



An Evidence-Based Response to a Critique of Abstinence Education

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A recent article in the *Journal of Adolescent Health (JAH)* presents itself as an “updated review of abstinence-only-until-marriage” (AOUM) education programs for adolescents. The review claims that all risk avoidance or abstinence education (AE) programs are “scientifically and ethically problematic”¹ and proceeds to assert several disadvantages or detriments of such programs, with purportedly updated supporting evidence. Although presented as a scientific report, the article offers little scientific evidence for several of its key assertions, which appear ideologically driven rather than data based. Much of the evidence that *is* presented is problematic. Below are six evidence-based responses to claims made in the article, whose lead author is John S. Santelli, M.D., M.P.H.

1. Psychological and Physical Harms of Teen Sex

Claims by Santelli, et al.:

The Santelli article is critical of AE for suggesting that “sexual activity outside of the context of marriage is likely to have harmful psychological and physical effects.” Further, it states: “We find little evidence suggesting that consensual sex between adolescents is psychologically harmful.”²

Evidence-Based Response:

There is substantial research evidence indicating that sexual activity by adolescents, especially females, is associated with psychological and/or physical harm, harm not prevented by condom use.

- a. Of the three scientific studies offered in the *JAH* article as support for its contention that teen sex is not psychologically harmful, two did not test this assertion, and the third found evidence of psychological harm that varied by gender and nationality.³
- b. A considerable amount of evidence shows that sexual relations for adolescents, especially females, is psychologically detrimental:
 - Meier (2007) found that sexual initiation was emotionally harmful for adolescents in a number of categories and circumstances: for younger teens (male or female) who had sex and the relationship “broke up,” for female teens (regardless of age) who had sex and the relationship “broke up,” and for younger female teens regardless of relationship status.⁴

- Sabia (2008) found a causal relationship between sexual activity and depression for adolescent females.⁵
 - Hallfors and associates found sexually active teens were at higher risk for depression and suicide—although sexual initiation was more detrimental to girls than boys.⁶
 - Spriggs and Halpern found sexual debut related to depressive symptoms for adolescent females but not for “emerging adults.”⁷
 - Else-Quest, et al., found adolescent sexual debut was associated with lower life satisfaction in later years for both males and females, regardless of age at first sex.⁸
 - In a national survey taken in 2014, a majority of young adult women (18-24 years old) expressed regret about initiating sexual activity: two-thirds of those who were sexually experienced said they wish they had waited longer to initiate sex. Only 24% said they felt happy about losing their virginity.⁹
- c. The physical harms of sexual activity for adolescents are well documented:
- Teen sexual initiation is associated with a higher likelihood of experiencing sexual exploitation (such as statutory rape), dating violence (sexually active high school girls are almost five times more likely to be victimized by dating violence than girls who are abstinent), and unwanted or forced intercourse/rape.¹⁰ These harms are not preventable by contraceptive use.
 - In addition to high levels of teen pregnancy, the U.S. Centers for Disease Control and Prevention (CDC) reports that sexually transmitted diseases (STDs) are at epidemic levels in teens and rising: “1 in 4 sexually active adolescent females has an STD.”¹¹
 - Even consistent and correct condom use does not provide the 100% protection from STDs and HIV afforded by abstinence.¹²
 - Delaying sexual initiation is recommended by experts as a key strategy for HIV reduction.¹³
- d. Sexual activity is disproportionately harmful to minority youth.
- According to O’Donnell, et al., “Early sexual initiation is associated with multiple negative health outcomes for which minority youth and young adults are at disproportionate risk, including HIV and AIDS, [STDs], unintended pregnancy ... and intimate partner violence.”¹⁴ In the U.S., almost one-half (44%) of African American teenage girls has an STD, and among female teens who are infected with HIV, 71% are African American.¹⁵
 - These disproportionate physical consequences of sexual activity also represent disproportionate sources of psychological distress in the lives of minority youth.

The above statements by Santelli, et al., seem to disregard the consistent evidence that sexual activity is harmful to adolescent females, and especially to those who are African American.

2. Effectiveness of Comprehensive Sex Education (CSE)

Claims by Santelli, et al.:

In addition to criticizing AE, the *JAH* article states that, “Adolescent sexual and reproductive health promotion should be based on scientific evidence”¹⁶ and cites researchers who claim CSE is an effective strategy.

Evidence-Based Response:

Many, if not most, U.S. adolescents who receive sex education receive it in a school setting, and the research evidence does not show that school-based CSE programs have been effective.

- a. Santelli, et al., cite a meta-analysis sponsored by the CDC as concluding “CRR [meaning CSE] programs were an effective strategy for reducing adolescent pregnancy and STI/HIV among adolescents.”¹⁷
 - However, this same CDC-sponsored study did *not* find that CSE programs in *school settings* were effective on many of the most important protective outcomes: there were not significant effects on teen condom use, use of protection (meaning condom or contraception use), teen pregnancy, or STDs.¹⁸
 - Moreover, the effect for school-based CSE on teen pregnancy was in the wrong direction, suggesting a tendency by these programs to *increase* rather than decrease pregnancy rates.¹⁹
- b. The Santelli article referenced a recent review of school-based sex education (Denford, et al., 2017) as evidence of AE inferiority to CSE. Not mentioned is that this review found inconsistent results for CSE programs in schools—including many null and some negative effects—and determined the evidence would not support drawing conclusions about CSE: “Whilst positive changes in reported behaviour were observed in some studies, findings were not consistent enough to draw firm conclusions (Jones et al., 2009a; Kim & Free, 2008; Kirby, 2005, 2007; Underhill et al., 2008; Yamada et al., 1999). Indeed, some studies found improvements while others reported negative or null effects for the same outcome. Health-related outcomes were rarely reported, and when they were, few positive changes were observed (DiCenso et al., 1999; Jones et al., 2009a; Kirby, 2005, 2007; Underhill et al., 2008). One review presented evidence that, in some instances, comprehensive programmes may increase sexual intercourse (Kirby, 2005) ...” and, “It was often not possible to identify ... change that could be attributed to exposure to an intervention ... positive changes were inconsistent.”²⁰
- c. This lack of positive findings for school-based CSE programs was confirmed by the results of a recent scholarly review of 78 of some of the strongest and most recent studies of U.S. school-based sex education (contained in databases screened for research quality by HHS, CDC, or UNESCO).²¹ The reviewers applied criteria for effectiveness derived from the field of prevention research (effects sustained 12 months after the program on protective indicators for the main intended population) to these programs and found far more evidence of CSE failure than success (see their review for full documentation of the findings below):

- Out of 60 school-based CSE studies, none demonstrated sustained reductions in teen pregnancy or STDs. One program produced a short-term reduction in teen pregnancy, but was found to *increase* teen pregnancy in a separate study.²²
- Of the three school-based CSE programs that reported sustained increases in teen abstinence (12 months after the program), multiple replication studies (12 in all) did not confirm these positive results and found one negative outcome.²³
- None of the school-based CSE programs showed effectiveness at increasing *consistent* condom use by teens (consistent use is required for best protection). The one program that reported a sustained effect, *¡Cuidate!*, was found in an independent replication study to *increase* multiple sexual risk behaviors, negating the program's claim to effectiveness (as defined by the field of prevention research²⁴).
- Just three studies (conducted by the programs' developers) showed evidence of success at producing 12-month increases in *frequency* of condom use (a less-protective behavior than *consistent* use), but these findings have not been replicated.
- Five of the school-based CSE programs produced significant negative effects: either an increase in teen sexual initiation, recent sex, oral sex, or pregnancy, or a decrease in contraceptive use.

3. Effectiveness of Abstinence Education

Claims by Santelli, et al.:

According to the Santelli article, research shows that AE programs are ineffective and suggests they do harm by decreasing contraceptive use.²⁵ However, the evidence given for these assertions has several problems.

Evidence-Based Response:

There is promising evidence for AE effectiveness at increasing teen abstinence and strong evidence that AE does not decrease condom use, based on the most recent peer-reviewed studies.

- a. Much of the supporting evidence cited in the Santelli article is dated and redundant—it does not contain the most recent studies of school-based abstinence education, and many of the supporting citations contain the same set of older reviews.
- b. Most of these older reviews of AE research cited by Santelli, et al., are undermined by the inclusion of several ostensibly rigorous studies that have serious methodological concerns. The Kirby review (2007), the Underhill review (2007), the CDC-sponsored review (2012), and the Denford review (2017) cited as sources in the *JAH* article contain most of these problematic studies (up to six in all) in which the research design would tend to underrepresent the impact of the AE programs they evaluated.²⁶
- c. Thus, the *JAH* article does not represent the current and best research evidence for AE effectiveness. Instead, the totality of AE research shows the following:
 - In the same database of school-based sex education studies cited above (peer reviewed for research quality by either HHS, the CDC, or UNESCO), seven of the

18 studies of AE showed delayed sexual initiation at least 12 months after the program.²⁷ More replication studies should be done to verify these results.²⁸

- This same body of studies produced strong evidence refuting the claim that AE reduces teen condom use. Of the nine rigorous studies that measured AE impact on condom use eight found no negative program effects, and one showed a significant 12-month *increase* in teen condom use.²⁹
- The effect of AE on pregnancy or STDs is largely unknown because AE studies typically have not measured those outcomes. It can be safely assumed, however, that abstaining from sexual activity will offer significant protection from these harms.
- With regard to negative impacts, one AE study found some short-term negative effects that disappeared at the longer-term follow-up and were replaced by several positive long-term outcomes.³⁰

4. Impact of Virginitv Pledges

Claims by Santelli, et al.:

The Santelli article suggests that negative findings for teens who have taken a “virginitv pledge” (a pledge to be abstinent until marriage) indicate a lack of effectiveness of abstinence education, and specifically, that taking a virginitv pledge causes higher teen pregnancy and STD rates. These claims are not supported by the evidence.

Evidence-Based Response:

Taking a virginitv pledge has produced more positive or null effects than negative effects in multiple outcome studies; the evidence on pregnancy and condom use is inconsistent.

First, it should be kept in mind that simply taking a virginitv pledge is not equivalent to participating in a school-based AE program, and the results of taking such a pledge cannot be generalized to AE. Some pledges are made after attending only a single religious youth rally or a one-time assembly at school. This is a very different type of intervention than the typical multi-session, multi-dimensional AE curriculum.

Disregarding this “apples to oranges” comparison, a review of research on virginitv pledges shows:

- a. Eight published studies have examined the long-term effects of virginitv pledges (all from the same database), but Santelli, et al., cite only three and ignore the findings of the others.
- b. The three studies cited by the Santelli article all use the same database, with all measuring the effects of taking a virginitv pledge five to seven years after the fact. This length of duration for a program effect is an unrealistic expectation for most behavior change interventions, and is a much longer duration than has typically been tested in CSE studies.
- c. Overall, the eight studies found more positive or null effects than negative impacts from taking a virginitv pledge. Again, it should be remembered that these “effects” were measured five to seven years after the pledge occurred:

- Five of the eight studies found pledging reduced teen sexual activity: five reported delayed sexual initiation, and three of the five also found a reduced number of sex partners.³¹
- The four studies that measured STD rates found no overall difference;³² though one of the studies found that a small, high-risk subgroup of “pledgers” had an increase.³³
- Two studies found no difference in oral/anal sex rates,³⁴ and one study found an increase in likelihood of oral sex, but only for those who had not had vaginal sex.³⁵
- Five to seven years later, the effects of pledging were mixed for teen pregnancy and condom use: one study found a reduction in teen pregnancy and one found a slight increase;³⁶ three studies found no effects on condom use³⁷ while three others showed a reduction.³⁸ (This compares to the nine rigorous studies of actual AE programs, mentioned above, that measured condom use and found no negative effects.)

5. The Best Protection for Teens

Claims by Santelli, et al.:

The *JAH* article recommends CSE over AE as providing superior protection for adolescents.

Evidence-Based Response:

Research evidence shows that for adolescent populations in U.S. schools, AE currently provides protection that is superior to CSE.

- a. Given that the partial protection provided by condom use is inferior to the total protection of abstinence, if a CSE program increases teen condom use but not abstinence, it does not offer a benefit superior to an AE program that produces a comparable increase in abstinence. Thus, any specific CSE program should only be viewed as offering superior protection over an effective AE program if it increases *both* teen abstinence and condom use (by the sexually active) *for the same teen population within the same program.*
- b. Research shows school-based CSE programs have not been effective at producing this dual benefit. In the above database containing 60 of the best studies of school-based CSE:
 - None showed evidence of effectiveness at increasing both teen abstinence and condom use within the same program/population, 12 months after the program.³⁹
 - Only three programs showed evidence of short-term effects on both outcomes.⁴⁰
- c. In the same database (containing 18 AE studies) there was more evidence of success for school-based AE than CSE programs at protecting teens by reducing risk behavior:
 - Seven out of 18 AE studies (representing seven AE programs) found 12-month delays in sexual initiation. (Two replication studies have been done, with inconsistent results.)⁴¹
 - This compares to four out of 60 school-based CSE studies (representing only three programs) that showed 12-month delays in sexual initiation. But the replication evidence from 12 additional studies of these programs did not confirm the initial positive results.⁴²

- These findings, combined with the fact that only three of the 60 school-based CSE studies showed evidence of producing a sustained increase in frequency of condom use,⁴³ seem to support a statement by Douglas Kirby, Ph.D., one of the foremost sex education researchers of the past three decades, who said, "...it may actually be easier to delay the onset of intercourse than to increase contraceptive practice."⁴⁴
- d. According to the CDC, only abstinence provides superior and complete protection, as expressed in the following position statement, currently posted on their website:
- "Abstinence from vaginal, anal, and oral intercourse is the only 100% effective way to prevent HIV, other STDs, and pregnancy. The correct and consistent use of male latex condoms can reduce the risk of STD transmission, including HIV infection. However, no protective method is 100% effective, and condom use cannot guarantee absolute protection against any STD or pregnancy."⁴⁵

6. Do CSE Advocates Rely on the Scientific Evidence of Sex Education Effectiveness?

Claims by Santelli, et al.:

The *JAH* article declares that policymakers "in the United States and elsewhere should support medically accurate, evidence-based, and scientifically justified approaches to sexuality education for young people."⁴⁶

Evidence-Based Response:

As suggested by the testimony of Dr. John Santelli, the lead author of the JAH article, it would appear that ideology overrides scientific evidence for this prominent CSE advocate.

- At a hearing in the U.S. House of Representatives in 2008, when asked by Congresswoman Virginia Foxx whether he would support funding for AE "if provided evidence that abstinence education programs are as, or more, effective than comprehensive sex education ...," Dr. Santelli simply replied "No."⁴⁷

In closing, we would observe that several comments in the "Summary" section of the *JAH* article seem to apply better to school-based CSE than to AE. This can be illustrated by substituting "school-based CSE" for "AOUM (Abstinence-Only-Until-Marriage)" in these statements made on page 278: "[School-based CSE] programs have little demonstrated efficacy in helping adolescents to delay intercourse [or increase condom use] ... While [school-based CSE] is theoretically ... protective against pregnancy and STIs, in actual practice, [school-based CSE] programs fail to prevent these outcomes. [School-based CSE] programs have generated considerable political support ... despite their lack of scientific evidence of efficacy."⁴⁸ The article concludes by saying that governments should support "evidence-based, and scientifically justified approaches to sexuality education for young people."⁴⁹

We wholeheartedly agree and urge all advocates for youth to examine the evidence presented here.

ENDNOTES

1. Santelli, J. S., Kantor, L. M., Grilo, S. A., et al. (2017). Abstinence-Only-Until-Marriage: An Updated Review of U.S. Policies and Programs and Their Impact. *Journal of Adolescent Health, 61*(3), 273-280, see p. 273.
2. Santelli, J. S., Kantor, L. M., Grilo, S. A., et al. (2017). Abstinence-Only-Until-Marriage: An Updated Review of U.S. Policies and Programs and Their Impact. *Journal of Adolescent Health, 61*(3), 273-280, see p. 275.
3. Anda, R. F., Brown, D. W., Felitti, V. J., et al. (2008). Adverse childhood experiences and prescription drug use in a cohort study of adult HMO patients. *BMC Public Health, 8*, 198; Koenig, M. A., Zablotska, I., Lutalo, T., et al. (2004). Coerced first intercourse and reproductive health among adolescent women in Rakai, Uganda. *International Family Planning Perspectives, 30*(4), 156-63; Madkour, A. S., Farhat, T., Halpern, C. T., et al. (2010). Early adolescent sexual initiation and physical/psychological symptoms: A Comparative analysis of five nations. *Journal of Youth Adolescence, 39*, 1211e25.
4. Meier, A. M. (2007). Adolescent First Sex and Subsequent Mental Health. *American Journal of Sociology, 112*(6), 1811-1847.
5. Sabia, J. J. & Rees, D. I. (2008). The effect of adolescent virginity status on psychological well-being. *Journal of Health Economics, 27*, 1368–1381.
6. Hallfors, D. D., Waller, M. W., & Ford, C. A., et al. (2004). Adolescent depression and suicide risk: association with sex and drug behaviors. *American Journal of Preventive Medicine, 27*(3), 224–231; Waller, M. W., Hallfors, D. D., Halpern, C. T., et al. (2006). Gender differences in associations between depressive symptoms and patterns of substance use and risky sexual behavior among a nationally representative sample of U.S. adolescents. *Archives of Women's Mental Health, 9*, 139–150; Rector, R., Johnson, K., Noyes, L. Sexually Active Teenagers are More Likely to be Depressed and to Attempt Suicide. (2003). Retrieved from <http://www.heritage.org/education/report/sexually-active-teenagers-are-more-likely-be-depressed-and-attempt-suicide>.
7. Spriggs, A. L. & Halpern, C. T. (2008). Sexual debut timing and depressive symptoms in emerging adulthood. *Journal of Youth and Adolescence, 37*(9), 1085–1096.
8. Else-Quest, N. M., Hyde, J. S., DeLamater, J. D. (2005). Context counts: Long-term sequelae of premarital intercourse or abstinence. *Journal of Sex Research, 42*, 102e12.
9. Kramer, A. (2014). Virgin Territory: What Young Adults Say About Sex, Love, Relationships, and the First Time. *The National Campaign to Prevent Teen and Unplanned Pregnancy*. Retrieved from <https://thenationalcampaign.org/sites/default/files/resource-primary-download/virgin-territory-final.pdf>
10. Silverman, J. G., Raj, A., Clements, K. (2004). Dating violence and associated risk and pregnancy among adolescent girls in the United States. *Pediatrics, 114*(2), 220–225; Moore, K., Manlove, J. (2005). A demographic portrait of statutory rape. Presentation to Conference on Sexual Exploitation of Teens. Retrieved from https://www.researchgate.net/publication/268042180_A_Demographic_Portrait_of_Statutory_Rape.
11. U.S. Centers for Disease Control and Prevention. (2016). *Sexually Transmitted Disease Surveillance 2015*. Retrieved from <https://www.cdc.gov/std/stats15/STD-Surveillance-2015-print.pdf>.
12. Consistent condom use is the behavior upon which most estimates of the condom's protective capacity are based. The level of STD protection provided by consistent condom use ranges from a 30% risk reduction for genital herpes to 80% risk reduction for HIV transmission. See Martin, E. T., Krantz, E., Gottlieb, S. L., Magaret, A. S., Langenberg, A., et al. (2009). A Pooled Analysis of the Effect of Condoms in Preventing HSV-2 Acquisition. *Archives of Internal Medicine, 169*(13), 1233–1240; Weller, S. & Davis, K. (2002). Condom effectiveness in reducing heterosexual HIV transmission. *The Cochrane Database of Systemic Reviews, 1*; 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*(4), 273–279; Holmes, K. K., Levine, R., Weaver, M. (2004). Effectiveness of condoms in preventing sexually transmitted infections. *Bulletin of the World Health Organization, 82*(6), 454–461.
13. Coates, T. J., Richter, L., & Caceres, C. (2008). Behavioural strategies to reduce HIV transmission: How to make them work better. *Lancet, 372*(9639), 669-684.
14. O'Donnell, L., Myint, U. A., Duran, R., Stueve, A. (2010). Especially for Daughters: Parent education to address alcohol and sex-related risk taking among urban young adolescent girls. *Health Promotion Practice, 11*, 70Se8S.
15. Forhan, S. E., Gottlieb, S. L., Sternberg, M. R., Xu, F., Datta, S. D., McQuillan, G. M., et al. (2009). Prevalence of Sexually Transmitted Infections among Female Adolescents Aged 14–19 in the United States. *Pediatrics, 124*(6), 1505-1512; Centers for Disease Control and Prevention. Cases of HIV infection and AIDS in the United States, by race/ethnicity, 1998-2002. HIV/AIDS Surveillance Supplemental Report. 2002;10(1):28-9, 34-5.

16. Santelli, J. S., Kantor, L. M., Grilo, S. A., et al. (2017). Abstinence-Only-Until-Marriage: An Updated Review of U.S. Policies and Programs and Their Impact. *Journal of Adolescent Health, 61*(3), 273-280, see p. 273.
17. Santelli, J. S., Kantor, L. M., Grilo, S. A., et al. (2017). Abstinence-Only-Until-Marriage: An Updated Review of U.S. Policies and Programs and Their Impact. *Journal of Adolescent Health, 61*(3), 273-280, see p. 276.
18. Weed, S. E. (2012). Sex Education Programs for Schools Still in Question: A Commentary on Meta-Analysis, *American Journal of Preventive Medicine, 42*(3), 313–315.
19. Ibid.
20. Denford, S., Abraham, C., Campbell, R., et al. (2016). A comprehensive review of reviews of school-based interventions to improve sexual-health. *Health Psychology Review, 11*(1), 33-52, see pp.39 and 47. In spite of reporting that CSE “findings were not consistent enough to draw firm conclusions” (p.39), the study’s Abstract asserts that “comprehensive interventions ... were found to be effective.”
21. Weed, S. W. & Ericksen, I. H. (2018). Re-Examining the Evidence: School-Based Comprehensive Sex Education in the United States. *The Institute for Research & Evaluation: Salt Lake City, Utah*. Retrieved from institute-research.com/CSEReport
22. Philliber, A. E., Philliber, S., & Brown, S. (2015). Evaluation of the Teen Outreach Program® in The Pacific Northwest. Retrieved from <https://www.hhs.gov/ash/oah/sites/default/files/ash/oah/oah-initiatives/evaluation/grantee-led-evaluation/reports/ppgnw-final-report.pdf>; Francis, K., Philliber, S., Walsh-Buhii, E., Philliber, A., Seshadri, R., and Daley, E. (2016). Scalability of an Evidence-Based Adolescent Pregnancy Prevention Program: New Evidence From 5 Cluster-Randomized Evaluations of the Teen Outreach Program. *American Journal of Public Health, 106*, S32–S38.
23. Potter, S., Coyle, K., Glassman, J., Kershner, S., & Prince, M. (2016). It’s Your Game ... Keep It Real in South Carolina: A Group Randomized Trial Evaluating the Replication of an Evidence-Based Adolescent Pregnancy and Sexually Transmitted Infection Prevention Program. *American Journal of Public Health, 106*(S1), S60–S69.
24. Gottfredson, D. C., Cook, T. D., Gardner, F. E. M., Gorman-Smith, D., Howe, G. W., et al. (2015). Standards of Evidence for Efficacy, Effectiveness, and Scale-up Research in Prevention Science: Next Generation. *Prevention Science, 16*(7), 893-926. Retrieved from http://www.preventionresearch.org/wp-content/uploads/2011/12/Standards-of-Evidence_2015.pdf
25. Santelli, J. S., Kantor, L. M., Grilo, S. A., et al. (2017). Abstinence-Only-Until-Marriage: An Updated Review of U.S. Policies and Programs and Their Impact. *Journal of Adolescent Health, 61*(3), 273-280.
26. One major source of the perception that abstinence education is ineffective comes from the findings of six problematic AE studies: four produced in a 2007 evaluation by Mathematica Policy Research, Inc., (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) and two other studies erroneously treated as evaluations of AE (Clark, M. A., Trenholm, C., Devaney, B., Wheeler, J., & Quay, L. (2007). *Impacts of the Heritage Keepers® Life Skills Education component*. Princeton, NJ: Mathematica Policy Research, Inc.; Blake, S. M., Simkin, L., Ledsky, R., Perkins, C., & Calabrese, J. M. (2001). Effects of a Parent-Child Communications Intervention on Young Adolescents’ Risk for Early Onset of Sexual Intercourse. *Family Planning Perspectives, 33*(2), 52-61). These six studies have been cited by numerous reviewers as compelling evidence for AE failure. However, their shortcomings raise concerns. **For the Mathematica studies:** 1) While touted as having a strong experimental (randomized) evaluation design, this methodology was weakened by randomizing the treatment and control groups *within* the same schools, disregarding the fact that cross contamination would likely occur between these two groups of youth—in the lunchroom, the locker room, and after-school programs, and within peer groups outside the school setting. Students tend to ignore their random group assignment and freely “share the medicine.” And if the abstinence program reduces sexual behavior in the treatment group, it will also likely diminish this in the control group by reducing the number of sexual partners available to them. Thus, a reduction in sexual activity likely occurs in both groups as a result of the program, minimizing between group differences and the measurement of a program effect. 2) This design problem was compounded in the four studies by another methodological issue—the very young age of the program participants (ages 10-11, 11-13, 8-13, and 13). Measuring sexual behavior in a population this young typically finds such low rates that cell sizes are too small to produce statistically significant differences between program and control groups, even a year later. This limitation might have been addressed by employing appropriately longer follow-up time periods. Instead, a third major shortcoming occurred: 3) The follow-up time frames were so long—three to five years after the program (four to six years post baseline) and without any additional program message reinforcement during the interim—that a post-program effect on behavior could not have reasonably been expected to persist at that point. Such unusually long follow-up times have not been employed in CSE studies. These three factors in combination—randomizing within schools, unusually young subject populations, and unrealistically long follow-up time frames—argue for viewing the findings of these four studies as “inconclusive” rather than as valid evidence of AE program failure. **For the Clark and Blake studies:** Each of these measured the *additive effect* of a secondary program component—one was a voluntary after-school “life skills” component (that did not have abstinence as its focus), and the other was a parent-communication component—compared to the impact of the program’s mandatory AE classroom curriculum alone, which served as the counterfactual in the study. *In both cases, the AE curriculum was the control condition, and the study was an evaluation of the impact of the subsidiary program component, not of the AE program. Yet these two studies have been treated as evaluations of AE classroom curricula in several important evidence reviews.* None of the six studies mentioned here

found significant program effects. so their null findings combine to form a faulty evidence base that weighs heavily in most reviews of AE effectiveness and has erroneously undermined the case for AE efficacy.

27. Jemmott, J. B., III, Jemmott, L. S., & Fong, G. T. (2010). Efficacy of a theory-based abstinence-only intervention over 24 months: A randomized controlled trial with young adolescents. *Archives of Pediatrics & Adolescent Medicine*, *164*(2), 152–159; Erkut, S., Grossman, J. M., Frye, A. A., Ceder, I., Charmaraman, L., & Tracy, A. J. (2013). Can sex education delay early sexual debut? *Journal of Early Adolescence*, *33*(4), 482–497 (Note: This was an abstinence curriculum that comprised the first year of a three-year program that was a CSE curriculum for the remaining two years. See: <https://tpevidencereview.aspe.hhs.gov/document.aspx?rid=3&sid=274&mid=2>); Weed, S. E., Ericksen, I. H., & Birch, P. J. (2005). An evaluation of the Heritage Keepers abstinence education program. In *Evaluating abstinence education programs: Improving implementation and assessing impact* (pp. 88–103). Washington DC: Office of Population Affairs and the Administration for Children and Families, Department of Health & Human Services; Weed, S. E., Birch, P. J., Ericksen, I. H., & Olsen, J. A. (2011). Testing a predictive model of youth sexual intercourse initiation. Unpublished manuscript; 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; Weed, S. E., Ericksen, I. E., Lewis, A. et al. (2008). An Abstinence Program's Impact on Cognitive Mediators and Sexual Initiation. *American Journal of Health Behavior*, *32*(1), 60–73; Weed, S. E., Anderson, N. A., Ericksen, I. E. (2008). What kind of abstinence education works? Comparing outcomes of two approaches. *Institute for Research & Evaluation*; Piotrowski, Z., Hedeker, H., & Hedeker, D. (2015). Evaluation of The Positive Potential Be The Exception Grade 6 Program in Predominantly Rural Communities: Findings from an Innovative Teen Pregnancy Prevention Program. Report to the Office of Adolescent Health, U.S. Department of Health & Human Services.
28. There are currently two replication studies, one inconclusive, the other not confirmatory: Walker, E. M., Inoa, R., & Coppola, N. (2016). Evaluation of Promoting Health Among Teens! Abstinence-Only Intervention in Yonkers, NY. Princeton, NJ: Sametric Research; Farb, A. & Margolis, A. (2016). The Teen Pregnancy Prevention Program (2010–2015): Synthesis of Impact Findings. *American Journal of Public Health*, *106*(Suppl 1); Lieberman, L., & Su, H. (2012). Impact of the Choosing the Best Program in Communities Committed to Abstinence Education. *SAGE Open*, *2*(1), 1–12.
29. Borawski, E. A., Trapl, E. S., Lovegreen, L. D., Colabianchi, N., & Block, T. (2005). Effectiveness of abstinence-only intervention in middle school teens. *American Journal of Behaviour*, *29*(5), 423–434; Jemmott, J. B., III, Jemmott, L. S., & Fong, G. T. (2010). Efficacy of a theory-based abstinence-only intervention over 24 months: A randomized controlled trial with young adolescents. *Archives of Pediatrics & Adolescent Medicine*, *164*(2), 152–159; Kirby, D., Korpi, M., Barth, R. P., & Cagampang, H. H. (1997). The Impact of the Postponing Sexual Involvement Curriculum Among Youths in California. *Family Planning Perspectives*, *29*(3), 100–108; Trenholm, C., Devaney, B., Fortson, K., Quay, L., Wheeler, J., & Clark, M. (2007). Impacts of four Title V, Section 510 abstinence education programmes. Princeton, NJ: Mathematica Policy Research, Inc.; Markham, C. M., Tortolero, S. R., Peskin, M. F., Shegog, R., Thiel, M., Baumler, E. R., Addy, R. C., Escobar-Chaves, S. L., Reininger, B., & Robin, L. (2012). Sexual risk avoidance and sexual risk reduction interventions for middle school youth: A randomized controlled trial. *Journal of Adolescent Health*, *50*(3), 279–288; Markham, C. M., Peskin, M. F., Shegog, R., Baumler, E. R., Addy, R. C., Thiel, M., Escobar-Chaves, S. L., Robin, L., & Tortolero, S. R. (2014). Behavioral and psychosocial effects of two middle school sexual health education programs at tenth-grade follow-up. *Journal of Adolescent Health*, *54*(2), 151–159; Jemmott, J. B., Jemmott, L. S., & Fong, G. T. (1998). Abstinence and safer sex HIV risk-reduction interventions for African American adolescents: A randomized controlled trial. *Journal of the American Medical Association*, *279*(19), 1529–1536.
30. Markham, C. M., Tortolero, S. R., Peskin, M. F., Shegog, R., Thiel, M., Baumler, E. R., Addy, R. C., Escobar-Chaves, S. L., Reininger, B., & Robin, L. (2012). Sexual risk avoidance and sexual risk reduction interventions for middle school youth: A randomized controlled trial. *Journal of Adolescent Health*, *50*(3), 279–288; Markham, C. M., Peskin, M. F., Shegog, R., Baumler, E. R., Addy, R. C., Thiel, M., Escobar-Chaves, S. L., Robin, L., & Tortolero, S. R. (2014). Behavioral and psychosocial effects of two middle school sexual health education programs at tenth-grade follow-up. *Journal of Adolescent Health*, *54*(2), 151–159.
31. Bearman, P. S., & Brückner, H. (2001). Promising the future: Virginity pledges and first intercourse. *American Journal of Sociology*, *106*, 859–912; Bruckner, H. & Bearman, P. (2005). After the promise: The STD consequences of adolescent virginity pledges. *Journal of Adolescent Health*, *36*(4), 271–278; Uecker, J. E. (2008). Religion, pledging, and the premarital sexual behavior of married young adults. *Journal of Marriage and Family*, *70*, 728–744; Martino, S., Elliott, M., Collins, R., Kanouse, D., & Berry, S. (2008). Virginity pledges among the willing: Delays in first intercourse and consistency of condom use. *Journal of Adolescent Health*, *43*, 341–348; Paik, A., Sanchagrin, K. J., & Heimer, K. (2016). Broken Promises: Abstinence Pledging and Sexual and Reproductive Health. *Journal of Marriage and Family*, *78*, 546–561.
32. Bruckner, H. & Bearman, P. (2005). After the promise: The STD consequences of adolescent virginity pledges. *Journal of Adolescent Health*, *36*(4), 271–278; Ford, C. A., Pence, B. W., Miller, W. C., Resnick, M. D., Bearinger, L. H., Pettingell, S., & Cohen, M. (2005). Predicting adolescents' longitudinal risk for sexually transmitted infection: Results from the National Longitudinal Study of Adolescent Health. *Archives of Pediatrics and Adolescent Medicine*, *159*(7), 657–664; Rosenbaum, J. E. (2009). Patient teenagers? A comparison of the sexual behavior of virginity pledgers and matched nonpledgers. *Pediatrics*, *123*(1), e110–e120; Paik, A., Sanchagrin, K. J., and Heimer, K. (2016). Broken Promises: Abstinence Pledging and Sexual and Reproductive Health. *Journal of Marriage and Family*, *78*(2), 546–561.
33. Paik, A., Sanchagrin, K. J., and Heimer, K. (2016). Broken Promises: Abstinence Pledging and Sexual and Reproductive Health. *Journal of Marriage and Family*, *78*(2), 546–561.
34. Martino, S., Elliott, M., Collins, R., Kanouse, D., & Berry, S. (2008). Virginity pledges among the willing: Delays in first intercourse and consistency of condom use. *Journal of Adolescent Health*, *43*, 341–348; Rosenbaum, J. E. (2009). Rosenbaum, J. E. (2009). Patient teenagers? A comparison of the sexual behavior of virginity pledgers and matched nonpledgers. *Pediatrics*, *123*(1), e110–e120.

35. Bruckner, H. & Bearman, P. (2005). After the promise: The STD consequences of adolescent virginity pledges. *Journal of Adolescent Health, 36*(4), 271–278.
36. Adamczyk, A., & Felson, J. (2008). Fetal positions: Unraveling the influence of religion on premarital pregnancy resolution. *Social Science Quarterly, 89*, 17–38; Paik, A., Sanchagrin, K. J., and Heimer, K. (2016). Broken Promises: Abstinence Pledging and Sexual and Reproductive Health. *Journal of Marriage and Family 78*(2), 546–561.
37. Bruckner, H. & Bearman, P. (2005). After the promise: The STD consequences of adolescent virginity pledges. *Journal of Adolescent Health, 36*(4), 271–278; Martino, S., Elliott, M., Collins, R., Kanouse, D., & Berry, S. (2008). Virginity pledges among the willing: Delays in first intercourse and consistency of condom use. *Journal of Adolescent Health, 43*, 341–348; Rosenbaum, J. E. (2009). Patient teenagers? A comparison of the sexual behavior of virginity pledgers and matched nonpledgers. *Pediatrics, 123*, e110–e120.
38. Bearman, P. S., & Brückner, H. (2001). Promising the future: Virginity pledges and first intercourse. *American Journal of Sociology, 106*, 859–912; Bruckner H & Bearman P. (2005). After the promise: The STD consequences of adolescent virginity pledges. *Journal of Adolescent Health, 36*(4), 271–278; Rosenbaum, J. E. (2009). Patient teenagers? A comparison of the sexual behavior of virginity pledgers and matched non-pledgers. *Pediatrics, 123*(1), e110–e120.
39. For full details see: Weed, S. W. & Ericksen, I. H. (2018). Re-Examining the Evidence: School-Based Comprehensive Sex Education in the United States. *The Institute for Research & Evaluation*. Retrieved from institute-research.com/CSEReport
40. Main, D. S., Iverson, D. C., McGloin, J., Banspach, S. W., Collins, J., Rugg, D., et al. (1994). Preventing HIV infection among adolescents: Evaluation of a school-based education programme. *Preventive Medicine, 23*(4), 409–417; Walter, H J. , & Vaughan, R. D. (1993). AIDS risk reduction among a multi-ethnic sample of urban high school students. *Journal of the American Medical Association, 270*(6), 725–730; Coyle, K. K., Kirby, D. B., Robin, L. E., Banspach, S. W., Baumler, E. R., Glassman, J. R. (2006). All4You! A randomized trial of an HIV, other STDs and pregnancy prevention intervention for alternative school students. *AIDS Education and Prevention, 18*(3), 187–203.
41. For full details see: Weed, S. W. & Ericksen, I. H. (2018). Re-Examining the Evidence: School-Based Comprehensive Sex Education in the United States. *The Institute for Research & Evaluation*. Retrieved from institute-research.com/CSEReport
42. Ibid.
43. Ibid.
44. Kirby, D., Barth, R. P., Leland, N., & Fetro, J. V. (1991). Reducing the Risk: Impact of a new curriculum on sexual risk-taking. *Family Planning Perspectives, 23*(6), 253–263, see p. 262.
45. See: <https://www.cdc.gov/healthyouth/sexualbehaviors/> (Accessed September 28, 2017).
46. Santelli, J. S., Kantor, L. M., Grilo, S. A., et al. (2017). Abstinence-Only-Until-Marriage: An Updated Review of U.S. Policies and Programs and Their Impact. *Journal of Adolescent Health, 61*(3), 273-280, see p. 278.
47. See: https://www.youtube.com/watch?v=jM_G3YIL0dk
48. Santelli, J. S., Kantor, L. M., Grilo, S. A., et al. (2017). Abstinence-Only-Until-Marriage: An Updated Review of U.S. Policies and Programs and Their Impact. *Journal of Adolescent Health, 61*(3), 273-280, see p. 278.
49. Ibid.

The Institute for Research and Evaluation (IRE) is a nonprofit research organization that has gained national recognition for its work evaluating sex education programs over the past 25 years. *IRE* has conducted program evaluations for federal Title V, CBAE, and Title XX projects in 30 states, and has evaluated sex education in three foreign countries, collecting data from more than 900,000 teens, and conducting over 100 evaluation studies. *IRE* staff members have published articles in professional journals and presented at professional conferences and workshops. Dr. Stan E. Weed, Founder and Director of *IRE*, has served as a national consultant for federal Title XX and CBAE projects and was a charter member of the *National Campaign to Prevent Teen and Unplanned Pregnancy*. He has been invited to provide expert testimony about sex education to state legislative bodies, the U.S. Senate, the U.S. House of Representatives, and the White House.