



Another Look at the Evidence: Abstinence and Comprehensive Sex Education in America's 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* effective. 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. After more than 15 years of evaluating school-based sex education programs, the *Institute for Research & Evaluation* (IRE) has determined that there are several key criteria for measuring program success. This paper reviews research evidence about the effectiveness of sex education programs in our schools using those criteria.

A. What is an Effective Program? In order to merit widespread dissemination, sex education programs in the schools 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, i.e., from one school year to the next.²
2. **Broad-based Impacts**—Claims of significant program impact should be based on the entire group of program participants and not just on a subgroup of the target population. While subgroup effects can be important indicators of promising programs, they are not sufficient to justify widespread replication.
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 STD transmission can occur in one sexual contact and some studies found that *non-consistent* use provided inadequate STD protection or resulted in higher rates of STDs.³ However, even consistent condom use does not provide complete protection from STDs⁴ or prevent the increased emotional harm and sexual violence associated with teen sexual activity.⁵

Using these criteria, IRE has reviewed the large body of research on the outcomes of sex education programs in school classroom settings (excluding other settings such as clinics or community programs—see notation⁶). The findings on these “school-based” programs are summarized below.

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. Notwithstanding the common perception that CSE programs in the schools are successful, when they are evaluated against the above three criteria, there is little evidence to support that perception. 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 in the U.S., called *Emerging Answers 2007*. Their report states that two-thirds of the CSE programs they reviewed “had positive behavioral effects.”⁷ However, of the 32 studies of *school-based* CSE programs:
 - **No school-based CSE programs were shown to increase the number of teens who used condoms consistently, for more than a 3-month time period.**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.**¹²
2. Another national report, titled *What Works 2008: Curriculum-Based Programs that Prevent Teen Pregnancy*¹³ 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.¹⁴ Three of the 8 did not reduce pregnancy but were still listed as “programs that prevent teen pregnancy.”
 - **No school-based CSE programs showed a reduction in teen pregnancy for any time period.**

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

- **Four recent peer-reviewed published studies of school-based abstinence education found significant reductions in sexual activity for the target population of teens, 12 months or more after program participation.** Two of the programs, *Heritage Keepers*¹⁵ and *Reasons of the Heart*,¹⁶ reduced the number of teens who became sexually active by about one-half, 12 months after the program. The third study of a school-based abstinence program, *Sex Can Wait*, 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 And a fourth school-based program, *Making a Difference*, produced significant reductions in teen sexual activity 24 months after the program.¹⁸ A fifth study of school-based abstinence education (*Choosing the Best*) found a 60% reduction in sexual activity for the teen population after 12 months.¹⁹ This study is as yet unpublished but met the criteria for inclusion in a federally sponsored meta-analysis after under-going a peer review process.²⁰
- **Several studies have also found that abstinence education *did not decrease condom use* for teens who later became sexually active.**^{21,22}
- Like many evaluations of abstinence education, the 5 peer-reviewed studies above did not measure impact on pregnancy or STDs.¹⁵⁻¹⁹ While it is evident that abstinent behavior would eliminate these consequences, current studies of school-based abstinence programs have not demonstrated reductions in these outcomes.

D. Comparative Effectiveness. One reason for the perception that CSE is more effective than AbEd may be that CSE has often been held to different and lower standards or criteria of effectiveness (e.g., improvement on any behavior, for any subgroup, or for a short time period).⁷ However, when using the same yardstick to measure each approach, IRE found no evidence that school-based CSE was more effective than AbEd...

- Using the lower standards, 44% of school-based abstinence programs had improved rates of teen abstinence, while 36% of CSE programs had improved some measure of condom use.^{7, 15-19}
- Although 44% of the CSE studies showed some improvement in abstinence, **no school-based CSE programs had demonstrated increases in both abstinence and condom use for the target population, thus showing no real advantage over abstinence programs.**^{7, 15-19}
- Using the higher standard of effectiveness—an increase in teen abstinence or *consistent* condom use for the target population for at least 12 months—IRE found **5 out of 14 studies of AbEd (36%) and 5 out of 20 studies of CSE (25%) showed increases in abstinent behavior.** (None found an increase in consistent condom use.) Four of the 5 CSE studies were of the *Reducing the Risk* curriculum. **Thus, the 5 CSE studies represented 2 effective programs¹⁰ while the 5 AbEd studies represented 5 effective AbEd programs.**^{7, 15-19}

E. Summary of Evidence.

1. Comprehensive sex education purports to promote *both* abstinence *and* condom use, yet, while a few programs achieved one or the other of these outcomes, IRE found no evidence that school-based CSE programs were effective at improving both of these outcomes in the same program.
2. School-based CSE programs have shown no evidence of effectiveness at decreasing *teen pregnancy* or *STDs*, or increasing *consistent condom use*. (Only a few school-based CSE programs have increased *any* measure of condom use, e.g., at first or last intercourse, for a significant period of time.)
3. Five school-based AbEd programs have produced broad-based and sustained increases in the percentage of youth who remain sexually abstinent, compared to 2 CSE programs.
4. When judged by the same standards of 1) sustained results, 2) broad-based impacts, and 3) real protection, there is more evidence of success for AbEd (36%, 5 programs) than for CSE (25%, 2 programs).²³

F. Conclusions. The common perception that research evidence proves comprehensive sex education in the schools to be more effective than abstinence education is not accurate. When looking at the school classroom setting, there is very little evidence that the comprehensive strategy has been effective. In fact, there is somewhat more evidence supporting abstinence education. Furthermore, research does not support combining abstinence and condom instruction in the same classroom. **In conclusion, the research does not support abandoning abstinence education in the schools in favor of a comprehensive sex education strategy that has not produced sufficient evidence of success.**

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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. This standard is commonly used by researchers evaluating youth programs. For example, “Sustained impact,” defined as “at least one year beyond treatment” is required by the “Blueprints Programs” of the Center for the Study and Prevention of Violence, for the designation of an intervention as an effective or model program. See <http://www.ojp.usdoj.gov/BJA/evaluation/evidence-based.htm> and <http://www.colorado.edu/cspv/blueprints/criteria.html>.

3. 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.

4. Consistent condom use is the behavior upon which most estimates of condom effectiveness are based. 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.

5. 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.

6. 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 community-based service learning programs that operate through a school (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, it cannot be assumed that they would be equally effective with a school-based population and setting without evidence to that effect. As we compare the effectiveness of the two approaches, we therefore constrain our review to school-based programs to provide the most useful comparison.

7. Kirby D. (2007). *Emerging Answers 2007*. Washington DC: National Campaign to Prevent Teen and Unplanned Pregnancy, p.15.

8. Only 10 CSE studies in *Emerging Answers 2007* measured this outcome and only 3 programs 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 (Lonczak 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. Two school-based CSE programs showed an increase in abstinence *and* condom use but in each case one of the effects was for a subgroup of the target population: an evaluation of *Reducing the Risk* showed a delay in sexual initiation for the full target population and an increase at the same time point (18-month follow-up) in teen condom use for the subgroup that was not sexually initiated at the pretest; a study of *Safer Choices* found an increase in condom use by the target population and a delay in sexual initiation for a Hispanic subgroup of the population after 31 months. (See Hubbard et al., 1998 and See Coyle et al., 2001/2004, in *Emerging Answers 2007*.)

13. National Campaign to Prevent Teen and Unplanned Pregnancy. (2008). *What Works 2008: Curriculum-Based Programs That Prevent Teen Pregnancy*. Washington DC: author.

14. 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.

15. 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.

16. 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.

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. 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.

19. Weed SE, Anderson NA, Ericksen IE. (unpublished). What kind of abstinence education works? Comparing outcomes of two approaches. March 25, 2008.

20. Centers for Disease Control & Prevention, in progress.

21. 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.

22. 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.

23. 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 studies that showed some effect on any outcome, only 5 of them showed effects that met the criteria of *sustained results*, *broad-based impacts*, and *real protection*. The 15 other studies may have identified some promising programs. However, these criteria were proposed as a way to identify programs that show evidence of success that is sufficient to justify widespread replication and higher financial support. As such, only the 5 studies showed such evidence, none of these met criteria for both improved abstinence and condom use (by teens who won’t abstain), and they represent only 2 distinct programs (one program was evaluated 4 separate times). This does not constitute sufficient evidence to support systematic implementation of the comprehensive sex education strategy in the American school system, notwithstanding the higher number of studies that attained lesser outcomes.