

Executive Summary Backgrounder

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Abstinence Education: Assessing the Evidence

Christine C. Kim and Robert Rector

Teen sexual activity remains a widespread problem confronting the nation. Each year, some 2.6 million teenagers become sexually active—a rate of 7,000 teens per day. Among high school students, nearly half report having engaged in sexual activity, and one-third are currently active.

Sexual activity during teenage years poses serious health risks for youths and has long-term implications. Early sexual activity is associated with an increased risk of sexually transmitted diseases (STDs), reduced psychological and emotional well-being, lower academic achievement, teen pregnancy, and out-of-wedlock childbearing. Many of these risks are avoidable if teens choose to abstain from sexual activity. Abstinence is the surest way to avoid the risk of STDs and unwed childbearing.

Abstinence education “teaches abstinence from sexual activity outside marriage as the expected standard for all school age children” and stresses the social, psychological, and health benefits of abstinence. Abstinence programs also provide youths with valuable life and decision-making skills that lay the foundation for personal responsibility and developing healthy relationships and marriages later in life. These programs emphasize preparing young people for future-oriented goals.

The Evidence. Studies have shown that abstinent teens report, on average, better psychological well-being and higher academic achievement than those who are sexually active. Delaying the initiation of or reducing early sexual activity among teens

can decrease their overall exposure to risks of unwed childbearing, STDs, and psycho-emotional harm. Authentic abstinence programs are therefore crucial to efforts aimed at reducing unwed childbearing and improving youth well-being.

Opponents of abstinence education contend that these programs fail to influence teen sexual behavior. At this stage, the available evidence supports neither this assessment nor the wholesale dismissal of authentic abstinence education programs.

This paper discusses 21 studies of abstinence education. Fifteen studies examined abstinence programs that were intended primarily to teach abstinence. Of these 15 studies, 11 reported positive findings. The other six studies analyzed virginity pledges, and of these six studies, five reported positive findings. Overall, 16 of the 21 studies reported statistically significant positive results, such as delayed sexual initiation and reduced levels of early sexual activity, among youths who have received abstinence education. Five studies did not report any significant positive results.

The Current Environment. Today’s young people face strong peer pressure to engage in risky

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behavior and must navigate media and popular culture that endorse and even glamorize permissiveness and casual sex. Alarming, the government implicitly supports these messages by spending over \$1 billion each year to promote contraception and safe-sex education—at least 12 times what it spends on abstinence education.

Although 80 percent of parents want schools to teach youths to abstain from sexual activity until they are in a committed adult romantic relationship nearing marriage—the core message of abstinence education—these parental values are rarely communicated in the classroom.

In the classroom, the prevailing mentality often condones teen sexual activity as long as youths use contraceptives. Abstinence is usually mentioned only in passing, if at all. Sadly, many teens who need to learn about the benefits of abstaining from sexual activity during the teenage years never hear about them, and many students who choose to abstain fail to receive adequate support for their decisions.

Conclusion. Teen sexual activity is costly, not just for teens, but also for society. Teens who engage in sexual activity risk a host of negative outcomes including STD infection, emotional and psychological harm, and out-of-wedlock childbearing.

Genuine abstinence education is therefore crucial to the physical and psycho-emotional well-being of the nation's youth. In addition to teaching the benefits of abstaining from sexual activity until marriage, abstinence programs focus on developing character traits that prepare youths for future-oriented goals.

When considering federal funding for abstinence education programs and reauthorization of Title V abstinence education programs, including maintaining the current definition of “abstinence education,” lawmakers should consider *all* of the available empirical evidence.

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Background

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Abstinence Education: Assessing the Evidence

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Teen sexual activity remains a widespread problem confronting the nation. Each year, some 2.6 million teenagers become sexually active—a rate of 7,000 teens per day.¹ Among high school students, nearly half report having engaged in sexual activity, and one-third are currently active.²

Sexual activity during teenage years poses serious health risks for youths and has long-term implications. Early sexual activity is associated with an increased risk of sexually transmitted diseases (STDs), reduced psychological and emotional well-being, lower academic achievement, teen pregnancy, and out-of-wedlock childbearing. Many of these risks are avoidable if teens choose to abstain from sexual activity. Abstinence is the surest way to avoid the risk of STDs and unwed childbearing.

Abstinence education “teaches abstinence from sexual activity outside marriage as the expected standard for all school age children” and stresses the social, psychological, and health benefits of abstinence.³ Abstinence programs also provide youths with valuable life and decision-making skills that lay the foundation for personal responsibility and developing healthy relationships and marriages later in life. These programs emphasize preparing young people for future-oriented goals.

Studies have shown that abstinent teens report, on average, better psychological well-being and higher academic achievement than those who are sexually active.⁴ Delaying the initiation of or reducing early sexual activity among teens can decrease their overall

Talking Points

- Teen sexual activity is costly, not just for teens, but also for society. Teens who engage in sexual activity are at risk for a host of negative outcomes including infection with a sexually transmitted disease, emotional and psychological harm, and out-of-wedlock childbearing.
- Abstinence education teaches the social, psychological, and health benefits of abstinence from sexual activity outside marriage. These programs focus on preparing young people for future-oriented goals. They provide youths with valuable life and decision-making skills that lay the foundation for personal responsibility and developing healthy relationships later in life.
- Of the 15 authentic abstinence programs discussed in this paper, 11 reported positive findings. Five of the six studies of virginity pledges also reported positive findings. Overall, 16 of the 21 studies reported positive results, such as delayed initiation of sexual activity, among youths who received abstinence education.

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Opponents of abstinence education contend that these programs fail to influence teen sexual behavior. At this stage, the available evidence supports neither this assessment nor the wholesale dismissal of authentic abstinence education programs.

Studies of Abstinence Education

This paper discusses 21 studies of abstinence education. Fifteen studies examined abstinence programs that were primarily intended to teach abstinence. Of these 15 studies, 11 reported positive findings. The other six studies analyzed virginity pledges, and of these six studies, five reported positive findings. Overall, 16 of the 21 studies reported statistically significant positive results, such as delayed sexual initiation and reduced levels of early sexual activity, among youths who have received abstinence education. Five studies did not report any significant positive results.

In addition to these 21 studies, five other studies have been cited in various reviews of abstinence pro-

gram evaluations.⁵ However, these five studies are not fully discussed in this paper for several reasons.

First, a 2007 study evaluated a voluntary component of a three-part abstinence program that focused on life skills education. The voluntary component does not represent the core abstinence curriculum of the Heritage Keepers program, but an evaluation of the abstinence curriculum is discussed in this paper. Because the students who participated in the voluntary section had already received the core abstinence education curriculum, the study effectively measured the “incremental impact” of the voluntary component, not the full program impact.⁶

A second study evaluated the Operation Keepsake program in Cleveland. While the study reported positive results (i.e., reduced levels and delayed initiation of sexual activity), the statistical significance of findings was less certain. While the findings were positive, they were statistically significant at only the 94 percent and 93 percent confidence levels—below the standard 95 percent confidence threshold.⁷ An evaluation of For Keeps, an updated version of Operation Keepsake, is discussed in this paper.

1. Mark Regnerus, *Forbidden Fruit: Sex & Religion in the Lives of American Teenagers* (New York, N.Y.: Oxford University Press, 2007), p. 3. This calculation is based on data from the National Survey of Family Growth.
2. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Youth Risk Behavior Survey, 2005. Those who have engaged in sexual activity during the three months preceding the survey are considered “currently active.”
3. Section 510 of Title V of the Social Security Act contains eight standards by which all abstinence programs must abide. See U.S. Department of Health and Human Services, Administration for Children and Families, “Fact Sheet: Section 510 State Abstinence Education Program,” updated November 6, 2007, at www.acf.hhs.gov/programs/fysb/content/abstinence/factsheet.htm (March 13, 2007).
4. Denise D. Hallfors, Martha W. Waller, Carol A. Ford, Carolyn T. Halpern, Paul H. Brodish, and Bonita Iritani, “Adolescent Depression and Suicide Risk: Association with Sex and Drug Behavior,” *American Journal of Preventative Medicine*, Vol. 27, No. 3 (October 2004), pp. 224–230; Denise D. Hallfors, Martha W. Waller, Daniel Bauer, Carol A. Ford, and Carolyn T. Halpern, “Which Comes First in Adolescence—Sex and Drugs or Depression?” *American Journal of Preventative Medicine*, Vol. 29, No. 3 (October 2005), pp. 163–170; and Robert Rector and Kirk Johnson, “Teenage Sexual Abstinence and Academic Achievement,” paper presented at the Ninth Annual Abstinence Clearinghouse Conference, August 2005, at www.heritage.org/Research/Welfare/upload/84576_1.pdf.
5. Lauren Sue Scher, Rebecca A. Maynard, and Matthew Stagner, “Interventions Intended to Reduce Pregnancy-Related Outcomes Among Teenagers,” Campbell Collaboration, updated April 2006, at www.campbellcollaboration.org/doc-pdf/teenpregreview__dec2006.pdf (January 17, 2008); Douglas Kirby, “Emerging Answers 2007,” National Campaign to Prevent Teen and Unplanned Pregnancy, November 2007, at www.thenationalcampaign.org/EA2007 (February 27, 2008).
6. Melissa A. Clark, Christopher Trenholm, Barbara Devaney, Justin Wheeler, and Lisa Quay, “Impacts of the Heritage Keepers Life Skills Education Component,” Mathematica Policy Research, August 2007, p. 1, at www.mathematica-mpr.com/publications/PDFs/heritagekeepers08-07.pdf (February 27, 2008).

A third study examined a teen pregnancy prevention program in Denmark, South Carolina, in the early 1980s.⁸ Although teen pregnancy rates declined during the early intervention period, the results cannot be meaningfully interpreted because of the uncertain nature of the services received by the students.

A fourth study examined a Canadian program, which was designed as a traditional sex education program but was delivered without a contraception component in the evaluation's specific context.⁹

Finally, a fifth study analyzed the Postponing Sexual Involvement program in Atlanta in the mid-1980s.¹⁰ Although the study reported positive findings (i.e., delayed onset of sexual activity), the content of the program has been questioned. For example, was the intervention a pure abstinence program, or were other components critical?

Study Design

The research field of abstinence program evaluation is developing, so only a few programs have been evaluated thus far.¹¹ Currently, several hundred abstinence programs are in operation nationwide. These programs vary substantially in the youth populations that they serve, in their imple-

mentation, and in their curricula. Importantly, the few evaluated programs inadequately represent the spectrum of abstinence programs. Consequently, the available findings are mostly generalizable to the specific conditions under which those particular programs were implemented and to the youth populations that they served.

The studies discussed in this paper used a variety of research methods to assess the degree to which specific abstinence programs influenced teen sexual behavior.¹²

Experimental studies have the most rigorous evaluation design. A true experiment enables the researchers to draw conclusions about the program's impact with a high degree of confidence. To simulate the scenario of how abstinence program participants would have behaved if they had not received any abstinence education, an experiment randomly assigns youths to receive or not to receive abstinence education. In theory, random assignment eliminates any systematic differences between the intervention group and the control group, making the two virtually identical except for the intervention—in this case, abstinence education. In reality, well-designed and well-implemented exper-

7. Elaine Borawski *et al.*, "Evaluation of the Teen Pregnancy Prevention Programs Funded Through the Wellness Block Grant (1999–2000)," Case Western Reserve University School of Medicine, Center for Health Promotion Research, Department of Epidemiology and Biostatistics, March 23, 2001.
8. Helen P. Koo, George H. Dunteman, Cindee George, Yvonne Green, and Murray Vincent, "Reducing Adolescent Pregnancy Through a School- and Community-Based Intervention: Denmark, South Carolina, Revisited," *Family Planning Perspectives*, Vol. 26, No. 5 (September–October 1994), pp. 206–211 and 217.
9. B. Helen Thomas, Alba Mitchell, and M. Corinne Devlin, "Small Group Sex Education: The McMaster Teen Program," in Brent C. Miller, Josefina J. Card, Roberta L. Paikoff, and James C. Peterson, eds., *Preventing Adolescent Pregnancy: Model Programs and Evaluations* (Newbury Park, Calif.: Sage Publications, Inc., 1992), pp. 28–52. According to the study, contraception was not taught because at the time this subject was not within Ontario Ministry of Education guidelines for seventh and eighth grade students.
10. Marion Howard and Judith Blamey McCabe, "Helping Teenagers Postpone Sexual Involvement," *Family Planning Perspectives*, Vol. 22, No. 1 (January–February 1990), pp. 21–26.
11. A 2006 Government Accountability Office report notes that "the efforts to study and build a body of research on the effectiveness of most abstinence education programs have been under way for only a few years, in part because grants under the two programs that account for the largest portion of federal spending on abstinence—the State Program [Title V] and the Community-Based Program—were not awarded until 1998 and 2001, respectively." U.S. Government Accountability Office, *Abstinence Education: Efforts to Assess the Accuracy and Effectiveness of Federally Funded Programs*, GAO-07-87, October 2006, pp. 20 and 31, at www.gao.gov/new.items/d0787.pdf (April 16, 2008).
12. A number of studies have analyzed changes in teens' intentional behavior, such as attitude toward abstinence, characteristics important to behavioral change, self-efficacy, and STD knowledge. The present analysis reports only studies that measured actual behavioral outcomes.

iments are few. This is particularly true for abstinence program evaluation.¹³

Most of the evaluations reported in this analysis are quasi-experiments, which incorporate certain elements of experimental design, such as identifying a comparable group of youths for comparison and using statistical methods to account for pre-intervention differences between youths who received abstinence education and those who did not.

Quasi-experimental studies adjust for a host of observable factors other than abstinence education that might confound the results. Depending on the rigor of the evaluation design and the adequacy of the statistical analysis employed by the researchers, the degree of confidence with which conclusions may be drawn about the findings from non-experimental studies can vary. Consequently, all findings should be interpreted with the full context of the program and evaluation in view.

The virginity pledge studies used a longitudinal survey of self-reported data.¹⁴ The longitudinal survey followed the same group of individuals from adolescence to young adulthood. The pledge studies applied various statistical methods to estimate the underlying relationship between pledging during adolescence and behavioral outcomes in young adulthood.

This paper focuses on the significant positive behavioral outcomes as reported by the studies, such as delayed onset of sexual activity, reduced levels of early sexual activity, and fewer sexual partners among adolescents.¹⁵ In addition, this paper discusses five studies that reported no significant impact. (For a list of the studies, summary findings, and evaluation design characteristics, see the Appendix and the Reference List.)

While abstinence programs emphasize the message of abstinence until marriage as the standard for

all school-age children, simply delaying the initiation or reducing current levels of sexual activity among teens can decrease teens' overall exposure to the risk of physical and psycho-emotional harm.

Studies That Reported Positive Behavioral Change

Positive behavioral changes were reported in 11 studies of abstinence programs. (See the Appendix and Reference List.)

Reasons of the Heart. Taught over 20 class periods by certified and program-trained health educators, the Reasons of the Heart (ROH) curriculum focuses on individual character development and teaches adolescents the benefits that are associated with abstinence until marriage.

A 2008 study evaluated the ROH curriculum's impact on adolescent sexual activity among seventh grade students in three suburban northern Virginia public schools.¹⁶ The researchers also collected data on a comparison group of seventh grade students in two nearby middle schools that did not participate in the program. Students in those schools instead received the state's standard family life education, which included two videos on HIV/STD prevention and one on abstinence.

The evaluators surveyed seventh grade students in all five schools before and after the program. They found that, a year after the program, 32 (9.2 percent) of the 347 ROH students who were virgins at the initial survey had initiated sexual activity, compared with 31 (or 16.4 percent) of the 189 comparison group students. Controlling for the differences between the comparison group and ROH students,¹⁷ the study reported that ROH students were half as likely as comparison group students to initiate sexual activity.¹⁸ The evaluators concluded, "This result appears to compare favorably to the re-

13. See Scher *et al.*, "Interventions Intended to Reduce Pregnancy-Related Outcomes Among Teenagers."

14. The reliability of self-reported data on youth sexual behavior has been raised as an issue. See Janet E. Rosenbaum, "Reborn a Virgin: Adolescents' Retracting of Virginity Pledges and Sexual Histories," *American Journal of Public Health*, Vol. 96, Issue 6 (June 2006), pp. 1098–1103.

15. Findings are considered statistically significant if they have a statistical confidence level of 95 percent or greater. Some of the studies reporting positive results also reported non-significant results, which are included in the Appendix.

16. Stan Weed, Irene H. Ericksen, Allen Lewis, Gale E. Grant, and Kathy H. Wibberly, "An Abstinence Program's Impact on Cognitive Mediators and Sexual Initiation," *American Journal of Health Behavior*, Vol. 31, No. 1 (2008), pp. 60–73.

ductions in initiation achieved by some of the abstinence programs [evaluated in earlier studies].”¹⁹

Sex Can Wait. Sex Can Wait is a three-series abstinence education program with one series for upper-elementary students, a second for middle school students, and a third for high school students. The Sex Can Wait program lasts five weeks and offers lessons on character building, important life skills, and reproductive biology.

A 2006 study evaluated the program’s long-term (18-month) impact on adolescent sexual behavior.²⁰ The researchers compared students who participated in Sex Can Wait to those who received their school districts’ standard sex education curricula on two behavioral outcomes: overall abstinence and abstinence during the last 30 days. As the authors noted, “the study compared the effects of the Sex Can Wait curriculum to ‘current practice’ rather than true ‘control conditions.’”²¹

The researchers found that, 18 months after the program, upper-elementary students who participated in Sex Can Wait were less likely than non-participants to report engaging in recent sexual activity. Among middle school students, participants were also less likely than non-participants to report

engaging in sexual activity ever and in the preceding month before the 18-month follow-up. Finally, among high school students, the authors found reduced levels of sexual activity in the short term but not in the 18-month follow-up.²²

Heritage Keepers. Heritage Keepers is a primary prevention abstinence program for middle school and high school students. The program offers an interactive three-year, two-level curriculum.

To assess Heritage Keepers’ impact, a group of evaluators compared some 1,200 virgin students who attended schools that faithfully implemented the program to some 250 students in demographically and geographically comparable schools who did not receive the abstinence intervention.²³ One year after the program, 14.5 percent of Heritage Keepers students had become sexually active compared with 26.5 percent of the comparison group.

Overall, Heritage Keepers students “were about one-half as likely” as comparison group students to initiate sex after adjusting for pre-program differences between the two groups.²⁴ The study found similar results in subsets of African-American students, Caucasian students, boys, and girls.

17. Students in the comparison group and ROH students matched on 10 of the 12 demographic and attitudinal characteristics measured. The comparison group had a higher proportion of African-American students. Comparison group students also felt they would have more opportunity for sex in the coming year.
18. The odds ratio was 0.413, and the relative risk ratio was 0.457. The finding is statistically significant at the 99.2 percent confidence level.
19. Weed *et al.*, “An Abstinence Program’s Impact on Cognitive Mediators and Sexual Initiation,” p. 70.
20. George Denny and Michael Young, “An Evaluation of an Abstinence-Only Sex Education Curriculum: An 18-Month Follow-Up,” *Journal of School Health*, Vol. 76, No. 8 (October 2006), pp. 414–422.
21. *Ibid.*, p. 415.
22. These findings were statistically significant at the 95 percent confidence level and above.
23. Stan E. Weed, Irene H. Ericksen, and Paul James Birch, “An Evaluation of the Heritage Keepers Abstinence Education Program,” Institute for Research and Evaluation (Salt Lake City), November 2005, at www.heritageservices.org/Stan%20Weed's%20HHS%20Conference%20article.pdf (December 1, 2006). Presented at a national conference, this study was reviewed by a team of program evaluation experts selected through an external consultant by the Office of Population Affairs in the U.S. Department of Health and Human Services. The Heritage Keepers program also includes a voluntary life skills education component. The participants were youths who had already received the Heritage Keepers abstinence program. Mathematica Policy Research evaluated the skills life education component, which measured the *marginal* impact of this component as all participants had already received the Heritage Keepers abstinence program. Because the life skills education does not represent the core Heritage Keepers abstinence program, its evaluation is not discussed in this paper.
24. The finding was statistically significant at the 99 percent confidence level and above. Students in the comparison group were at somewhat higher risk of early sexual activity than program participants were. However, the authors used statistical methods to control for the differences between the two groups.

For Keeps. A study published in 2005 evaluated the For Keeps curriculum as implemented in five urban and two suburban middle schools in the Midwest.²⁵ Schools were assigned by the school districts to receive the program, which was part of a county-wide teen pregnancy prevention initiative.

Taught by outside facilitators, For Keeps was a five-day curriculum with 40-minute sessions that focused on character development and the benefits of abstinence and tried to help students understand how pregnancy and sexually transmitted diseases can impede their long-term goals. It also emphasized the psycho-emotional and economic consequences of early sexual activity. The curriculum was intended both for students who had become sexually active and for those who had not.

The evaluation collected data on all students through a pretest survey, and some 2,000 youths (about 70 percent of those who took the pretest survey) responded to a follow-up survey conducted about five months after the program ended.²⁶ Among youths who engaged in any sexual behavior during the follow-up period, some who participated in For Keeps reported a reduction in “the amount of casual sex, as evidenced by fewer episodes of sex and fewer sexual partners” during the evaluation period,²⁷ although program participants did not differ from non-participants in the likelihood of engaging in sexual activity during the follow-up interval.²⁸

Best Friends. The Best Friends (BF) program began in 1987 and operates in about 90 schools across the United States. The Best Friends curricu-

lum is an abstinence-based character-building program for girls starting in the sixth grade and offers a variety of services such as group discussions, mentoring, and community activities. Discussion topics include friendship, love and dating, self-respect, decision making, alcohol and drug abuse, physical fitness and nutrition, and AIDS/STDs. The curriculum’s predominant theme is encouraging youths to abstain from high-risk behaviors and sexual activity.

A 2005 study evaluated the District of Columbia’s Best Friends program, which operated in six of the District’s 20 middle schools.²⁹ The study compared data on BF participants to data from the Youth Risk Behavior Surveys (YRBS) conducted for the District. When the authors of the study compared Best Friends schools to District schools that did not have the program, they found that Best Friends schools tended to be located in the more disadvantaged sections of the city and were academically comparable to or slightly worse than the District’s middle schools in general.

Adjusting for the survey year, students’ age, grade, and race and ethnicity, the study reported that Best Friends girls were nearly 6.5 times more likely to abstain from sexual activity than YRBS respondents. They were 2.4 times more likely to abstain from smoking, 8.1 times more likely to abstain from illegal drug use, and 1.9 times more likely to abstain from drinking.³⁰

Not Me, Not Now. Not Me, Not Now, a community-wide abstinence intervention program, targeted children ages nine through 14 in Monroe County,

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25. Elaine A. Borawski, Erika S. Trapl, Loren D. Lovegreen, Natalie Colabianchi, and Tonya Block, “Effectiveness of Abstinence-Only Intervention on Middle School Teens,” *American Journal of Health Behavior*, Vol. 29, No. 5 (September/October 2005), pp. 423–434.
26. The program group had a higher proportion of suburban students, and the follow-up interval for the program group averaged five days longer than the comparison group. Students who completed the follow-up survey were also more likely to be female, younger, white, living with two parents, suburban, and more abstinence-oriented.
27. Borawski *et al.*, “Effectiveness of Abstinence-Only Intervention on Middle School Teens,” pp. 429–431. Frequency of sexual activity was measured by the likelihood of engaging in six or more episodes versus the likelihood of engaging in five or less episodes during the evaluation period. The number of sexual partners was measured by the likelihood of having two or more sexual partners during the evaluation period. The findings were statistically significant at the 95 percent confidence level and above.
28. This was the finding for the entire sample, the sub-sample of virgins, and the sub-sample of sexually active youths.
29. Robert Lerner, “Can Abstinence Work? An Analysis of the Best Friends Program,” *Adolescent & Family Health*, Vol. 3, No. 4 (April 2005), pp. 185–192.

New York, which includes the city of Rochester. The Not Me, Not Now program devised a mass communications strategy to promote the abstinence message through paid television and radio advertising, billboards, posters distributed in schools, educational materials for parents, an interactive Web site, and educational sessions in school and community settings. The program had five objectives: raising awareness of the problem of teen pregnancy, increasing understanding of the negative consequences of teen pregnancy, developing resistance to peer pressure, promoting parent-child communication, and promoting abstinence among teens.

Not Me, Not Now was effective in reaching early teens, with some 95 percent of the target audience in the county reporting that they had seen a Not Me, Not Now ad. During the intervention period, there was a statistically significant positive shift in attitudes among pre-teens and early teens in the county.

The sexual activity rate of 15-year-olds across the county dropped by a statistically significant amount, from 46.6 percent to 31.6 percent, during this period.³¹ The pregnancy rate for girls ages 15

through 17 in Monroe County fell by a statistically significant amount, from 63.4 pregnancies per 1,000 girls to 49.5 pregnancies per 1,000. The teen pregnancy rate fell more rapidly in Monroe County than in comparison counties and upstate New York in general, and the differences in the rates of decrease were statistically significant.³²

Abstinence by Choice. Abstinence by Choice operated in 20 schools in the Little Rock area of Arkansas. The program targeted seventh, eighth, and ninth grade students and reached about 4,000 youths each year. The curriculum included a five-day workshop with speakers, presentations, skits, videos, and an adult mentoring component.

A 2001 evaluation analyzed a sample of 329 students and found that only 5.9 percent of eighth grade girls who had participated in Abstinence by Choice a year earlier had initiated sexual activity compared with 10.2 percent of non-participants. Among eighth grade boy participants, 15.8 percent had initiated sexual activity, compared with 22.8 percent among non-participating boys.³³ (The sexual activity rate of students in the program was compared with the rate of sexual activity among

30. All results were statistically significant at the 99.99 percent and higher confidence level. The study's evaluator conducted further analyses on the possibility of spurious program effects. When the sample consisted only of students who remained in the program throughout the year, excluding students who joined the program in mid-year, Best Friends girls were still less likely to report smoking, using illegal drugs, drinking, or engaging in sexual activity. Furthermore, compared with girls who completed the Best Friends program, those who dropped out were *not* more likely to smoke, use illegal drugs, drink, and engage in sexual activity. Girls who dropped out were also more likely to be older. Even when the evaluator artificially increased the incidence of these four risk behaviors among Best Friends participants at the baseline by 100 percent, the hypothetical estimates with the 100 percent increase would still be lower than the actual incidents among YRBS respondents.
31. Laura Kahn *et al.*, "Youth Risk Behavior Surveillance—United States 1997," Centers for Disease Control and Prevention *Morbidity and Mortality Weekly Reports*, Vol. 47, 1998, pp. 1–89.
32. Andrew Doniger, John S. Riley, Cheryl A. Utter, and Edgar Adams, "Impact Evaluation of the 'Not Me, Not Now' Abstinence-Oriented, Adolescent Pregnancy Prevention Communications Program, Monroe County, N.Y.," *Journal of Health Communication*, Vol. 6, No. 1 (January–March 2001), pp. 45–60. One caveat is that the study did not assess trend data on the counties prior to the intervention campaign. With only one pre-intervention data point (1992 data on sexual activity rates and 1993 data on pregnancy rates), the study cannot completely rule out the possibility that the declines would have occurred independent of the campaign. Both the shift in attitudes and the decline in sexual activity rate were statistically significant at the 95 percent confidence level. The differences between the rates of decline in adolescent pregnancy in Monroe County and the other geographic areas were statistically significant at the 95 percent to 99 percent confidence levels.
33. Stan E. Weed, "Title V Abstinence Education Programs: Phase I Interim Evaluation Report to Arkansas Department of Health, Institute for Research and Evaluation," October 15, 2001. The study did not adjust for the differences between program participants and non-participants. The written report does not include data on statistical significance, but data provided by Dr. Weed to the authors of this paper showed that the program's effects in reducing the onset of sexual activity were statistically significant at the 98 percent confidence level.

control students in the same grade and schools prior to commencement of the program.)

HIV Risk-Reduction Intervention. A 1998 study evaluated a two-day abstinence-based HIV risk-reduction intervention. The program was delivered to some 200 African-American middle school students in Philadelphia.³⁴ Students volunteered to participate in a weekend health promotion program, and the volunteers were then randomly assigned to an abstinence education program, a safer-sex education program, or a regular health program (the control group) delivered by trained adult and peer (high school student) facilitators.

The researchers found that, during the three-month follow-up, students in the abstinence programs were less likely to report having engaged in recent sexual activity compared with students in the control group and that they were marginally less likely to report having engaged in recent sexual activity compared to students in the safer-sex program.³⁵

Although the three groups generally did not differ in their reports of sexual activity in the preceding three months during the six-month and 12-month follow-ups, the researchers did report that, among students who had sexual experience before the intervention, those in the safer-sex group reported fewer days of sexual activity on average than students in the control group and the abstinence group reported.

Stay SMART. Delivered to Boys and Girls Clubs of America participants, Stay SMART integrated abstinence education with substance-use preven-

tion and incorporated instructions on general life skills as well. The 12-session curriculum, led by Boys and Girls Club staff, used a postponement approach to early sexual activity and targeted both sexually experienced and sexually inexperienced adolescents. Participation in Boys and Girls Clubs and Stay SMART was voluntary.

A 1995 study evaluated Stay SMART's impact on adolescent sexual behavior. The study measured the sexual attitudes and behavior of more than 200 youths who participated in Stay SMART or Stay SMART plus the boosters and compared their outcomes to some 100 youths who did not participate in Stay SMART but were still involved in the Boys and Girls Clubs.³⁶ The analysis controlled for demographic and baseline characteristics to test for the program's independent effect on adolescent sexual behavior and attitudes.

The study found that, two years after the program, youths who had engaged in prior sexual activity and participated in the stand-alone Stay SMART program exhibited reduced levels of recent sexual activity compared with non-participants and, interestingly, participants in the Stay SMART-plus-boosters program as well.³⁷ Among participants who were virgins prior to the program, the study did not find a statistically significant program effect.

Project Taking Charge. Project Taking Charge was a six-week abstinence curriculum delivered in home economics classes during the school year. It was designed for use in low-income communities with high rates of teen pregnancy. The curricu-

34. John B. Jemmott III, Loretta Sweet Jemmott, and Geoffrey T. Fong, "Abstinence and Safer Sex HIV Risk-Reduction Interventions for African American Adolescents: A Randomized Controlled Trial," *JAMA*, Vol. 279, No. 19 (May 20, 1998), pp. 1529–1536. The study also measured condom use. For the three follow-ups, the study reported three sets of 24 comparison estimates. One of the 24 comparison estimates between the abstinence and control groups was statistically different, favoring the abstinence group. Ten of the 24 comparison estimates between the safer-sex and control groups were statistically different, favoring the safer-sex group. Three of the 24 comparison estimates between the abstinence and safer-sex groups were statistically different, favoring the safer-sex group.

35. The findings from the comparison between the abstinence and control groups were statistically significant at the 98 percent confidence level. However, the findings from the comparison between the abstinence and safer-sex groups were statistically significant only at the 92 percent and 94 percent confidence levels.

36. Tena L. St. Pierre, Melvin M. Mark, D. Lynne Kaltreider, and Kathryn J. Aikin, "A 27-Month Evaluation of a Sexual Activity Prevention Program in Boys & Girls Clubs Across the Nation," *Family Relations*, Vol. 44, No. 1 (January 1995), pp. 69–77.

37. This finding was statistically significant at the 99 percent and above confidence level. The sub-sample of non-virgins in the 27-month follow-up was small: about 67 youths (28 in the Stay SMART only program, 18 in the program plus the boosters, and 21 in the control group).

lum contained elements on self-development; basic information about sexual biology (e.g., anatomy, physiology, and pregnancy); vocational goal-setting; family communication; and values instruction on the importance of delaying sexual activity until marriage.

The program was evaluated in Wilmington, Delaware, and West Point, Mississippi, based on a small sample of 91 adolescents.³⁸ Control and experimental groups were created by randomly assigning classrooms either to receive or not to receive the program. The students were assessed immediately before and after the program and at a six-month follow-up. In the six-month follow-up, Project Taking Charge was shown to have had a statistically significant effect in increasing adolescents' knowledge of the problems associated with teen pregnancy, the problems of sexually transmitted diseases, and reproductive biology.

The program may also have delayed the onset of sexual activity among some of the participants. About 23 percent of participants who were virgins at the pretest initiated sexual activity during the follow-up interval, compared with 50 percent of the youths in the control group, although the authors urged caution in interpreting these numbers due to the small sample size.³⁹

Teen Aid and Sex Respect. An evaluation of the Teen Aid and Sex Respect abstinence programs in three Utah school districts reported that certain

groups of youths who received these programs delayed the initiation of sexual activity.⁴⁰ To determine the effects of the programs, students in schools with the abstinence programs were compared with students in similar control schools within the same school districts. Statistical adjustments were applied to control for any initial differences between program participants and control group students.

In the aggregate sample, the researchers did not find any differences in the rates of sexual initiation between youths who had received abstinence education and those who had not. However, analyzing a cohort of high school students who had fairly permissive attitudes,⁴¹ they found that program participants were one-third less likely to engage in sexual activity one year after the programs compared with non-participants (22.4 percent versus 37 percent).⁴²

Even when the researchers adjusted for students' dating and drinking behavior, religious involvement, family composition, peer pressure, and other factors, the differences between the two groups remained statistically significant. (Statistically significant changes in behavior were not found among a similar group of junior high school students.) The researchers found it notable that youths who had more permissive attitudes were "not only receptive and responsive to the abstinence message in the short run, but that some influence on behavior [was] also occurring."⁴³

38. Stephen R. Jorgensen, Vicki Potts, and Brian Camp, "Project Taking Charge: Six-Month Follow-Up of a Pregnancy Prevention Program for Early Adolescents," *Family Relations*, Vol. 42, No. 4 (October 1993), pp. 401–406.

39. The finding was statistically significant at the 95 percent confidence level. Seven (23 percent) of the 30 youths in the intervention group initiated sexual activity during the six-month follow-up period, compared with 10 (50 percent) of the 20 youths in the control group.

40. Stan E. Weed *et al.*, "Predicting and Changing Teen Sexual Activity Rates: A Comparison of Three Title XX Programs," report to the U.S. Department of Health and Human Services, Office of Adolescent Pregnancy Programs, December 1992.

41. Permissive attitudes in the study were measured by responses to the following statements: "Having sexual intercourse should be treated as just a normal and expected part of teenage dating relationships"; "Having sex with a boyfriend or girlfriend is a good way to show how much you care for them"; "Teens who have been dating for a long time should be willing to go along and have sexual intercourse if their partner wants to"; "It is all right for teenagers to have sex before marriage if they are in love"; and "I think it is OK for unmarried teenagers to have sexual intercourse if they use birth control." Weed *et al.*, "Predicting and Changing Teen Sexual Activity Rates," pp. 25–26.

42. The sub-sample here included Sex Respect, Teen-Aid, and Value & Choices participants. The effects on the cohort of high school students with more permissive attitudes were significant at the 99 percent confidence level.

43. Weed *et al.*, "Predicting and Changing Teen Sexual Activity Rates," p. 64.

Virginity Pledge Studies

Using the National Longitudinal Study of Adolescent Health (Add Health), a nationally representative sample of American youth,⁴⁴ several studies have found that adolescent virginity pledging was associated with delayed or reduced levels of teen sexual activity, other risky behaviors, teen pregnancy, and STDs. (See the Appendix and the Reference List.)

Delayed Sexual Activity. A 1997 study published in the *Journal of the American Medical Association* examined a large national sample of teenagers in the seventh through 12th grades.⁴⁵ The study compared students who had taken a formal virginity pledge with students who had not taken a pledge but were otherwise identical in race, income, school performance, degree of religiousness, and other social and demographic factors. Based on this analysis, the authors found that the level of sexual activity among students who had taken a formal pledge of virginity was one-fourth the level of their counterparts who had not taken a pledge. The researchers also noted that “[a]dolescents who reported having taken a pledge to remain a virgin were at significantly lower risk of early age of sexual debut.”⁴⁶

Another study of the virginity pledge movement, published in 2001, found a similar association between pledging and delayed sexual activity. According to the authors:

Adolescents who pledge, controlling for all of the usual characteristics of adolescents and their social contexts that are associated with the transition to sex, are much less likely than adolescents who do not pledge,

to have intercourse. The delay effect is substantial and robust. Pledging delays intercourse for a long time.⁴⁷

Based on a sample of more than 5,000 students, the study reported that taking a virginity pledge was associated with a reduction of approximately one-third in the likelihood of early sexual activity, adjusted for a host of other factors linked to sexual activity rates including gender, age, physical maturity, parental disapproval of sexual activity, school achievement, and race. When taking a virginity pledge was combined with strong parental disapproval of sexual activity, the probability of initiating sexual activity was reduced by 75 percent or more. The authors did note that the pledge effect depended on youths’ age and their peer group context.

Life Outcomes in Young Adulthood. By the third wave of the Add Health survey, administered in 2001, respondents had reached young adulthood, ranging between 19 and 25 years of age. In some cases, the virginity pledge may have been taken up to seven years earlier. Nonetheless, for many respondents, the delaying effect associated with pledging during adolescence appeared to last into young adulthood.

Analyzing the most recent Add Health data, a 2004 study found that adolescent virginity pledging was linked to a number of positive life outcomes.⁴⁸ For example, a 22-year-old white female pledger from an intact family with median levels of family income, academic performance, self-esteem, and religious observance was two-thirds less likely to become pregnant before age 18 and 40 percent less

44. Add Health is a major longitudinal survey of adolescent and young adult behavior and is funded by 17 federal agencies. It is based on a nationally representative survey of approximately 14,000 youth. The survey began in 1994, and the same respondents were interviewed again in 1995 and 2001.
45. Michael Resnick *et al.*, “Protecting Adolescents from Harm: Findings from the National Longitudinal Study on Adolescent Health,” *JAMA*, Vol. 278, No. 10 (September 10, 1997). The association between virginity pledging and reduced sexual activity was statistically significant at the 99.9 percent confidence level.
46. *Ibid.*, p. 830.
47. Peter S. Bearman and Hanna Brückner, “Promising the Future: Virginity Pledges and First Intercourse,” *American Journal of Sociology*, Vol. 106, No. 4 (January 2001), pp. 861 and 862. The virginity pledge effects were statistically significant at the 95 percent confidence level.
48. Robert E. Rector, Kirk A. Johnson, and Jennifer A. Marshall, “Teens Who Make Virginity Pledges Have Substantially Improved Life Outcomes,” Heritage Foundation *Center for Data Analysis Report* No. CDA04-07, September 21, 2004, at www.heritage.org/Research/Abstinence/cda04-07.cfm.

likely to have a birth out of wedlock compared with a non-pledger with identical characteristics. Strong pledgers⁴⁹ with the same characteristics were 40 percent less likely to initiate sexual activity before age 18 and had an average of one-third fewer sexual partners compared with non-pledgers with the same demographic profile.

STDs and Risky Sexual Behaviors. Analyzing the same sample of respondents, another study found that virginity pledging during adolescence was also associated with lower rates of STD infection among young adults. The STD rate among pledgers averaged 25 percent lower than the rate of non-pledgers of the same age, gender, race, family background, and religiosity. Significantly, the study found that virginity pledging was a stronger predictor of STD reduction than condom use on five different measures of STDs.⁵⁰

The protective effect of pledging may have extended to other behaviors as well. According to a 2005 study, young adults who took a virginity pledge during adolescence were less likely to engage in a number of risky sexual behaviors compared with those who did not take a pledge.⁵¹

Studies Reporting No Significant Effects

The Mathematica Study. In 2007, Mathematica Policy Research released a study that evaluated four abstinence programs: My Choice, My Future! in Powhatan, Virginia; ReCapturing the Vision in Miami, Florida; Families United to Prevent Teen

Pregnancy in Milwaukee, Wisconsin; and Teens in Control in Clarksdale, Mississippi.⁵² Primarily preventive in their intent, these programs focused on upper elementary and middle school children. The average age of the participants ranged from 10 to 13. Two of the sites were in urban settings, and two were in rural communities.

The four programs varied in duration and intensity. Three programs—two multi-year curricula and a one-year curriculum—required participation. Their intensity ranged from several sessions a year to daily classes. One program, an up-to-four-year curriculum, met daily but made participation optional. In that program, only about half of the students assigned to the program actually participated. Of those who participated at all, less than half attended a meaningful portion of the sessions offered.

The evaluation employed a rigorous experimental design. The researchers surveyed students four to six years after initial program enrollment to assess the impact of the four programs on youth behavior. Although long-term impact is ideal, some students in this study's sample were last surveyed later than is conventional in this field.⁵³ For example, at the program site with the shortest curriculum length (about one year), students averaged about 13 years old at enrollment, and the gap between program completion and the last follow-up survey was as long as five years. During this gap, the students received no additional abstinence education or intervention support.

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49. The question "Have you ever signed a pledge to abstain from sex until marriage?" appears in all three waves of Add Health. Strong pledgers are a subgroup of pledgers who provided consistent answers to the question in all three waves of the survey. If they reported having taken a pledge, their answer in the subsequent wave(s) remained the same.
50. Robert Rector and Kirk A. Johnson, "Adolescent Virginity Pledges, Condom Use, and Sexually Transmitted Diseases Among Young Adults," paper presented at the Eighth Annual National Welfare Research and Evaluation Conference of the Administration for Children and Families, U.S. Department of Health and Human Services, June 14, 2005, at www.heritage.org/Research/Welfare/upload/79366_1.pdf.
51. Robert Rector and Kirk A. Johnson, "Adolescent Virginity Pledges and Risky Sexual Behaviors," paper presented at the Eighth Annual National Welfare Research and Evaluation Conference of the Administration for Children and Families, U.S. Department of Health and Human Services, June 14, 2005, at www.heritage.org/Research/Welfare/upload/79314_1.pdf.
52. Christopher Trenholm, Barbara Devaney, Ken Fortson, Lisa Quay, Justin Wheeler, and Melissa Clark, *Impacts of Four Title V, Section 510 Abstinence Education Programs: Final Report*, Mathematic Policy Research, April 2007, at www.mathematica-mpr.com/publications/pdfs/impactabstinence.pdf (November 13, 2007).
53. To assess short-term program impact, evaluation follow-ups usually take place immediately to a year after the program. For longer-term impact, studies have employed follow-up intervals ranging from 12 to 48 months after program completion.

In the final follow-up survey, the study reported no statistically significant differences between program participants and non-participants. Among both program and control groups, half of the students remained abstinent. Among students who had become sexually active by the time of the final survey, program participants and non-participants had similar rates of condom use. (The four abstinence programs did not promote contraceptive use.)

At one of the program sites, the study found that 48 percent of the program participants remained abstinent in the final follow-up compared with 43 percent of the non-participants. At the same site, program participants were also more likely (a difference of 7 percentage points) to report expectations of abstinence until marriage compared with non-participants. Although these differences were not statistically significant, the study's authors noted that, "[g]iven the smaller sample sizes available for estimate impact at the site level...the study cannot rule out modest site-specific impacts on these outcomes."⁵⁴

WAIT Training. A 2005 study evaluated the WAIT Training abstinence education program as it was implemented in four high schools in Colorado.⁵⁵ Except for one of the program schools, students in the study's sample were mostly in the ninth grade. The study did not specify what type of sex education services, if any, students in the control group received. In the 12-month follow-up, the researchers did not find any differences in the sexual initiation transition rates between students in the program group and those in the control group.

California's Postponing Sexual Involvement (PSI). In the early 1990s, California incorporated the PSI curriculum into its statewide Education Now and Babies Later (ENABL) initiative to reduce teenage pregnancy. However, proponents of abstinence education have challenged whether or not the initiative is a genuine abstinence program given Planned Parenthood's role in its implementation.⁵⁶

The PSI curriculum included five sessions of 45 to 60 minutes, delivered either in school or in community settings by adult or youth instructors. Youths who received PSI were also required to receive reproductive health education before beginning the PSI curriculum. Students in the control groups received the standard sexuality curriculum offered by their schools.

An experimental study evaluated California's PSI program.⁵⁷ Based on data collected on some 7,300 students, the study found no significant differences between PSI youths and non-participants in their sexual behavior, pregnancy rates, and STD rates 17 months after the program.⁵⁸ However, the study did find short-term positive effects on youths' beliefs and intentions about sexual activity and self-efficacy.

Will Power/Won't Power. In the mid-1980s, Girls Incorporated (formerly Girls Clubs of America) developed a series of programs designed to prevent teen pregnancy. Will Power/Won't Power targeted younger adolescent girls, ages 12 to 14. The program taught young girls skills to help them resist peer pressure and risky behavior. The full curriculum was delivered in six two-hour lessons.

54. Trenholm *et al.*, *Impacts of Four Title V, Section 510 Abstinence Education Programs: Final Report*, p. xxii.

55. Lisa A. Rue and Stan E. Weed, "Primary Prevention of Adolescent Sexual Risk Taking: A School-Based Model," presented at the 2005 Abstinence Evaluation Conference, Baltimore, Maryland. The study did not adjust for the differences between participants and non-participants.

56. Helen H. Cagampang, Richard P. Barth, Meg Korpi, and Douglas Kirby, "Education Now and Babies Later (ENABL): Life History of a Campaign to Postpone Sexual Involvement," *Family Planning Perspectives*, Vol. 29, No. 3 (May-June 1997), p. 111, and Brad Hayward, "Some Foes of Abortion Call Budget Plan a Gain—Wilson Denies Tilt on Family Planning," *Sacramento Bee*, January 21, 1996.

57. Douglas Kirby, Meg Korpi, Richard P. Barth, and Helen H. Cagampang, "The Impact of the Postponing Sexual Involvement Curriculum Among Youths in California," *Family Planning Perspectives*, Vol. 29, No. 3 (May-June 1997), pp. 100-108.

58. Given the number of non-significant findings in the study, it was surprising that the one significant finding was on the reported pregnancy rate among the sample of PSI programs delivered by youth instructors. In that sample, PSI participants were more likely to report ever being pregnant or causing a pregnancy. Further analysis revealed that six seventh grade boys in one school that received the program reported having caused a pregnancy, and their reports appeared to have driven this result.

A study evaluating the effectiveness of Will Power/Won't Power in delaying the onset of sexual activity compared some 250 participants to 155 non-participants.⁵⁹ Participants volunteered to join the program; youths who declined enrollment became the control group.

Students were surveyed a year after the program. At that point, the study found that 12.8 percent of participants versus 13.5 percent of non-participants had initiated sexual activity since the program. However, the difference was not statistically significant. Further analysis suggested that the level of program participation might have played a role.

Virginity Pledges and STDs. Drs. Hannah Brückner and Peter Bearman, who found, using the Add Health data, that “[a]dolescents who pledge are much less likely to have intercourse than adolescents who do not pledge,”⁶⁰ also analyzed the pledge effect on STD infection among young adults. They reported “no significant differences in STD infection rates between pledgers and non-pledgers, despite the fact that they [pledgers] transition to first sex later, have less cumulative exposure, fewer partners, and lower levels of non-monogamous partners.”⁶¹

Conclusion

Today's young people face strong peer pressure to engage in risky behavior and must navigate media and popular culture that endorse and even glamorize permissiveness and casual sex. Alarmingly, the government implicitly supports these messages by spending over \$1 billion each year promoting contraception and safe-sex education—12 times what it spends on abstinence education.⁶²

Although 80 percent of parents want schools to teach youths to abstain from sexual activity until they are in a committed adult romantic relationship nearing marriage—the core message of abstinence education—these parental values are rarely communicated in the classroom.⁶³

In the classroom, the prevailing mentality often condones teen sexual activity as long as youths use contraceptives. Abstinence is usually mentioned only in passing, if at all.⁶⁴ Sadly, many teens who need to learn about the benefits of abstaining from sexual activity during the teenage years never hear them, and many students who choose to abstain fail to receive adequate support for their decisions.

Teen sexual activity is costly, not just for teens, but also for society. Teens who engage in sexual

59. Leticia Postrado and Heather Johnston Nicholson, “Effectiveness in Delaying the Initiation of Sexual Intercourse of Girls Age 12–14: Two Components of the Girls Incorporated Preventing Adolescent Pregnancy Program,” *Youth and Society*, Vol. 23, No. 3 (March 1992), pp. 356–379.

60. Bearman and Brückner, “Promising the Future,” p. 859 (emphasis in original).

61. Hannah Brückner and Peter Bearman, “After the Promise: The STD Consequences of Adolescent Virginity Pledges,” *Journal of Adolescent Health*, Vol. 36, Issue 4 (April 2005). Although this 2005 study reported other significant positive findings associated with virginity pledging, it is counted as one of the studies that showed no significant effects because of its main finding on STD rates. Much attention has also been focused on another finding in the study that virgin pledgers were more likely than virgin non-pledgers to engage in certain risky sexual behaviors. When interpreting the results of these risky behaviors, the small size of these selective sub-samples should be considered. For more discussion of this finding, see Rector and Johnson, “Adolescent Virginity Pledges and Risky Sexual Behaviors,” and Jeremy E. Uecker, Nicole Angotti, and Mark D. Regnerus, “Going Most of the Way: ‘Technical Virginity’ Among American Adolescents,” *Social Science Research*, in press, available online November 5, 2007.

62. Melissa G. Pardue, Robert E. Rector, and Shannan Martin, “Government Spends \$12 on Safe Sex and Contraceptives for Every \$1 Spend on Abstinence,” Heritage Foundation *Backgrounder* No. 1718, January 14, 2004, at www.heritage.org/Research/Abstinence/bg1718.cfm.

63. Robert E. Rector, Melissa G. Pardue, and Shannan Martin, “What Do Parents Want Taught in Sex Education Programs?” Heritage Foundation *Backgrounder* No. 1722, January 28, 2004, at www.heritage.org/Research/Abstinence/bg1722.cfm.

64. A review of nine popular comprehensive sex-ed curricula found that an average of only 4.7 percent of the page content references abstinence. Shannan Martin, Robert Rector, and Melissa G. Pardue, *Comprehensive Sex Education vs. Authentic Abstinence: A Study of Competing Curricula* (Washington, D.C.: The Heritage Foundation, 2004), p. 11, at www.heritage.org/Research/Welfare/upload/67539_1.pdf.

activity risk a host of negative outcomes including STD infection, emotional and psychological harm, lower educational attainment, and out-of-wedlock childbearing.

Genuine abstinence education is therefore crucial to the physical and psycho-emotional well-being of the nation's youth. In addition to teaching the benefits of abstaining from sexual activity until marriage, abstinence programs focus on developing character traits that prepare youths for future-oriented goals.

When considering federal funding for abstinence education programs and reauthorization of Title V abstinence education programs, including maintaining the current definition of "abstinence education,"⁶⁵ lawmakers should consider *all* of the available empirical evidence.

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65. 42 U.S. Code § 710(b)(2).

Studies Reporting Significant Results

Abstinence Program	Author(s)	Publication	Peer Reviewed	Program Population	Evaluation Design	Statistical Method	Behavioral Outcome Measured	Findings*
1 Reasons of the Heart	Weed et al. (2008)	<i>American Journal of Health Behavior</i>	✓	7th grade students in suburban Northern Virginia (N = 492).	Quasi-experimental. Study controlled for pre-intervention differences between program participants and nonparticipants. Limitations to the study's design include observed differences between program group and control group, although the study accounted for these differences and the possibility of unobserved differences between the two groups.	Logistic regression	Initiation of sexual activity	Positive
2 Sex Can Wait	Denny and Young (2006)	<i>Journal of School Health</i>	✓	Upper elementary, middle school, and high school students from 15 unspecified school districts (upper elementary: N = 295; middle school: N = 595; high school: N = 279).	Quasi-experimental. Pretest, posttest, and follow-up surveys were conducted on program youths and on nonparticipants. As the authors noted, limitations include the reliability of the scaled measures, attrition at 18-month follow-up, and comparison group contamination.	ANCOVA and logistic regression	Abstinence (overall) Upper elementary Middle school High school	NS Short term: NS; 18 months: positive Short term: positive; 18 months: NS
3 Heritage Keepers	Weed et al. (2005)	Paper presented at a conference sponsored by HHS-OPA	✓	7th through 9th grade students from 34 South Carolina schools. The sample consisted of students from a variety of demographic and geographic backgrounds (N = 1,535).	Quasi-experimental. Pretest, posttest, and 12-month follow-up surveys were conducted. The authors noted limitations such as high attrition and unobserved differences between program group and comparison group.	Logistic regression	Rate of sexual initiation	Positive Short term: NS; 18 months: positive Short term: NS; 18 months: positive Short term: positive; 18 months: NS

Continued on next page

* "Positive" indicates positive outcomes in the desired direction, e.g., delayed initiation of sexual activity, reduced levels of recent sexual activity, or fewer sexual partners. "NS" indicates non-significant results. "Negative" indicates adverse outcomes. Findings are statistically significant at or above the 95 percent statistical confidence level.

Studies Reporting Significant Results (continued)

Abstinence Program	Author(s)	Publication	Peer Reviewed	Program Population	Evaluation Design	Statistical Method	Behavioral Outcome Measured	Findings*
4 For Keeps	Boraskwi et al. (2005)	<i>American Journal of Health Behavior</i>	✓	7th and 8th grade students from five urban and two suburban middle schools in the Midwest (N = 2,069).	Quasi-experimental. Pretest and 16- to 25-week follow-up surveys were conducted. Program group and control group were comparable. The authors listed several limitations to the evaluation design: small size effects that might be influenced by measurement issues, an evaluation model more suited for traditional sex education programs, a sample that is not representative of all 7th grade students, potential contamination between program participants and non-program participants, one-time outcomes, and a follow-up interval that was less than six months.	Binary logistic regression or linear regression	Sexual activity between the pretest and posttests All students (N = 2,069) Sexually inexperienced students at the pretest (N = 1,462) Sexually experienced students at the pretest (N = 439)	NS NS NS
5 Best Friends	Lerner (2005)	<i>Adolescent and Family Health</i>	✓	Program participants included 6th–8th grade girls from six of the 20 middle schools in the District of Columbia. Comparison data came from a survey of middle school youths in the District in general (N = 2,730).	Pretest and posttest with comparison survey data. The study controlled for age, school grade, and race and ethnicity of the respondents and conducted further analyses that tested alternative explanations for the results. One significant limitation of the study is its use of survey data as comparison data.	Logistic regression	Initiation of sexual activity	Positive Positive Positive NS
6 Not Me, Not Now	Doniger et al. (2001)	<i>Journal of Health Communication</i>	✓	Middle school and high school students in Monroe County, New York (N = 1,395 to 1,737 for sexual initiation).	Cross-sectional time series. Data on sexual initiation rates came from the Youth Risk Behavior Surveys for Monroe County, NY. Data on pregnancy rates came from the New York State Department of Health, Office of Vital Statistics. Sexual initiation rates in 1992 (pre-program), 1995 (second year of program), and 1997 (fourth year) were compared. Pregnancy rates from 1993–1996 were compared among Monroe County, two counties in upstate and western New York and New York state. Having only one pre-intervention data point is a limitation of the study.	Test of difference in proportions; chi-square for trend test; t-test for differences in regression slopes	Rate of sexual initiation Pregnancy rate	Positive Positive

* See first page of Appendix.

Studies Reporting Significant Results (continued)

Abstinence Program	Author(s)	Publication	Peer Reviewed	Program Population	Evaluation Design	Statistical Method	Behavioral Outcome Measured	Findings*
7 Abstinence by Choice	Weed (2001)	Report to Arkansas Department of Health		7th through 9th grade students in Little Rock, AR (N = 329).	Quasi-experimental. Pretest and 12-month posttest were conducted. The study did not control for differences between program and control groups, which is a major limitation.	Test of difference in initiation rate	Rate of sexual initiation	Positive
8 HIV Risk-Reduction Intervention	Jemmott <i>et al.</i> (1998)	JAMA	✓	6th and 7th grade African-American youths in Philadelphia. Students attended schools that served primarily low-income communities. Of the students participating in the initial survey, 53 percent were female, 26.5 percent lived with both parents, and 15.4 percent reported having recently engaged in sexual activity (N = 659).	Experimental. Pretest and 3-, 6-, and 12-month follow-up surveys were conducted. Youths volunteered to participate in a weekend health promotion program, and volunteers were randomly assigned to receive one of the three interventions: abstinence, safer sex, and general health. The researchers cited self-reported data and limited generalizability of the results as limitations to the study.	Analysis of covariance and logistic regression	Sexual activity in the last 3 months 3-month follow-up 6- and 12-month follow-ups Frequency of sexual activity in the last 3 months 3-month follow-up	Positive (vs. control) NS (vs. safer sex) NS (vs. control and safer sex) NS (vs. control) NS (vs. safer sex)** NS (vs. control) NS (vs. safer sex)**
9 Stay SMART	St. Pierre <i>et al.</i> (1995)	Family Relations	✓	Participants came from 14 Boys and Girls Clubs across the country. Participants and youths in the control group came from comparable demographic and socioeconomic neighborhoods. Sample respondents averaged 13.6 years in age and were three-fourths male (N = 152, 27-month posttest).	Quasi-experimental. Pretest and 3-, 15-, and 27-month posttests were conducted. Some differences were detected between youths who completed the program and those who did not. Non-virgins in the stand-alone program reported, on average, more favorable attitudes toward sexual behavior than non-virgins in the booster and control groups. The study controlled for the pre-program differences. Limitations include selection bias, attrition, small sample size, unobserved differences between program and control groups, and differences in program sites.	ANCOVA	Virgins at pretest Recency and frequency of sexual activity (3-, 15-, and 27-month follow-ups) Non-virgins at pretest Recency and frequency of sexual activity 3-month follow-up 15-month follow-up 27-month follow-up	NS NS NS
10 Project Taking Charge	Jorgensen <i>et al.</i> (1993)	Family Relations	✓	7th grade students in Wilmington, DE, and West Point, MS, from disadvantaged socioeconomic backgrounds (N = 50).	Quasi-experimental, random assignment at class-room level. Study included a pretest, posttest, and 6-month follow-up with no attrition. Study limitations include a small sample and a short-term follow-up period. The study did not control for differences between the two groups at baseline.	ANCOVA	Rate of sexual initiation	Positive

* See first page of Appendix.

** Except among youth with prior sexual experience, in which case results favored safer sex.

Continued on next page

Studies Reporting Significant Results (continued)

Abstinence Program	Author(s)	Publication	Peer Reviewed	Program Population	Evaluation Design	Statistical Method	Behavioral Outcome Measured	Findings*
I1 Teen Aid and Sex Respect	Weed (1992)	Report to HHS and Utah Department of Education		7th and 10th grade students from three districts in Utah (N = 336, more "permissive attitudes" sub-sample).	Quasi-experimental. Pretest, posttest, one-year follow-up conducted. Students who completed either the pretest or follow-up were more at-risk for engaging in sexual activity than those who completed both surveys. Comparison group students attended schools in the same school district. The study controlled for group differences. The authors noted that the findings may be generalizable only to youths with similar characteristics and in similar geographic locations as the sample.	MANOVA	Rate of sexual initiation Entire sample "Permissive attitude" sub-sample High school Middle school	NS Positive NS
I2 Virginity Pledging	Resnick et al. (1997)	JAMA	✓	Nationally representative sample of 7th–12th grade students from the National Longitudinal Study of Adolescent Health, Waves 1 and 2 (N = 4,982).	Longitudinal survey. Study controlled for key demographic characteristics.	Cox regression	Age at sexual initiation	Positive
I3 Virginity Pledging	Bearman and Brückner (2001)	<i>American Journal of Sociology</i>	✓	Nationally representative sample of 7th–12th grade students from the National Longitudinal Study of Adolescent Health, Waves 1 and 2 (N = 5,679).	Longitudinal survey. Study controlled for a host of demographic characteristics, religiosity, and other protective factors.	Proportional hazards models	Initiation of sexual activity Contraceptive use at initiation	Positive Negative
I4 Virginity Pledging	Rector et al. (2004)	<i>Center for Data Analysis Report</i>		Nationally representative sample of 19- to 25-year-olds in 2001 from the National Longitudinal Study of Adolescent Health, Wave 3 (N = 5,679).	Longitudinal survey. Study controlled for a number of factors, including gender, race, age, family income, religiosity, self-esteem, and school performance.	Multivariate logistic regression	Initiation of sexual activity Pregnancy rate Out-of-wedlock birth rate	Positive Positive Positive
I5 Virginity Pledging	Rector and Johnson (2005a)	Paper presented at the 8th Annual National Welfare Research and Evaluation Conference, sponsored by the HHS-ACF		Nationally representative sample of 19- to 25-year-olds in 2001 from the National Longitudinal Study of Adolescent Health, Wave 3.	Longitudinal survey. Study controlled for gender, age, race, family structure, and religiosity.	Multivariate logistic regression	STD rates	Positive

* See first page of Appendix.

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Studies Reporting Significant Results (continued)

Abstinence Program	Author(s)	Publication	Peer Reviewed	Program Population	Evaluation Design	Statistical Method	Behavioral Outcome Measured	Findings*
16 Virginity Pledging	Rector and Johnson (2005b)	Paper presented at the 8th Annual National Welfare Research and Evaluation Conference, sponsored by the HHS-ACF		Nationally representative sample of 19- to 25-year-olds in 2001 from the National Longitudinal Study of Adolescent Health, Wave 3	Longitudinal survey. Study controlled for gender, age, race, family structure, and religiosity.	Multivariate logistic regression	Risky sexual behavior	Positive
1 My Choice, My Future! ReCapturing the Vision Families United to Prevent Teen Pregnancy Teens in Control	Trenholm et al. (2008)	<i>Journal of Policy Analysis and Management</i>	✓	Two programs targeted upper elementary students, and two targeted middle school students. The four program sites were Powhatan, VA; Miami; Milwaukee; and Clarksdale, MS. Many of the students come from lower socioeconomic backgrounds (Powhatan: N = 448; Miami: N = 480; Milwaukee: N = 414; Clarksdale: N = 715).	Experimental. The final follow-up surveys were conducted 42 to 78 months after program enrollment.	Tests of difference in regression-adjusted means	Abstinence (overall and last 12 months) Number of sexual partners Contraceptive use (first experience and last 12 months) Pregnancy, birth, and STD rates	NS NS NS NS
2 WAIT Training Weed (2005)	Rue and Weed (2005)	Paper presented at the 2005 Abstinence Evaluation Conference		The program was delivered to students, mostly 9th graders between the ages of 15 and 17 in four Colorado high schools (N = 318).	Quasi-experimental. Pretest, posttest, and 12-month follow-up conducted. The analysis did not control for baseline differences in characteristics between students in the program and those in the control group—a significant limitation.	Not specified	Initiation of sexual activity	NS

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* See first page of Appendix.

Studies Reporting No Significant Results (continued)

Abstinence Program	Author(s)	Publication	Peer Reviewed	Program Population	Evaluation Design	Statistical Method	Behavioral Outcome Measured	Findings*
3 California's Postponing Sexual Involvement	Kirby et al. (1997)	<i>Family Planning Perspective</i>	✓	Californian youths averaging 12.8 years old and in the 7th grade. The samples were racially and ethnically diverse (N = 7,340).	Experimental, three levels (classroom, school, and individual youth). Pretest and 17-month follow-up survey were conducted. In the sample based on school-level randomization, the control group was less likely to speak English at home and more likely to be Hispanic, have higher grades, have mothers with less education, have engaged in sexual activity ever, and have had more sexual partners. The study controlled for these differences. Study limitations include a lack of a strict no-treatment comparison group.	T-tests and chi-square tests of differences in changed outcome. Due to the large sample size, only findings at or above the 99 percent confidence level were considered statistically significant.	Initiation of sexual activity, sexual activity in past 3 and 12 months, and number of sexual partners Contraceptive use Pregnancy rates STD rates	NS NS Negative NS
4 Will Power/ Won't Power	Postrado and Nicholson (1992)	<i>Youth and Society</i>	✓	12- to 14-year-old girls who were involved with four Girls Incorporated member organizations (N = 412).	Pretest and one-year follow-up. Study participants who voluntarily enrolled in the program became the "treatment" group. The control group consisted of those who did not enroll. Program and control groups matched on a number of characteristics.	Chi-square tests, logistic regression	Initiation of sexual activity	NS
5 Virginitly Pledging	Brückner and Bearman (2005)	<i>Journal of Adolescent Health</i>	✓	Nationally representative sample of 19- to 25-year-olds in 2001 from the National Longitudinal Study of Adolescent Health, Wave 3 (N = 1,788 to 1,471, depending on the STD measure).	Longitudinal survey.	Cross-tabulations, tests of difference in the distribution of frequency (Wald test), and Kaplan-Meier	STD rates Initiation of sexual activity and number of sexual partners Risky behaviors Condom use First experience Previous 12 months, last episode	NS Positive Negative Negative NS

* See first page of Appendix.

REFERENCE LIST

Studies Reporting Significant Results

1. Stan Weed, Irene H. Ericksen, Allen Lewis, Gale E. Grant, and Kathy H. Wibberly, "An Abstinence Program's Impact on Cognitive Mediators and Sexual Initiation," *American Journal of Health Behavior*, Vol. 31, No. 1 (2008), pp. 60–73.
2. George Denny and Michael Young, "An Evaluation of an Abstinence-Only Sex Education Curriculum: An 18-Month Follow-Up," *Journal of School Health*, Vol. 76, No. 8 (October 2006), pp. 414–422.
3. Stan E. Weed, Irene H. Ericksen, and Paul James Birch, "An Evaluation of the Heritage Keepers Abstinence Education Program," Institute for Research and Evaluation (Salt Lake City), November 2005, at www.heritageservices.org/Stn%20Weed's%20HHS%20Conference%20article.pdf (December 1, 2006).
4. Elaine A. Borawski, Erika S. Trapl, Loren D. Lovegreen, Natalie Colabianchi, and Tonya Block, "Effectiveness of Abstinence-Only Intervention on Middle School Teens," *American Journal of Health Behavior*, Vol. 29, No. 5 (September/October 2005), pp. 423–434.
5. Robert Lerner, "Can Abstinence Work? An Analysis of the Best Friends Program," *Adolescent & Family Health*, Vol. 3, No. 4 (April 2005), pp. 185–192.
6. Andrew Doniger, John S. Riley, Cheryl A. Utter, and Edgar Adams, "Impact Evaluation of the 'Not Me, Not Now' Abstinence-Oriented, Adolescent Pregnancy Prevention Communications Program, Monroe County, N.Y.," *Journal of Health Communication*, Vol. 6, No. 1 (January–March 2001), pp. 45–60.
7. Stan E. Weed, "Title V Abstinence Education Programs: Phase I Interim Evaluation Report to Arkansas Department of Health, Institute for Research and Evaluation," October 15, 2001.
8. John B. Jemmott III, Loretta Sweet Jemmott, and Geoffrey T. Fong, "Abstinence and Safer Sex HIV Risk-Reduction Interventions for African American Adolescents: A Randomized Controlled Trial," *JAMA*, Vol. 279, No. 19 (May 20, 1998), pp. 1529–1536.
9. Tena L. St. Pierre, Melvin M. Mark, D. Lynne Kaltreider, and Kathryn J. Aikin, "A 27-Month Evaluation of a Sexual Activity Prevention Program in Boys & Girls Clubs Across the Nation," *Family Relations*, Vol. 44, No. 1 (January 1995), pp. 69–77.
10. Stephen R. Jorgensen, Vicki Potts, and Brian Camp, "Project Taking Charge: Six-Month Follow-Up of a Pregnancy Prevention Program for Early Adolescents," *Family Relations*, Vol. 42, No. 4 (October 1993), pp. 401–406.
11. Stan E. Weed *et al.*, "Predicting and Changing Teen Sexual Activity Rates: A Comparison of Three Title XX Programs," report to the U.S. Department of Health and Human Services, Office of Adolescent Pregnancy Programs, December 1992.
12. Michael Resnick *et al.*, "Protecting Adolescents from Harm: Findings from the National Longitudinal Study on Adolescent Health," *JAMA*, Vol. 278, No. 10 (September 10, 1997), pp. 823–832.
13. Peter S. Bearman and Hanna Brückner, "Promising the Future: Virginity Pledges and First Intercourse," *American Journal of Sociology*, Vol. 106, No. 4 (January 2001), pp. 852–912.
14. Robert E. Rector, Kirk A. Johnson, and Jennifer A. Marshall, "Teens Who Make Virginity Pledges Have Substantially Improved Life Outcomes," Heritage Foundation *Center for Data Analysis Report No. CDA04–07*, September 21, 2004, at www.heritage.org/Research/Abstinence/cda04-07.cfm.
15. Robert Rector and Kirk A. Johnson, "Adolescent Virginity Pledges, Condom Use, and Sexually Transmitted Diseases Among Young Adults," paper presented at the Eighth Annual National Welfare Research and Evaluation Conference of the Administration for Children and Families, U.S. Department of Health and Human Services, June 14, 2005, at www.heritage.org/Research/Welfare/upload/79366_1.pdf.

16. Robert Rector and Kirk A. Johnson, "Adolescent Virginity Pledges and Risky Sexual Behaviors," paper presented at the Eighth Annual National Welfare Research and Evaluation Conference of the Administration for Children and Families, U.S. Department of Health and Human Services, June 14, 2005, at www.heritage.org/Research/Welfare/upload/79314_1.pdf.

Studies Reporting No Significant Results

1. Christopher Trenholm, Barbara Devaney, Kenneth Fortson, Melissa Clark, Lisa Quay Bridgespan, and Justin Wheeler, "Impacts of Abstinence Education on Teen Sexual Activity, Risk of Pregnancy, and Risk of Sexually Transmitted Diseases," *Journal of Policy Analysis and Management*, Vol. 27, No. 2 (Spring 2008), pp. 255–276.
2. Lisa A. Rue and Stan E. Weed, "Primary Prevention of Adolescent Sexual Risk Taking: A School-Based Model," presented at the 2005 Abstinence Evaluation Conference, Baltimore, Maryland.
3. Douglas Kirby, Meg Korpi, Richard P. Barth, and Helen H. Cagampang, "The Impact of the Postponing Sexual Involvement Curriculum Among Youths in California," *Family Planning Perspectives*, Vol. 29, No. 3 (May–June 1997), pp. 100–108.
4. Leticia Postrado and Heather Johnston Nicholson, "Effectiveness in Delaying the Initiation of Sexual Intercourse of Girls Age 12–14: Two Components of the Girls Incorporated Preventing Adolescent Pregnancy Program," *Youth and Society*, Vol. 23, No. 3 (March 1992), pp. 356–379.
5. Hannah Brückner and Peter Bearman, "After the Promise: The STD Consequences of Adolescent Virginity Pledges," *Journal of Adolescent Health*, Vol. 36, Issue 4 (April 2005), pp. 271–278.

Five Studies Mentioned But Not Discussed in This Paper¹

1. Melissa A. Clark, Christopher Trenholm, Barbara Devaney, Justin Wheeler, and Lisa Quay, "Impacts of the Heritage Keepers Life Skills Education Component," Mathematica Policy Research, August 2007, p. 1, at www.mathematica-mpr.com/publications/PDFs/heritagekeepers08-07.pdf (February 27, 2008).
2. Elaine Borawski *et al.*, "Evaluation of the Teen Pregnancy Prevention Programs Funded Through the Wellness Block Grant (1999–2000)," Case Western Reserve University School of Medicine, Center for Health Promotion Research, Department of Epidemiology and Biostatistics, March 23, 2001.
3. Helen P. Koo, George H. Dunteman, Cindee George, Yvonne Green, and Murray Vincent, "Reducing Adolescent Pregnancy Through a School- and Community-Based Intervention: Denmark, South Carolina, Revisited," *Family Planning Perspectives*, Vol. 26, No. 5 (September–October 1994), pp. 206–211 and 217.
4. B. Helen Thomas, Alba Mitchell, and M. Corinne Devlin, "Small Group Sex Education: The McMaster Teen Program," in Brent C. Miller, Josefina J. Card, Roberta L. Paikoff, and James C. Peterson, eds., *Preventing Adolescent Pregnancy: Model Programs and Evaluations* (Newbury Park, Calif.: Sage Publications, Inc., 1992), pp. 28–52.
5. Marion Howard and Judith Blamey McCabe, "Helping Teenagers Postpone Sexual Involvement," *Family Planning Perspectives*, Vol. 22, No. 1 (January–February 1990), pp. 21–26.

1. *Supra*, p. 4.