



Another Look at the Evidence: Abstinence and Comprehensive Sex Education in Our Schools

There is a common perception that school-based *comprehensive* sex education programs are effective at protecting teens from the problems related to sexual activity while *abstinence* education programs are *not*. In fact, some have called for the complete abandonment of abstinence education. With 1 in 4 teen girls in the U.S. now infected with an STD,¹ there is clearly a need for more effective programs to protect adolescents. However, before a program can be called effective it is necessary to clarify what “effective” means. This document offers basic criteria for effective programs and presents evidence about the effectiveness of both comprehensive and abstinence-based sex education in our schools.

A. What is an Effective Program? After more than 15 years of evaluating school-based sex education programs, the *Institute for Research & Evaluation* suggests that effective programs should produce:

1. **Sustained Results**—The program’s impact on teens’ behavior should last for a substantial period of time, at least 12 months following their program participation.
2. **Broad-based Impacts**—Claims of significant program impact should be based on the entire group of program participants and not just on subgroups of the target population.
3. **Real Protection**—The program should impact the teen behaviors that have been proven to be protective: *sexual abstinence* or *consistent condom use* (i.e., using a condom every time). *Consistent* condom use is necessary because several studies have found that *non-consistent* use provided inadequate STD protection or resulted in higher rates of STDs.² However, even consistent condom use does not provide complete protection from STDs³ or prevent the increased emotional harm and sexual violence associated with teen sexual activity.⁴

B. Evidence of Effectiveness for School-based Comprehensive Sex Education. “Comprehensive sex education” (CSE) is a term applied to programs that purport to teach both abstinence and condom use as a central part of the curriculum. The Institute has reviewed the large body of research on the effectiveness of these programs in *school classroom* settings (excluding other settings such as clinics or community programs—see notation⁵). In this document we refer to these as “school-based” programs. Although the perception may be that CSE programs in the schools are successful, when they are evaluated against the above criteria, there is a surprising lack of evidence to support that assumption.⁶ For example:

1. The National Campaign to Prevent Teen and Unplanned Pregnancy published a landmark summary of 115 evaluation studies covering 20 years of research on sex education called *Emerging Answers 2007*. Their report states that two-thirds of the CSE programs they reviewed “had positive behavioral effects.”⁷ However, we found that:
 - No school-based CSE programs had been shown to increase the number of teens who used condoms consistently for more than 3 months.⁸
 - No school-based CSE programs demonstrated a decrease in teen pregnancy or STD rates for any subgroup for any period of time.⁹
 - Only two school-based CSE programs (as measured in 5 studies) delayed the onset of teen sexual intercourse for 12 months for the target population¹⁰ and only three programs increased frequency of condom use (but not *consistent* use) for the same time period.¹¹
 - No school-based CSE programs demonstrated that they had increased *both* teen abstinence and condom use (by the sexually active) for the target population for any time period.
 - Of the 25 school-based CSE programs that measured teen condom use, 64% did not increase condom use for any subgroup for any time period, even though the median follow-up time for these 16 programs was only 4 months.

2. Another report entitled *What Works 2008: Curriculum-Based Programs that Prevent Teen Pregnancy*¹² lists 28 prevention programs that it says have the “strongest evidence of success.”
 - Surprisingly, 20 of those 28 programs did not even measure rates of teen pregnancy as an outcome.
 - Of the 8 programs that measured pregnancy, only 3 reduced pregnancy rates for up to 12 months and none of them were school classroom-based CSE programs.¹³ Three of the 8 did not reduce pregnancy but were still listed as “programs that prevent teen pregnancy.”
 - *No school-based CSE programs in the report reduced teen pregnancy for any time period.*

C. Evidence of Effectiveness for School-based Abstinence Education. Abstinence education emphasizes avoiding sexual activity and adopting healthy lifestyles. It does not include condom instruction or promotion. Scientific evaluation is relatively new to abstinence education, and the number of good studies is limited. However, a pattern of evidence is emerging that indicates well-designed abstinence programs can be effective:

- Three recent peer-reviewed studies of school-based abstinence education found significant reductions in sexual activity for the target population of program participants. Two of the programs, *Heritage Keepers*¹⁴ and *Reasons of the Heart*,¹⁵ reduced the number of teens who became sexually active by about one-half, 12 months after the program. A third abstinence program, *Making a Difference*, produced significant reductions in teen sexual activity 24 months after the program.^{16,21}
- In *Emerging Answers 2007* one study of school-based abstinence education found a significant delay in the onset of teen sexual intercourse for the target population of middle school students, 18 months after the program.¹⁷
- Several studies have also found that abstinence education did not decrease condom use for teens who later became sexually active.^{18,19}
- Like many evaluations of abstinence education, the 3 peer-reviewed studies above did not measure impact on pregnancy or STDs.^{14,15,16} While it is evident that abstinent behavior eliminates these consequences, current studies of school-based abstinence programs have not demonstrated reductions in these outcomes.

D. Summary. Using the criteria outlined above to examine the body of research on the effectiveness of school-based sex education, we find the following:

1. Comprehensive sex education purports to promote *both* abstinence *and* condom use, yet we see no evidence that school-based CSE programs are effective at improving both of these outcomes.
2. School-based CSE programs have shown no evidence of effectiveness at decreasing *teen pregnancy* or *STDs*, or increasing *consistent condom use*.
3. Only a few school-based CSE programs have increased *any* type of condom use (e.g., at first or last intercourse) for a significant period of time.²⁰
4. Four school-based abstinence programs have produced broad-based and sustained increases in the percentage of youth who remain sexually abstinent.

E. Conclusions. The common perception about the effectiveness of these two prevention strategies is not accurate. When judged against criteria of 1) sustained results, 2) broad-based impacts, and 3) real protection, there is little evidence that school-based comprehensive sex education strategies are effective. The evidence does not indicate that combining abstinence education with contraceptive-based education in the classroom is effective. There is evidence that school-based abstinence education can be an effective prevention strategy. *In conclusion, the research does not support abandoning abstinence education in the schools for a comprehensive sex education strategy that has not produced sufficient evidence of success.*

Notes

1. Centers for Disease Control and Prevention. (2008). *Nationally Representative CDC Study Finds 1 in 4 Teenage Girls Has a Sexually Transmitted Disease*. Press Release 11 March – 2008 National STD Prevention Conference. Available at www.cdc.gov/stdconference/2008/media/release-11march2008.htm.
2. See Crosby RA, DiClemente RJ, Wingood GM, Lang D, Harrington KF. (2003). Value of consistent condom use: A study of sexually transmitted disease prevention among African American adolescent females. *American Journal of Public Health*; 93: 901–2.; Shlay JC, McCung MW, Patnaik JL et al. (2004). Comparison of sexually transmitted disease prevalence by reported level of condom use among patients attending an urban sexually transmitted disease clinic. *Sex Transm Dis*; 31(3):154–60.; Ahmed S, Lutalo T, Wawer M et al. (2001). HIV incidence and sexually transmitted disease prevalence associated with condom use: a population study in Rakai, Uganda. *AIDS*; 15(16):2171–9.; Grinsztejn B, Veloso V, Levi J, Velasque L, Luz P et al. (2009). Factors associated with increased prevalence of human papillomavirus infection in a cohort of HIV-infected Brazilian women. *International Journal of Infectious Diseases*, 13, 72–80.; Centers for Disease Control and Prevention. (2003). *Fact Sheet for Public Health Personnel—Male Latex Condoms and Sexually Transmitted Diseases*. National Center for HIV, STD, and TB Prevention. Atlanta, GA: U.S. Department of Health and Human Services (paragraph 4). Retrieved October 31, 2003 from www.cdc.gov/nchstp/od/latex.htm. According to the CDC, “inconsistent use, e.g., failure to use condoms with every act of intercourse, can lead to STD transmission because transmission can occur with a single act of intercourse” (CDC, 2003). A study in the journal *AIDS* (Ahmed et al., 2001) found, “Irregular condom use was not protective against HIV or STD and was associated with increased gonorrhea/Chlamydia risk.” A Denver study (Shlay et al., 2004) reported that “when all condom users were compared with non-users (N=126,220), there was limited evidence of protection against specific STD.” But when consistent vs. inconsistent users were compared, the consistent users had significantly lower infection rates.
3. See Weller S & Davis K. (2002). Condom effectiveness in reducing heterosexual HIV transmission. *Cochrane Database Syst Rev*, 1. [Abstract].; Sanchez J, Campos P, Courtois B, Gutierrez L, Carrillo C, Alarcon J et al. (2003). Prevention of sexually transmitted diseases (STDs) in female sex workers: Prospective evaluation of condom promotion and strengthened STD services. *Sexually Transmitted Diseases*, 30:273–9.; Holmes KK, Levine R, Weaver M. (2004). Effectiveness of condoms in preventing sexually transmitted infections. *Bull World Health Organ*, 82(6):454–461.
4. See Hallfors DD, Waller MW, Ford CA et al. (2004). Adolescent depression and suicide risk: association with sex and drug behaviors. *Am J Prev Med*. 27:224–230.; Sabia JJ & Rees DI. (2008). The effect of adolescent virginity status on psychological well-being. *Journal of Health Economics*, 27:1368–1381.; Silverman JG, Raj A, Clements K. (2004). Dating violence and associated risk and pregnancy among adolescent girls in the United States. *Pediatrics*, 114(2), e220–225.
5. The school classroom is the setting in which many CSE interventions and most abstinence programs occur. It is the setting most people think of when they hear the term “sex education.” It is probably the most cost-effective venue through which to deliver prevention programs to the greatest number of youth. And for the purpose of comparing the abstinence and CSE strategies, limiting our review to programs in this setting provides the most comparability, i.e., allows us to compare “apples to apples.” We define this category as programs that go through the school system to reach the students, and that are held in the school in a classroom or curriculum setting, including after school or Saturday classes. It does not include such programs as school-based clinics, school condom-distribution programs, or school-based service learning programs—many of which target high-risk populations, or school classroom-based character education or social development programs that do not address sexual health or abstinence. Restricting our review to school-based programs should not be construed to suggest that programs in other settings are not important, nor should it imply anything about their effectiveness. However, no matter how effective these programs may appear to be, assuming they would be equally effective with the more general population found in schools is unjustified. As we compare the effectiveness of the two approaches, we therefore constrain our review to school-based programs to provide the most useful comparison.
6. Weed S. *Testimony before the U.S. House of Representatives Committee on Oversight and Government Reform*. April 23, 2008.
7. Kirby D. (2007). *Emerging Answers 2007*. Washington DC: National Campaign to Prevent Teen and Unplanned Pregnancy, p.15.
8. Only 3 programs in *Emerging Answers 2007* reported significant program impact on consistent condom use that lasted more than 3 months; all were 12-month effects. One was a community-based parent training program for fathers of teen boys (Dilorio et al., 2007), one was a clinic-based program for high-risk girls (DiClemente et al., 2004), and the third was a school-based program that did not increase consistent condom use for the participants, but achieved a significant effect because the control group declined somewhat more substantially on this outcome than the treatment group (Villarruel et al., 2006). Two school-based programs increased consistent condom use for 3 months (Jemmott et al, 1998 & Walter & Vaughn, 1993).
9. Seven non-school-based prevention programs in *Emerging Answers 2007* reported reduction in pregnancy rates for the full program group at least 9 months after the program. One was an abstinence program (Doniger et al., 2001), two were service learning programs (Allen et al., 1997 & Philliber et al., 1992), one was a social development program for elementary school children and their parents that included no sex education or discussions of sex (Lonzak et al., 2002), one was a multi-component youth development program, including clinic services (Philliber et al., 2002), one was an in-home parent training program (Stanton et al., 2004) and the last was a clinic-based program (Winter et al., 1991). Only 3 prevention programs in *Emerging Answers 2007* reported reducing STD rates for more than 6 months after the program. Two were clinic-based programs for high-risk teens (DiClemente et al., 2004 & Jemmott et al., 2005, both 12-month effects) and the third was a time-intensive parent training program that had a 24-month effect on reducing teen STDs (Prado et al., 2007).

10. Four different evaluations of *Reducing the Risk* (Hubbard et al., 1998, Kirby et al., 1991, Zimmerman et al., in press, and Zimmerman et al., in press) found reductions in teen sexual initiation after at least one year, as reported in *Emerging Answers 2007*. The Hubbard study also reported increased condom use, but only for the subgroup of students not sexually experienced at the pretest. The other school-based CSE program was *Postponing Sexual Involvement* (see Howard M. & McCabe JB. (1990). Helping teenagers postpone sexual involvement. *Family Planning Perspectives*, 22: 21–26). This program was developed as a 5-day abstinence intervention presented following a human sexuality program that included birth control information (which had been evaluated previously and found to be ineffective). There is debate as to whether this should be considered an evaluation of an abstinence program. Four studies of non-school-based sex education programs in *Emerging Answers 2007* reported reduced rates of sexual initiation for the full program group for at least 12 months: one was clinic-based CSE, one was CSE at a drug treatment center (St. Lawrence, 1995 & 2002, respectively), one was a community-based CSE program within public housing (Sikkema et al., 2005), and one was a social skills program that did not teach about sexuality at all (Lonczak et al., 2002).
11. See Coyle et al., 2004, Fisher et al., 2002, and Jemmott et al., 1998, in *Emerging Answers 2007*. Six other school-based programs are reported in that review which increased condom use (but not *consistent* use) for 3 or 6 months or for a subgroup of program participants.
12. National Campaign to Prevent Teen and Unplanned Pregnancy. (2008). *What Works 2008: Curriculum-Based Programs That Prevent Teen Pregnancy*. Washington DC: author.
13. See Philliber S, Kaye JW, Herrling S, West E. (2002). Preventing pregnancy and improving health care access among teenagers: An evaluation of the Children’s Aid Society-Carrera Program. *Perspectives on Sexual and Reproductive Health*, 34(5), 244–251. (This was a multi-component youth development program, including clinic services.); Lonczak HS, Abbott RD, Hawkins JD, Kosterman R, Catalano RF. (2002). Effects of the Seattle Social Development Project on sexual behavior, pregnancy, birth, and sexually transmitted disease outcomes by age 21 years. *Archives of Pediatric Adolescent Medicine*, 156:439–447. (This was a social development program for elementary school children and their parents—it included no sex education or discussions of sex.); Stanton B, Cole M, Galbraith J, Li X, Pendleton S et al. (2004). Randomized trial of a parent intervention: Parents can make a difference in long-term adolescent risk behaviors, perceptions, and knowledge. *Archives of Pediatric Adolescent Medicine*, 158: 947–955. (This program trained parents in their homes.) There were 3 other programs that reported reductions in pregnancy for a shorter follow-up time (less than 12 months after the program). Two were “service learning” programs in which students left their schools to provide service in the community, and the other was based at a medical clinic.
14. Weed SE, Ericksen IH, Birch PJ. (2005). An evaluation of the *Heritage Keepers Abstinence Education* program. In Golden A (ed.) *Evaluating Abstinence Education Programs: Improving Implementation and Assessing Impact*. Washington DC: Office of Population Affairs and the Administration for Children and Families, Department of Health & Human Services 2005:88–103.
15. Weed SE, Ericksen IE, Lewis A et al. (2008). An Abstinence Program’s Impact on Cognitive Mediators and Sexual Initiation. *Am J Health Behav*; 32(1):60–73.
16. Jemmott III JB, Jemmott LS, Fong GT. (2006). Efficacy of an abstinence-only intervention over 24 months: a randomized controlled trial with young adolescents. Oral abstract session: AIDS 2006 - XVI International AIDS Conference: Abstract no. MOAX0504.
17. Denny G & Young M. (2006). An evaluation of an abstinence-only sex education curriculum: An 18-month follow-up. *Journal of School Health*, 76(8): 414–422.
18. See Jemmott et al., 2006, above, and Trenholm C, Devaney B, Fortson K, Quay L, Wheeler J, Clark M. (2007). *Impacts of Four Title V, Section 510 Abstinence Education Programs*. Princeton, NJ: Mathematica Policy Research, Inc. April 2007.
19. One study has reported that teens who took a virginity pledge were less likely to use condoms the first time they had intercourse. However, there was no indication as to whether these teens had received an abstinence education program, and they were not less likely to use condoms at last intercourse or over a 12-month period than non-pledging teens. See Bruckner H & Bearman P. (2005). After the promise: The STD consequences of adolescent virginity pledges. *The Journal of Adolescent Health*, 36(4):271–278.
20. We acknowledge that there are several studies of school-based comprehensive sex education which have shown statistically significant effects on various lesser measures of sexual activity and condom or contraceptive use. However, of 20 programs that showed some effect on any outcome, only 5 of them showed effects that met all of our criteria. Our position is that the 15 other programs may have some evidence of affecting behaviors that are potential antecedents of other important outcomes and suggest studies that should be replicated with measures meeting our criteria. However, the criteria we have established are designed to identify programs with sufficient evidence to justify widespread replication and higher financial support. As such, only the 5 studies showed such evidence, none of which met criteria for both an abstinent and a condom outcome and representing only 2 distinct programs (one program was evaluated 4 separate times). This does not represent sufficient evidence to support the replication of the strategy of comprehensive sex education as a whole, notwithstanding the relatively large number of studies that attained these lesser outcomes.
21. There were 8 out of 16 abstinence education studies that showed no effect on any protective behavior. The median follow-up length of these studies was 34 months, much longer than the 4-month median follow-up for the comprehensive programs that showed no effect.

Published by The Institute for Research & Evaluation, Salt Lake City, UT. Revised May 13, 2009.