difference may not equal difference in percentages due to rounding.

****p*-value (of program-control difference) < 0.01; ***p*-value < 0.05; **p*-value < 0.10, two-tailed test.

APPENDIX E

**PROGRAM IMPACTS ON POTENTIAL
MEDIATORS OF TEEN SEXUAL ACTIVITY
(MEASURED FROM THE FINAL
FOLLOW-UP SURVEY)**

Table E.1. Existing Measures of Potential Mediators^a

Variable	Definition
Views on Abstinence, Teen Sex, and Marriage	
Views Supportive of Abstinence	Continuous (scale) variable, reflecting the average of five individual survey items: (a) having sexual intercourse is something only married people should do, (b) it is against my values to have sexual intercourse as an unmarried teen, (c) it would be okay for teens who have been dating for a long time to have sexual intercourse [reversed], (d) it is okay for teenagers to have sexual intercourse before marriage if they plan to get married [reversed], and (e) it is okay for unmarried teens to have sexual intercourse if they use birth control [reversed]. Responses are coded from 0 (strongly disagree) to 3 (strongly agree) and averaged.
Views Unsupportive of Teen Sex	Continuous (scale) variable, reflecting the average of five individual survey items: (a) petting can lead to sex; (b) in a relationship, there are many more important things than sex; (c) it is okay to say no to touching; (d) the best way to avoid unwanted pregnancy is to wait until marriage to have sex; and (e) it is likely that teens who have sex before marriage will get pregnant. Responses are coded from 0 (strongly disagree) to 3 (strongly agree) and averaged.
Views Supportive of Marriage	Continuous (scale) variable, reflecting the average of two individual survey items: (a) having a good marriage is important to me, and (b) having a good marriage is not realistic for me [reversed]. Responses are coded from 0 (strongly disagree) to 3 (strongly agree) and averaged.
Peer Influences and Relations	
Friends' Support for Abstinence	Continuous (scale) variable, reflecting the average of three items: (a) number of five closest friends who think sex at your age is okay [reversed], (b) number who think someone should wait until marriage to have sex, and (c) number who have had sexual intercourse [reversed]. Responses are recoded to four interval measures: 0 (none), 1 (one or two), 3 (three or four), 5 (all of them) and averaged.
Peer Pressure to Have Sex ^b	Ordinal (scale) variable based on item asking how much pressure respondent feels from friends to have sex. Responses are coded from 0 (no pressure at all) to 3 (a lot of pressure).
Self-Concept, Refusal Skills, and Communication with Parents	
Self-Esteem and -Control	Continuous (scale) variable, reflecting the average of self-esteem and self-control measures. Self-esteem: average of four items asking whether respondent (a) has a lot to be proud of, (b) likes self as is, (c) feels like s/he is doing everything right, and (d) feels loved and wanted. Responses are coded from 0 (disagree a lot) to 3 (agree a lot) and averaged. Self-control: average of four items asking whether respondent (a) would do almost anything on a dare, (b) likes to take risks, (c) keeps out of trouble at all costs [reversed], and (d) often acts before thinking. Responses are coded from 0 (definitely true) to 3 (not true) and averaged.
Refusal Skills ^b	Continuous (scale) variable, reflecting the average of five items asking whether the respondent could (a) stick with decision not to have sexual intercourse, (b) talk with (girl/boy)friend about the decision, (c) avoid getting into a situation that might lead to sexual intercourse, (d) say no to having sexual intercourse and explain reasons, and (e) stop seeing (girl/boy)friend if s/he keeps pushing. Responses are coded 0 (no), 1 (maybe), or 2 (yes) and are averaged.

Table E.1 (continued)

Variable	Definition
Communication with Parents ^c	Continuous (scale) variable, reflecting the average of three items: (a) during past year, have you asked your parents a question about sex; (b) how often during past year have you talked with parents about what's right/wrong or good/bad about sex; and (c) how comfortable are you talking with your parents about sex. Responses are coded from 0 to 2 and averaged.
Perceived Consequences of Teen and Nonmarital Sex	
Perceived General Consequences of Teen Sex	Continuous (scale) variable, reflecting the average of three items: (a) sexual relationships create more problems than they are worth for teens, (b) sexual relations make life too difficult for teens, and (c) a teen who has had sex outside of marriage is better off waiting until marriage to have it again. Responses are coded from 0 (strongly disagree) to 3 (strongly agree) and averaged.
Perceived Personal Consequences of Teen Sex	Continuous (scale) variable, reflecting the average of four items: The extent to which sex as an unmarried teen makes it hard to (a) study and stay in school, (b) have a good marriage and a good family life in the future, (c) develop emotionally and grow morally, and (d) whether sex as an unmarried teen is a problem if no pregnancy results. Responses are coded from 0 (not hard/no problem) to 2 (very hard/big problem) and averaged.
Pledging Abstinence	
Pledged to Abstain from Sex until Marriage	Binary variable that equals 1 if respondent reports having pledged to abstain from sex until marriage.

Notes: Variable definitions are based on questions from the final follow-up survey.

^aExcept as noted, the variables were measured on both the final and initial (first year) surveys. In some instances, the measures examined in this report differ from those originally examined in the first-year impacts report because of differences in the items asked on the two surveys. For comparison of the measures summarized above to the original measures, see Appendix C of Maynard et al. (2005).

^bThis variable is available on the initial (first year) survey only for the youth in the two middle school program sites, *My Choice, My Future!* and *ReCapturing the Vision*; analysis of these variables linked to future risk behavior is therefore limited to these two program sites.

^cThis variable is *only* available on the initial (first year) survey; the analysis of the variable is therefore limited to examining its links to (reduced) future risk behavior.

Table E.2. Estimated Impacts on Views Toward Abstinence, Teen Sex, and Marriage, Overall and by Site

	Program Group (Mean)	Control Group (Mean)	Program-Control Difference	Effect Size ^a	p-value
Four Programs Combined					
Views supportive of abstinence [0,3]	1.62	1.60	0.02	0.04	0.39
Views unsupportive of teen sex [0,3]	2.27	2.27	0.00	0.00	0.96
Views supportive of marriage [0,3]	2.37	2.36	0.01	0.02	0.63
My Choice, My Future!					
Views supportive of abstinence [0,3]	1.46	1.41	0.05	0.07	0.42
Views unsupportive of teen sex [0,3]	2.24	2.23	0.01	0.03	0.71
Views supportive of marriage [0,3]	2.52	2.51	0.01	0.03	0.77
ReCapturing the Vision					
Views supportive of abstinence [0,3]	1.66	1.64	0.02	0.03	0.72
Views unsupportive of teen sex [0,3]	2.38	2.36	0.02	0.03	0.70
Views supportive of marriage [0,3]	2.47	2.41	0.05	0.09	0.27
FUPTP					
Views supportive of abstinence [0,3]	1.71	1.64	0.07	0.11	0.25
Views unsupportive of teen sex [0,3]	2.24	2.26	-0.02	-0.05	0.62
Views supportive of marriage [0,3]	2.27	2.20	0.07	0.11	0.22
Teens in Control					
Views supportive of abstinence [0,3]	1.64	1.68	-0.04	-0.06	0.41
Views unsupportive of teen sex [0,3]	2.24	2.24	0.00	-0.01	0.93
Views supportive of marriage [0,3]	2.21	2.30	-0.09	-0.15	0.08*

Source: Wave 4 Survey of Teen Activities and Attitudes (Mathematica Policy Research, Inc., 2005), administered to youth 42 to 78 months after enrolling in the Title V, Section 510 Abstinence Education Program study sample.

Note: All estimates are adjusted, based on weighted regression models described in Chapter III. For details on the covariates used in these regressions, see Appendix Table A.1. For descriptions of the outcome measures analyzed, see Appendix Table E.1. Program-control difference may not equal difference in means due to rounding.

^aThe effect size measure is calculated as the ratio of the mean difference to the standard deviation of the outcome measure for the control group.

***p-value (of program-control difference) < 0.01; **p-value < 0.05; *p-value < 0.10, two-tailed test.

Table E.3. Estimated Impacts on Peer Influences and Relations, Overall and by Site

	Program Group (Mean)	Control Group (Mean)	Program-Control Difference	Effect Size ^a	p-value
Four Programs Combined					
Friends' support for abstinence [0,5]	1.99	1.96	0.03	0.02	0.62
Peer pressure to have sex [0,3]	0.18	0.15	0.03	0.04	0.31
<i>My Choice, My Future!</i>					
Friends' support for abstinence [0,5]	1.66	1.73	-0.06	-0.04	0.64
Peer pressure to have sex [0,3]	0.09	0.07	0.02	0.04	0.59
<i>ReCapturing the Vision</i>					
Friends' support for abstinence [0,5]	1.86	1.76	0.10	0.06	0.49
Peer pressure to have sex [0,3]	0.11	0.08	0.03	0.05	0.57
<i>FUPTP</i>					
Friends' support for abstinence [0,5]	2.27	2.33	-0.06	-0.04	0.71
Peer pressure to have sex [0,3]	0.22	0.14	0.07	0.12	0.23
<i>Teens in Control</i>					
Friends' support for abstinence [0,5]	2.18	2.02	0.16	0.10	0.16
Peer pressure to have sex [0,3]	0.29	0.31	-0.01	-0.02	0.81

Source: Wave 4 Survey of Teen Activities and Attitudes (Mathematica Policy Research, Inc., 2005), administered to youth 42 to 78 months after enrolling in the Title V, Section 510 Abstinence Education Program study sample.

Note: All estimates are adjusted, based on weighted regression models described in Chapter III. For details on the covariates used in these regressions, see Appendix Table A.1. For descriptions of the outcome measures analyzed, see Appendix Table E.1. Program-control difference may not equal difference in means due to rounding.

^aThe effect size measure is calculated as the ratio of the mean difference to the standard deviation of the outcome measure for the control group.

***p-value (of program-control difference) < 0.01; **p-value < 0.05; *p-value < 0.10, two-tailed test.

Table E.4. Estimated Impacts on Self-Concept and Refusal Skills, Overall and by Site

	Program Group (Mean)	Control Group (Mean)	Program-Control Difference	Effect Size ^a	p-value
Four Programs Combined					
Self-esteem and -control [0,3]	2.19	2.17	0.02	0.05	0.27
Refusal skills [0,2]	1.63	1.60	0.03	0.05	0.12
<i>My Choice, My Future!</i>					
Self-esteem and -control [0,3]	2.05	1.97	0.08	0.18	0.05*
Refusal skills [0,2]	1.66	1.58	0.07	0.14	0.07*
<i>ReCapturing the Vision</i>					
Self-esteem and -control [0,3]	2.28	2.27	0.01	0.03	0.73
Refusal skills [0,2]	1.85	1.84	0.01	0.02	0.69
<i>FUPTP</i>					
Self-esteem and -control [0,3]	2.23	2.23	-0.01	-0.02	0.80
Refusal skills [0,2]	1.66	1.64	0.02	0.03	0.67
<i>Teens in Control</i>					
Self-esteem and -control [0,3]	2.21	2.21	0.00	0.00	0.99
Refusal skills [0,2]	1.35	1.34	0.01	0.03	0.71

Source: Wave 4 Survey of Teen Activities and Attitudes (Mathematica Policy Research, Inc., 2005), administered to youth 42 to 78 months after enrolling in the Title V, Section 510 Abstinence Education Program study sample.

Note: All estimates are adjusted, based on weighted regression models described in Chapter III. For details on the covariates used in these regressions, see Appendix Table A.1. For descriptions of the outcome measures analyzed, see Appendix Table E.1. Program-control difference may not equal difference in means due to rounding.

^aThe effect size measure is calculated as the ratio of the mean difference to the standard deviation of the outcome measure for the control group.

***p-value (of program-control difference) < 0.01; **p-value < 0.05; *p-value < 0.10, two-tailed test.

Table E.5. Estimated Impacts on Perceived Consequences of Teen and Nonmarital Sex, Overall and by Site

	Program Group (Mean)	Control Group (Mean)	Program-Control Difference	Effect Size ^a	p-value
Four Programs Combined					
General consequences of teen sex [0,3]	1.86	1.80	0.06	0.09	0.04**
Personal consequences of teen sex [0,2]	0.86	0.83	0.04	0.07	0.13
<i>My Choice, My Future!</i>					
General consequences of teen sex [0,3]	1.71	1.67	0.05	0.06	0.49
Personal consequences of teen sex [0,2]	0.76	0.75	0.02	0.03	0.73
<i>ReCapturing the Vision</i>					
General consequences of teen sex [0,3]	1.88	1.82	0.05	0.07	0.43
Personal consequences of teen sex [0,2]	0.79	0.79	0.00	0.00	1.00
<i>FUPTP</i>					
General consequences of teen sex [0,3]	1.95	1.83	0.12	0.17	0.07*
Personal consequences of teen sex [0,2]	0.97	0.91	0.06	0.12	0.24
<i>Teens in Control</i>					
General consequences of teen sex [0,3]	1.91	1.87	0.04	0.06	0.45
Personal consequences of teen sex [0,2]	0.91	0.85	0.06	0.12	0.11

Source: Wave 4 Survey of Teen Activities and Attitudes (Mathematica Policy Research, Inc., 2005), administered to youth 42 to 78 months after enrolling in the Title V, Section 510 Abstinence Education Program study sample.

Note: All estimates are adjusted, based on weighted regression models described in Chapter III. For details on the covariates used in these regressions, see Appendix Table A.1. For descriptions of the outcome measures analyzed, see Appendix Table E.1. Program-control difference may not equal difference in means due to rounding.

^aThe effect size measure is calculated as the ratio of the mean difference to the standard deviation of the outcome measure for the control group.

***p-value (of program-control difference) < 0.01; **p-value < 0.05; *p-value < 0.10, two-tailed test.

Table E.6. Estimated Impacts on Pledge to Abstain, Overall and by Site

	Program Group (Mean)	Control Group (Mean)	Program-Control Difference	Effect Size ^a	p-value
Four Programs Combined					
Pledge to Abstain {0,1}	0.37	0.19	0.18	0.45	0.00***
<i>My Choice, My Future!</i>					
Pledge to Abstain {0,1}	0.31	0.12	0.19	0.49	0.00***
<i>ReCapturing the Vision</i>					
Pledge to Abstain {0,1}	0.63	0.25	0.38	0.97	0.00***
<i>FUPTP</i>					
Pledge to Abstain {0,1}	0.33	0.23	0.10	0.25	0.03**
<i>Teens in Control</i>					
Pledge to Abstain {0,1}	0.20	0.16	0.04	0.10	0.18

Source: Wave 4 Survey of Teen Activities and Attitudes (Mathematica Policy Research, Inc., 2005), administered to youth 42 to 78 months after enrolling in the Title V, Section 510 Abstinence Education Program study sample.

Note: All estimates are adjusted, based on weighted regression models described in Chapter III. For details on the covariates used in these regressions, see Appendix Table A.1. For descriptions of the outcome measures analyzed, see Appendix Table D.1. Program-control difference may not equal difference in means due to rounding.

^aThe effect size measure is calculated as the ratio of the mean difference to the standard deviation of the outcome measure for the control group.

***p-value (of program-control difference) < 0.01; **p-value < 0.05; *p-value < 0.10, two-tailed test.

