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The Attack on Abstinence Education: Fact or Fallacy?

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The Attack on Abstinence Education: Fact or Fallacy?

Executive Summary

The Journal of Adolescent Health published a review article entitled *Abstinence and abstinence-only education^a: A review of US policies and programs*¹ and a second article entitled *Abstinence-only education policies and programs: A position paper of the Society for Adolescent Medicine*² in the January 2006 issue. Both were written by a team of authors headed by John Santelli, and the position paper simply restates the arguments presented in the review article. The authors of these 2 articles claim that abstinence programs “threaten fundamental human rights to health, information, and life.” They say that “abstinence as a sole option for adolescents is scientifically and ethically problematic. . . [and that] abstinence-only education programs . . . are morally problematic.”

The Medical Institute for Sexual Health (MI) is a nonprofit organization dedicated to evaluating scientific evidence related to sexual health and recommending the healthiest evidence-based options for individuals, families, communities, and societies. We assessed the review article to determine its scientific merit and the credibility of its claims. We obtained copies of the referenced materials and examined them to determine how accurately the authors had interpreted the evidence. Where provocative words and phrases were used (eg, “censorship,” “misinformation”), we searched the documents for these words and phrases. We also evaluated additional authentic references addressing abstinence education that had been omitted from this review article. As necessary, we consulted experts in the field.

We found a significant number of serious omissions, misrepresentations, deviations from accepted practices, and opinions presented as facts. Logic, if employed, was often faulty. However, the authors should not be given full credit for these shortcomings, as even a handful of such errors in an article submitted for publication to most peer-reviewed journals would have caught the attention of at least one reviewer or editor.

The scholarship in this review article is generally lacking in rigor. The authors employ nonstandard research methods. Key points are substantiated by non-peer-reviewed sources. The authors repeatedly state that a source says something, when in fact it does not. Most review articles cite original source documents; these authors cite secondary and tertiary sources. They cite opinion pieces and editorials. They cite on-line news magazines. Although the authors promise to tell their readers when they use non-peer-reviewed references, they do this just twice – both times to diminish the credibility of reports favorable to abstinence education. They fail to mention that dozens of references they use to support their key arguments are not peer reviewed; many declarative statements are not referenced. Finally, when discussing abstinence program evaluations, they equate failure to prove an affirmative with evidence of a negative – a common error in logic – typically committed either through ignorance or by design.

Throughout the *first half* of the review article, the authors are critical of educational policies influenced by morality, alleging that proponents of abstinence education are primarily concerned with religious or moral beliefs. They deride domestic abstinence policies for adopting “. . . a moral and culturally specific definition of abstinence.” They paint educational policies having moral components as patently unscientific. Although they contend that such policies are in conflict with public health principles, Santelli et al offer no evidence to support this opinion. Then, throughout the *last half* of this review article, the authors parade about in the finery of ethics and human rights. Because ethics is “the study of standards of conduct and moral judgment,”³ the authors’ initial

^a Although the title purports to be a review of abstinence and abstinence-only education policies and programs, throughout the article, the authors choose to use the poorly descriptive “abstinence only” moniker coined by Kirby in a 1993 *SIECUS Report*

rejection of “moral beliefs” and their later adoption of “ethics” as a guiding principle for sex education is the height of sophistry.

The authors allege that “[a]bstinence-only programs are inconsistent with commonly accepted notions of human rights.” They claim that such programs have led to misinformation, censorship, coercion, and the stigmatization of homosexuals. Such claims, presented as fact, are simply opinions. The citations, if offered, provide no support for these contentions. The claim that abstinence education programs restrict educators from discussing contraception is not substantiated. The authors’ claim that abstinence education does not meet the health needs of gay, lesbian, bisexual, transgender, and questioning youth is not accurate. All school-aged youth must be given a clear message that abstinence is the healthiest choice and must be informed of the STI and pregnancy risks associated with oral, anal, and vaginal sex with or without condoms and contraceptives.

In their section on human rights, the authors quote an international document recommending that “. . . children and adolescents [should be ensured] adequate access to confidential sexual and reproductive health services, including HIV/AIDS information, counseling, testing and prevention measures such as condoms[.]”⁴ These recommendations are contrary to American cultural norms and legal injunctions regarding the abuse of children. In the United States, children do not “need” reproductive health services, nor do they need condoms to protect them from STIs and pregnancy. Rather, children need adults who will protect them from predators.

The authors of this review article attack abstinence education programs as immoral, unethical, unscientific, ineffective, and contrary to human rights and public health principles. When measured against usual standards of scientific evidence, their arguments, are at best, weak and, at worst, fallacious. Abstinence education programs are based on the basic public health principle of primary prevention. They mirror other widely accepted youth-oriented programs that advocate risk avoidance strategies for drugs, alcohol, and tobacco. Few, if any, public health professionals would argue against abstinence as the healthiest behavior for school-aged children. Therefore, it should come as no surprise that the only sex education programs to have actually documented decreased teen pregnancy were abstinence-based programs,^{5,6} a fact conveniently ignored by the authors. Anyone wishing to reproduce the success of these programs should also note that they were community based. It is therefore fitting that the federal government’s new “Community-Based Abstinence Education” initiative is based on the best available evidence and sound public health principles.

Introduction

Throughout the article entitled *Abstinence and abstinence-only education: A review of U.S. policies and programs*,⁷ the authors use the phrase “abstinence-only.” The abstract states, “We believe that abstinence-only education programs, as defined by federal funding requirements, are morally problematic . . .” This is peculiar, given that the phrase “abstinence-only” has never appeared in any federally enacted legislation, although this is not for lack of trying, as a number of legislators have recently drafted legislation containing this phrase (S 368 [Lautenberg, D-NJ],⁸ HR 768 [Lee, D-CA],⁹ HR 2553 [Lee, D-CA],¹⁰ S 20 [Reid, D-NV],¹¹ S 844 [Clinton, D- NY],¹² and HR 1709 [Slaughter, D-NY]).¹³ And lest there be any doubt about the phrase’s origin, it was coined by Kirby – a staunch proponent of comprehensive sexuality education – in a 1993 *SIECUS Report*.¹⁴

Sexuality education curriculums [*sic*] fall into three broad groups: knowledge-based which stress risks and consequences of pregnancy; a continuation of factual knowledge which includes values and skills development in decision-making and communication; and reactionary abstinence-only programs.

All told, 8 of the 14 PubMed-referenced articles published before 1998 that use “abstinence-only” appear in *SIECUS Report*. Therefore, to be entirely accurate, when we quote from the article by Santelli et al, the phrase “abstinence-only” and acronym “AO” will be annotated as “abstinence-only [*sic*]” and “AO[*sic*].” It is unfortunate that the phrase “abstinence-only” is considered *de rigueur* for journalists, and has crept into the parlance of some federal agencies.

Table 1 of the review article – which lists the 8 components (“A-H”) of a qualifying abstinence education program as defined in Section 510 of the 1996 Social Security Act – is mislabeled as “Federal definition of abstinence-only [*sic*] education.” The title should actually read “Federal definition of abstinence education.”

Methodology

In this section, Santelli et al state

We began with a literature search using Medline and Google Scholar but also collected publications and reports by communicating with a broad range of scientists and policy-makers. We also actively monitored newspaper reports and [I]nternet list serves between January 2004 and July 2005 for the release of new studies or reports. Although we relied primarily on peer-reviewed sources for key scientific information, policy-relevant information and viewpoints about AO[*sic*]E are often available only from other sources such as government reports, websites or reports from advocacy organizations.

The creativity employed in this search strategy is impressive. Although most researchers would include peer-reviewed journals and reports or publications of federal or international health agencies, few would rely on news reports or the opinions of advocacy organizations. Of 81 references in the Santelli et al article, 30 are from peer-reviewed journals, 15 are from advocacy groups favorable to comprehensive sexuality education, 10 are from government reports, 7 are from international law or covenants, 5 are from US laws or legislative reports, 2 are from books, and 12 come from other sources.

According to the authors, “Where research findings from non-peer-reviewed sources are cited, we have identified these in the text.” This, in fact, is not true. We detail some instances where the authors neglect to inform the reader, as promised, of citations from non-peer-reviewed sources such as *Slate magazine*¹⁵ or The Memory Hole website.¹⁶

Definitions of abstinence

In this section, Santelli et al reject the validity of using moral considerations to inform public health prevention messages. Paradoxically, later in the same article, the authors extol the transcendent authority of ethical obligations promoted by international bodies. The short shrift accorded morals and morality is particularly sanctimonious, given that the definitions of moral and ethical are inextricably linked. According to Webster's Dictionary,

morāl, a. [ME. *morale*; L. *moralis*, pertaining to manners or morals, from *mos, moris*, manner, ple. *Mores*, manners, morals.] 1. relating to, dealing with, or capable of making the distinction between, right and wrong in conduct. 2. relating to, serving to teach, or in accordance with, the principles of right and wrong. 3. good or right in conduct or character; often, specifically, virtuous in sexual conduct.

eth'icăl, a. [LL. *ethicus*; Gr. *ēthikos*, ethical, moral, from *ēthos*, character, custom, a man's normal state.] 1. having to do with ethics or **morality**, of or conforming to **moral** standards. 2. conforming to the standards of conduct of a given profession; as, it is not *ethical* for a judge to hear a case involving his own interests.¹⁷

Having falsely established this dichotomy, the authors go on to make the unsubstantiated assertion that “many advocates of AO[sic]E programs are primarily concerned with issues such as character and morality, based on their specific religious or moral beliefs.” As evidence, the authors state that “[o]ne study of abstinence-only [sic] program directors, instructors, and youth found that *all* [emphasis added] groups defined abstinence in moral terms, such as ‘making a commitment’ and ‘being responsible,’ as well as in more behavioral terms, . . .” In reality, the scope of the study was quite limited. Santelli et al neglect to mention that only 8 of 32 program directors in just 1 of 50 states (Texas) were interviewed.¹⁸ And, although a majority of parents across the US have asked their adolescent children to “be responsible” about everything from household chores to homework and seatbelt use, most would be surprised to find that, according to Santelli et al, such requests are *a priori* considered to be based on “specific religious . . . beliefs.”

Furthermore, the authors claim that the word “virgin” is a moral term. This is an odd assertion, considering that a recent PubMed search of the term yielded 197 articles (59 articles with human focus) where having or not having had sexual intercourse was a factor in the discussion.¹⁹ Virgin is, in fact, a medical term. Dorland's Illustrated Medical Dictionary provides the following definition

vir·gin (vir'jin) [L. *virgo*] 1. a person who has not had sexual intercourse. 2. a laboratory animal that has been kept free from sexual intercourse.²⁰

Physical and psychological health outcomes for adolescent sexual behaviors

In this section, Santelli et al make the following assertion, “Although federal AO[sic]E funding language requires teaching that sexual activity outside of the context of marriage is likely to have harmful psychological effects, there are *no* [emphasis added] scientific data suggesting that consensual sex between adolescents is harmful.” And should the reader have missed it the first time, a mere half-paragraph later they reassert, “We are aware of *no* [emphasis added] reports that address whether the initiation of adolescent sexual intercourse itself has an adverse impact on mental health.”

Sexual activity among adolescents may be *followed* by emotional consequences such as depression. Emotional repercussions can also *follow* consensual sexual activity between adolescents that results in such predictable consequences as STIs and nonmarital pregnancy. In 1991, Orr et al found that nonvirginal girls in the 7th – 9th grades were at increased risk for “considering hurting themselves.”²¹ Although directionality cannot be assessed from this study, later investigators had access to

longitudinal data that did allow assessment of directionality. In 2005, Hallfors et al, using data from Waves I and II of Add Health, present “evidence that patterns of sex and drug behaviors during adolescence pose depression risks, particularly for girls.” She and her colleagues found that girls who became sexually active between Waves I and II were much more likely than abstinent girls (OR 3.07, CI 1.97 – 4.77) to be depressed at Wave II. The OR for depression at Wave II was also increased for boys (1.59, CI 0.90 – 2.81), but was not statistically significant. Hallfors et al conclude that sexually active girls need to be screened for depression and counseled about the mental health risks of sexual activity.²²

STIs and nonmarital pregnancy are very common among sexually active adolescents. For instance, of the approximately 19 million new STIs that occur each year, nearly half are in 15- to 24-year-olds.²³ Chlamydia is most common in 15- to 19-year olds. Moreover, reported chlamydia rates in 15- to 19-year-old females exceed 2,500/100,000.²⁴ More than one third of all females become pregnant at least once before the age of 20²⁵ – resulting in more than 800,000 pregnancies each year.²⁶ Both STIs and nonmarital pregnancy can lead to negative emotional consequences. Another analysis of Wave I and II Add Health data revealed that boys and girls who were not depressed at baseline and who acquired an STD between Wave I and II were far more likely than their counterparts without STDs to be depressed (31% vs. 9% for boys and 28% vs. 14% for girls). The findings noted on univariate analysis remained significant in adjusted logistic regression models.²⁷ In another longitudinal study, Salazar et al found that having a biologically confirmed STI was significantly associated with subsequent depressive symptoms among female adolescents at risk for depression.²⁸ Like STIs, nonmarital pregnancy can have emotional consequences. In a study of inner city single and married mothers, Brown and Moran found that single mothers were twice as likely as married mothers to become depressed.²⁹

And, lest Santelli et al counter that the simple solution for these problems – STIs and nonmarital pregnancy – is providing condoms and contraceptives to all sexually active adolescents, it is worth recalling how well these “solutions” actually work. Within one year, 13% of noncohabiting low socioeconomic status females under 20 years of age using the “pill” become pregnant, and 23% using condoms become pregnant. A much larger percentage become pregnant within one year if they are cohabiting – 48% using the “pill,” and 72% using condoms.³⁰ In a study by Crosby et al, 18% of African American adolescent females who reported 100% condom use acquired chlamydia, gonorrhea, or trichomoniasis over a 6-month study period.³¹ To be “protected” from both pregnancy and STIs, sexually active adolescents should use both a highly effective method of birth control (ie, hormonal contraception) and condoms. In the 2002 National Survey of Family Growth, less than 20% of 15- to 19-year-old females report using both condoms and a hormonal method of contraception during the previous 3 months.³²

Public support for abstinence and comprehensive sexuality education

In this section, Santelli et al discuss public opinion polls that indicate strong support for abstinence as a behavioral goal for adolescents. They focus on 2 sources.^{33,34} The first is a survey of about 1,000 adults and 1,000 teens sponsored by the National Campaign to Prevent Teen Pregnancy. This survey reported that 94% of adults and 92% of teens believed that society should give teens a strong abstinence message. The second source, a non-peer-reviewed review article, reports that, according to a 1998 Kaiser Family Foundation Survey,³⁵ almost all Americans want their children taught abstinence (99%). This survey found that 81% of the respondents also want information on prevention of pregnancy and STD to be included with abstinence education. Nowhere in the cited document is there any evidence to support the authors’ contention that “only 15% [of parents] wanted an abstinence-only [sic] form of sex education.”

Contrary to the authors’ claim of little support for abstinence education, public opinion polls conducted by other reputable sources show support for abstinence education. Zogby International’s 2004 Survey on Parental Opinions shows that 44% of parents said that “teaching teens to abstain

from sexual activity is more important than teaching teens to use condoms when having sex."³⁶ Only 2% of parents thought that abstinence from sexual intercourse is not important in sex education for young people. Almost 90% agreed that sex education programs should teach young people that abstinence from sexual intercourse is the best choice for teens. A majority of parents did not want abstinence taught in the same class as contraception.

According to Santelli et al "[i]n these polls, most parents and most adolescents do not see education [emphasis added] that stresses abstinence while also providing information about contraception as a mixed message." Although the authors cite 2 references to support this statement, 1 does not contain any instance of "mixed message," nor does it appear to address this issue at all.³⁷ While a perfunctory reading of the second citation – a 2003 NCTPTP survey³⁸ – might seem to the casual observer to support the authors' assertion, a more thorough examination reveals that neither the parents nor the adolescents were asked about "education" in the mixed-message question. Here is the question as it appeared in the survey

Suppose a parent or other adult tells a teenager the following: "I feel very strongly that not having sex at all during your middle and high school years is your best option and the right thing to do. I also think it is important for you to receive information about birth control or protection. But again, I think not having sex is your best option." Do you think this is a clear and specific message or do you think it is a confusing or mixed message?

Two issues arise here. Because the above monologue appears to be between 1 adult and 1 adolescent, it is difficult to understand how it could be construed as supporting an argument about abstinence *education*. More significant is the authors' use of public opinion polls to answer a scientific question. Although data regarding the effect of mixed messages at school are lacking, data on the effect of mixed messages at home are available. Healthy behavior is most likely in adolescents who receive an unambiguous message about sex. A survey of about 10,000 adolescents in grades 7-11 showed that adolescents who perceive parental disapproval of sexual activity are less likely than their counterparts to start sexual activity at an early age.³⁹

Current federal policy and local programs

In this section, Santelli et al claim that "... since 1996 there have been major expansions in federal support for abstinence programming and a shift to funding programs that teach only abstinence and restrict [emphasis added] other information." They go on to state that "Both 510 and SPRANS programs prohibit disseminating information on contraceptive services, ..." and that "Programs funded under SPRANS ... cannot provide young people they serve with information about contraception or safer-sex practices, even with their own non-federal funds." These assertions are based on a Guttmacher opinion piece⁴⁰ rather than on information provided by the federal funding sources. These assertions are patently false. For instance, according to the Department of Health and Human Services, Health Resources and Services Administration, Health Resources and Services,

Nothing [emphasis added] in the legislation is intended to prevent these adolescents from seeking health information or services. Nothing [emphasis added] shall preclude entities who are teaching these abstinence-only [sic] classes and who have a public health mandate from discussing other forms of sexual conduct or providing services, as long as this is conducted in a different setting than where and when the abstinence-only [sic] course is being conducted.⁴¹

This language has been memorialized in an Assurance that all recipients of Community-Based Abstinence Education (CBAE) Program funding are required to sign.

. . . In this circumstance, health information or services (expressly required by Federal law) must be conducted in a different setting – either in time or place – than where and when the abstinence-only [sic] course is being conducted.⁴²

In other words, while contraceptive use cannot be promoted *during* a CBAE-funded sex education class, nothing precludes the discussion of contraceptives during a non-CBAE-funded class.

Evaluations of abstinence-only [sic] education and comprehensive sexuality education programs in promoting abstinence

In this section, the authors refer to 6 reports that discuss evaluation of sex education programs. While 2 of these reports evaluate both comprehensive and abstinence sex education programs,^{43,44} the other 4 evaluate only abstinence sex education programs. Of the 4 reports that purport to focus solely on abstinence program evaluation, 2 find positive impact,^{45,46} 1 finds no impact,⁴⁷ and 1 report reviews curricular content rather than impact.⁴⁸ None of the 6 reports are peer reviewed – the criterion that Santelli et al declare to be the gold standard for evidence of program effectiveness. A distinct bias against abstinence is revealed when 4 of these reports^{49,50,51,52} are compared to other peer-reviewed literature on sex education program evaluation.

Despite the authors' description of both Kirby⁵³ and Manlove et al⁵⁴ as systematic reviews that examine evidence supporting abstinence-only [sic] programs and comprehensive sexuality education programs, neither conforms to established standards for such reviews.^b While both reports state the eligibility criteria for the studies that were reviewed, they fail to describe the sample frame.^c Therefore it is impossible for a reader to determine the universe of studies to which the eligibility criteria were applied. An examination of the 2 non-peer-reviewed reports shows an obvious bias in the selection and analysis of the programs.

Santelli et al declare “[b]oth reviews demonstrated that comprehensive sexuality education effectively promoted abstinence as well as other protective behaviors.” In contrast, they state that neither Kirby nor Manlove et al found any “scientific evidence that abstinence-only [sic] programs demonstrate efficacy in delaying initiation of sexual intercourse.” In their enthusiasm to conjure support for their assault on abstinence education, Santelli et al neglect to mention that both Kirby and Manlove et al offer reasons for the paucity of evidence supporting abstinence education. Kirby himself states

During most of the 1980s and 1990s relatively few resources were devoted to evaluating abstinence-only [sic] programs. For instance, the federal Title XX Adolescent Family Life Act (AFLA) of 1981 provided funding for the development and implementation of abstinence-only [sic] programs and for short-term, low-cost evaluations of these programs; however, it did not provide adequate time or financial support for more rigorous evaluation to measure longer term impact of such programs on sexual behavior.

Manlove et al provides a similar explanation

. . . the evaluations that have been conducted do not reflect the diversity of abstinence education programs now available, readers are cautioned about concluding that abstinence education programs, in general, are not effective in delaying first sex for teens.

Kirby describes successful comprehensive sex education programs by outcomes measured during evaluation. According to Kirby, of 28 studies that examined impact on initiation of intercourse, only 9 (32%) found the desired effect. Of 19 studies that measured frequency of intercourse, only 5

^b For a brief discussion of standard methodology for systematic reviews see Greenhalgh T. How to read a paper. Papers that summarise other papers (systematic reviews and meta-analyses). *BMJ* 1997;315(7109):672-5.

^c Sample frame is a term that denotes the universe or population from which a sample is selected.

reduced frequency (26%). Of 10 studies that examined number of sexual partners, only 3 (30%) reduced the number of partners. In summary, less than a third of the comprehensive sex education programs had an impact in any category.^d Because Kirby included some of the same studies in several categories, eliminating duplicates leaves just 12 studies with any significant results. Manlove et al evaluated 22 programs that fall into 5 categories: abstinence, sex education, HIV/AIDS and other STD education, youth development, and service learning programs. Two were described as abstinence programs. Eighteen of the 22 were identified as having any positive impact.^e

Medical Institute staff reviewed all the US-based studies that either Kirby or Manlove et al describe as having any impact. When multiple studies addressed the same program, we selected the more recently published study for review. Only studies published in peer-reviewed publications were reviewed. Finally, because most public discussions about sex education focus on school-based programs, we selected these for review.

Table 1. Selection criteria for review of effective studies mentioned by Kirby & Manlove et al.

Study descriptor	Kirby	Manlove et al
Programs with any positive impact	12	18
Unpublished	-2	0
Youth Development/Service Learning	-1	-4
Non-US	0	-1
School-based programs	9	13
Studies common to both authors	6	6
Studies unique to 1 author	3	7

Two of the 12 evaluations mentioned by Kirby are unpublished^{55,56} and 1 study was a fertility awareness program.⁵⁷ When these 3 programs are eliminated, just 9 of Kirby's original "successful" programs remain. Manlove et al include service learning and youth development programs in their list of 18. Many activities for such programs occur outside the classroom. Eliminating these 2

types of programs leaves 14 programs that are described as showing any positive impact. One of the Manlove et al studies was performed in Canada⁵⁸ and is thus excluded from further review; this leaves 13. Six of the Manlove et al studies had been previously reviewed by Kirby. Between Kirby and Manlove et al, a total of 16 US-based, school-based, peer-reviewed studies were described as having any impact. Only 1 of these⁵⁹ was listed as an abstinence program by Manlove et al. We reviewed all 16 programs. We also examined 2 abstinence programs published in peer-reviewed journals after the Manlove et al report.^{60,61} Since 1 of the 2 abstinence programs⁶² had a quasi-experimental evaluation design (a criterion for inclusion in studies reviewed by Kirby or Manlove et al), it was added to our list of 16, for a total of 17 studies.

Santelli et al rightly point out that measuring biological outcomes such as STI or teen pregnancy rates would improve the validity of program evaluations.^f Since measuring such outcomes is both difficult and expensive, behavioral outcomes known to be associated with reductions in STI or teen pregnancy rates are the next best alternative. Delay in sexual debut, reduction in number of sexual partners, frequency of intercourse, and consistent condom use are behavioral outcomes useful for program evaluation.

Table 2 summarizes the outcomes of interest reported in the 17 studies we reviewed. Of these 17 studies, 11 evaluate comprehensive sex education programs; 3 evaluate abstinence education; 2

^d Statistical significance is not the same as practical significance. The former is the minimum criteria to show any program effect. See Greenhalgh T. How to read a paper. Statistics for the non-statistician. II: "Significant" relations and their pitfalls. *BMJ* 1997;315(7105):422-5.

^e This included positive association with sexual initiation as well as any other positive impacts such as contraceptive use or condom use.

^f Doniger (2001) and Vincent (1987) studies are the only examples of sex education programs where these rates have been shown to decline as a result of program intervention. Outside the US, Uganda's successful ABC program has been the only instance of HIV rates declining at population-level. See Genus SJ, Genus SK. Primary prevention of sexually transmitted disease: applying the ABC strategy. *Postgrad Med J*. 2005;81(955):299-301.

evaluate delay-of-debut programs programs; and 1, both a comprehensive and an abstinence program. Of the 4 abstinence education programs, 1 was originally described by Manlove et al as an abstinence program;⁶³ another – originally described by Kirby as a comprehensive program⁶⁴ – is actually an abstinence-until-marriage education program. The third program is discussed in an article that included evaluations of both a comprehensive and an abstinence program.⁶⁵ The fourth program is the one we added. Two studies are delay-of-sexual debut programs and therefore fall somewhere between comprehensive sex education and abstinence education programs.^{66,67}

Table 2. Outcome Measures for Successful Sex Education Programs by Program Type

Program Type	Onset of sexual debut		Frequency of intercourse		Partner #		Consistent condom use		Pregnancy Rates		STI rates	
	Effective	Total	Effective	Total	Effective	Total	Effective	Total	Effective	Total	Effective	Total
Comprehensive (12 studies)^g	1+	10	2+	9	2+	8	1+	3	0	1	0	1
	3+(m)		2+		1+ (f)							
	1+ (f)		(m)									
	1-		1-									
Debut Delay (2 studies)^h	1+	2	1+	1	0	1	0	0	0	2	0	2
Abstinence (4 studies)ⁱ	1+	3	1+ (in sexually active)	3	1+ (in sexually active)	1	0	2	0	0	0	0

n number of programs

+ desired effect of the intervention on the outcome

- opposite to the desired effect of the intervention on the outcome

f effect on female participants only

m effect on male participants only

All the programs were intended to affect pregnancy, STI, or HIV rates. Only 3 studies (1 comprehensive and 2 debut delay) measured STI rates; none found any effect. Only 3 studies (1 comprehensive and 2 debut delay) measured pregnancy rates; none found any effect. Five studies (3 comprehensive and 2 abstinence) assessed consistent condom use; 1 comprehensive study found a positive impact. For each of the other measured outcomes – partner number, frequency of intercourse, and delay of sexual debut – no more than half of the programs in any category had any positive impact. It is therefore misleading for Santelli et al to state that “Both reviews demonstrated that comprehensive sexuality education effectively promoted abstinence, as well as other protective behaviors.”

While none of the programs in studies reviewed by Kirby or Manlove et al decreased pregnancy or STI rates, 2 abstinence-based programs have reported decreased pregnancy rates. Evaluations of both appear in the peer-reviewed literature.^{68,69} Because both of these pregnancy-prevention programs were community-based, rather than simply school-based, we do not include them in Table 2. The more recent of the two projects was implemented in Monroe County, NY. By its end, pregnancy rates for 15- to 17-year-olds dropped from 63/1,000 to 49/1,000, significantly more than in the comparison community.⁷⁰ The earlier of the 2 programs was implemented in Denmark, SC. By its end, pregnancy rates for the intervention county were reduced by half. Pregnancy rates for 14- to 17-year-olds dropped from 54/1,000 to 25/1,000. In contrast, during the same time frame, pregnancy rates for the comparison communities rose from 46/1,000 to 54/1,000.⁷¹ The articles describing these 2 successful programs have been available since 2001 and 1987, respectively.

^g Aarons SJ 2000 *J Adolesc Health.*;27(4):236-47, Jemmott JB III 1992 *Am J Public Health.*;82(3):372-7, Main DS 1994, *Prev Med.*;23(4):409-17, Aarons SJ 2000 *J Adolesc Health.*;27(4):236-47, Levy SR 1995, *J Sch Health.*;65(4):145-51, Coyle KK 2004 *Am J Public Health.*;94(5):843-51, Jemmott JB III 1998 *JAMA.*;279(19):1529-36, Hubbard BM 1998, *J Sch Health.*;68(6):243-7, Sellers DE 1994, *Am J Public Health.*;84(12):1952-9, Moberg DP 1998 *AIDS Educ Prev.*;10(2):128-48, Coyle KK 2001 *Pub Health Rep.*;116(suppl. 1):82-93, Kirby D 1997 *Fam Plann Perspect.*;29(3):100-8.

^h Kirby D 1997 *Fam Plann Perspect.*;29(3):100-8, Howard M 1990 *Fam Plann Perspect.*;22(1):21-6.

ⁱ Jemmott JB III 1998 *JAMA.*;279(19):1529-36, Olsen JA 1991 *Adolescence.*;26(103):631-41, Blake SM 2001 *Fam Plann Perspect.*;33(2):52-61, Borawski EA 2005 *Am J Health Behav.*;29(5):423-34.

The absence of even a remote allusion to these studies by Santelli et al is particularly inexcusable in light of their later statement that “[b]ased on our review of the evaluations of specific AO[sic]E curricula . . . in actual practice the efficacy of AO[sic]E interventions may approach zero [emphasis added].” The conspicuous omission of these articles, coupled with the authors’ hyperbolic declaration, demonstrates systematic misrepresentation of the evidence.

Next, Santelli et al mention and summarily dismiss a review by Robert Rector that describes 10 successful abstinence programs.⁷² Santelli et al quote another review of 10 state abstinence programs that “found no evidence of an impact on adolescent sexual behavior.”⁷³ While Santelli et al are quick to note that Rector’s study was non-peer-reviewed, they fail to disclose (despite their earlier assurances that they would do so) that none of the other references in this section are peer reviewed.

Santelli et al also briefly discuss an ongoing evaluation of federally funded abstinence programs by Mathematica Policy Research, Inc.⁷⁴ According to the authors of this interim report, the evaluation addresses only a few of the “more than 900 abstinence education programs nationally that have received support through Title V, Section 510.” This report states

The programs led youth to report views more supportive of abstinence and less supportive of teen sex than would have been the case had they not had access to the abstinence education programs. In addition, the programs increased perceptions of potential adverse consequences of teen and nonmarital sex. There also is some evidence that the programs increased expectations to abstain from sex and reduce dating.

Although preliminary, these data from junior high school students are quite promising.

The final evidence proffered against abstinence education programs by Santelli et al is a non-peer-reviewed, nonscientific report prepared by staff of Senator Henry Waxman (D-CA).⁷⁵ The Waxman report is not an evaluation of abstinence programs. Rather, it purports to be an evaluation of the content of 13 abstinence curricula. The report actually evaluates the content of 12 abstinence curricula and a 35mm sexual health slide set (which is not a curriculum).

Concepts of efficacy for abstinence in preventing pregnancy and STIs

In this section, Santelli et al argue that the effectiveness of contraceptives and abstinence should be compared for typical use. They go on to say “The most useful data in understanding the efficacy of abstinence come from examination of the virginity pledge movement in the . . . (Add Health) [Survey].⁷⁶ . . Add Health data suggest that many teens who intend to be abstinent fail to do so, . . . [and] pledgers who failed at abstinence were less likely to use contraception after they did initiate sexual intercourse. . . . [Pledgers] were less likely to receive STI testing.”

Both Santelli and the authors of the cited article – Bruckner and Bearman⁷⁷ – base their arguments on the same error. They mistakenly equate adolescents who have taken an abstinence pledge to those who have completed an abstinence education curriculum. Virginity pledges are typically made by youth who attend a one-time, usually short, event. In contrast – like other types of sex education – abstinence education occurs over an extended period and has learning objectives as well as pre- and posttests. Therefore, it is incorrect to equate virginity pledges with abstinence education.

It should be noted that pledgers may or may not have attended an abstinence course. According to Bruckner and Bearman, although a majority of pledgers eventually became sexually active, as a group they debuted later than nonpledgers and had, on average, fewer sexual partners (1.9 for pledgers vs. 2.7 for nonpledgers for females [$p < .000$] and 1.5 for pledgers vs. 2.4 for nonpledgers for males [$p = .000$]). These are findings with significant implications for adolescent health. Multiple partners and early debut are closely linked and both are associated with increased incidence of STIs

and nonmarital pregnancy.^{78,79} Therefore it should come as no surprise that pledgers were less likely than nonpledgers to have visited a doctor about an STD (16% for pledgers vs. 21% for nonpledgers [$p = 0.000$]) and to have been tested for an STD (18% for pledgers vs. 30% for nonpledgers for females [$p = .000$] and 6% for pledgers vs. 10% for nonpledgers for males NS). Given that 1) most STIs cause no symptoms, 2) few people visit the doctor when asymptomatic, and 3) doctors seldom screen individuals for STIs,⁸⁰ the adolescents who visited a doctor, and the adolescents who got screened, probably did so because they had symptoms. Because most STIs are asymptomatic, it is inevitable that both sexually active pledgers and nonpledgers had STIs that went undiagnosed.

Santelli et al, citing Bruckner and Bearman, then set up the straw man of condom use at first sex. They point out that pledgers and nonpledgers differ on condom use at first sex, but fail to indicate that the difference is slight (55% for pledgers and 60% for nonpledgers, $p < 0.02$). Condom use at first sex is a one-time-only event of no epidemiological import. Not surprisingly, the relatively minor differences noted between pledgers and nonpledgers disappeared by the next Wave when both pledgers and nonpledgers had similar condom use rates at both “last sex” and during the previous year. Unfortunately, condom use at first sex is not an important variable when it comes to STI risk reduction. In contrast, consistent condom use, though rarely achieved (ie, 50% for adult HIV-serodiscordant couples⁸¹ and 14% for participants > 14 years of age in project RESPECT – a controlled trial of HIV/STD client-centered counseling),⁸² does affect STI acquisition. Consistent (always) use reduces risk of HIV transmission by $\sim 85\%$ ⁸³ and reduces risk for STIs such as syphilis, gonorrhea, and chlamydia by $\sim 30\% - 60\%$.⁸⁴ Although inconsistent condom use may decrease risk for HIV,⁸⁵ and genital herpes,⁸⁶ it may actually increase risk for gonorrhea and chlamydia.⁸⁷

Next, Santelli et al mention that Robert Rector of the Heritage Foundation reanalyzed the Add Health data and criticized the Bruckner study. They then declare that “...the Rector study has not undergone peer review and it, in turn, has been severely criticized for manipulating statistical norms for significance.” As evidence, they hold up a non-peer-reviewed opinion piece from an online news magazine.⁸⁸

Santelli et al conclude this section with the following unsubstantiated assertion.

Based on our review of the evaluations of specific AO[sic]E curricula and research on virginity pledges, user failure with abstinence appears to be very high. Thus, although theoretically completely effective in preventing pregnancy, in actual practice the efficacy of AO[sic]E interventions *may approach zero* [emphasis added].

Promising data on the efficacy of abstinence education are beginning to appear. A 2005 peer-reviewed article⁸⁹ showed that, at follow up, initially sexually active students in the abstinence education intervention reported fewer episodes of intercourse ($p < .05$) and fewer partners ($p < .01$) than their nonintervention counterparts. Sexually active adolescents in the intervention group were slightly more likely than their sexually active counterparts to use condoms consistently (OR 1.2, CI = 0.7 – 2.0), though this was not statistically significant. It is absurd to equate pledging, an activity, with an abstinence education program. Pledging is a poor surrogate for abstinence education. Nevertheless, Bruckner’s findings that pledgers debuted later and had fewer partners than their nonpledging counterparts speaks well for this relatively brief activity.

Impact of abstinence-only policies on comprehensive sexuality education

In this section, Santelli et al state that “health professionals *strongly* [emphasis added] support comprehensive sexuality education.” For proof, the authors cite a statement in an American Academy of Pediatrics (AAP) document,⁹⁰ an American Medical Association (AMA) policy,⁹¹ and an American Public Health Association (APHA) publication.⁹² Two of the 3 statements referenced (AAP

and APHA) do not contain the phrase “comprehensive sexuality education or “sex education.”^j Only 1 of these statements – the AMA statement – actually supports “comprehensive sexuality education.”

Santelli et al next say that

[t]he cancellation of Programs that Work from [DASH] at the Centers for Disease Control and Prevention, [sic] is another example [of comprehensive sex education being replaced by abstinence education]. Programs that Work used a rigorous peer-reviewed process to identify programs that were effective in changing adolescent sexual risk behaviors; this cancellation is believed to be the result of the [CDC's] failure to identify any abstinence-only [sic] programs as effective.

As evidence, the authors cite a 2002 Waxman letter to DHHS Secretary Thompson posted on The Memory Hole.⁹³ After reading this letter, readers who are only marginally familiar with the topic might think that “Programs that Work” was some sort of federally funded program that was cancelled. In fact, Programs that Work was a *list* of 7 classroom-based educational programs targeting tobacco use, HIV, STD, and pregnancy prevention for school-aged youth. To be included on this list, program curricula had to have been evaluated in a quasi-experimental fashion and the results of the evaluation published in a peer-reviewed journal. Thus, the assertion that CDC cancelled Programs that Work is deceptive. It is correct that the webpage, last updated on October 24, 2000, no longer appears. The CDC, like other government agencies, is constantly updating its website. No evidence is provided to support the theory advanced by Santelli et al that this was a result of CDC’s failure to “identify any abstinence-only [sic] programs as effective.”

Next, Santelli et al describe a 2005 Waxman letter to DHHS Secretary Leavitt that characterized federally sponsored “abstinence-inspired DHHS (4parent[s].gov) website as inaccurate and ineffective, promoting misleading and inaccurate information on STIs and condoms, and providing a narrow focus on abstinence.” Some representative examples of STI (chlamydia) and condom information from 4parents.gov appear below; the table is much larger and has references.

For example, an STD called [c]hlamydia is very common in the United States and the rest of the world. Between 3 and 14 percent of teen girls and young women (15 to 24 years old) who come into family planning clinics have this disease. Again, it's important that you tell your teen son or daughter that [c]hlamydia often doesn't have any symptoms, or, if it does, they may be mild lower stomach pains at the onset of the infection.

Antibiotics can cure [c]hlamydia if a person is tested and found to be infected. But if it's not treated soon enough, [c]hlamydia can cause scars in the fallopian tubes where fertilization occurs. These scars can cause a tubal pregnancy (where the developing fetus is trapped in the fallopian tube), or infertility (when the young woman can't have a baby). Chlamydia and a similar but more damaging infection called gonorrhea can cause pain in the lower abdomen in women even after treatment. Both [c]hlamydia and gonorrhea can cause a discharge and pain in the penis of men. But most men who are infected don't know they are infected either.

^j The AAP statement says that “[c]hildren and adolescents need accurate and comprehensive education about sexuality to practice healthy sexual behavior as adults” and that pediatricians should “[e]ncourage schools to begin sexuality education in the fifth or sixth grade as a component of comprehensive *school health education* [emphasis added] and to use curricula that provide effective and balanced approaches to puberty, abstinence, decision-making, contraception, and STD and HIV prevention strategies . . .” The APHA statement encourages government leaders to ensure that “sexuality education programs include comprehensive, medically-accurate information.

Common STDs	Chlamydia	HSV: Herpes Simplex	Human Papilloma Virus (HPV) and Genital Warts	HIV/AIDS
Can condoms help if always used (100% of the time and correctly)?	Condom use is associated with some decreased risk. (Risk reduction is 50% or less.)*	Condom use is associated with some decreased risk. (Risk reduction is 50% or less.)*	No evidence that condom use reduces risk of HPV infection. Some evidence that condoms reduce the risk of HPV-associated diseases.	Condom use decreases the risk of HIV/AIDS transmission by approximately 85%.

Even when a condom is used every time someone has sex, the person can still get an STD if the condom slips, breaks or is used incorrectly. If this happens, the chances of getting an infection increase dramatically. You should also know that condoms only partially protect people from bacterial and viral infections that live on the skin. For example, herpes and HPV can be shared by contact with infected areas of the skin that are not covered by the condom, even when there are no signs of infection or symptoms. Condoms do a better job of protecting against some STDs than others. The STD chart tells whether condoms protect a lot or a little for each of the common STDs.

While condoms aren't perfect, they are the only method of contraception that can help reduce the risk of STDs. Other methods of contraception like birth control pills, shots and patches do not reduce the risk of STDs. Tell your son or daughter that the best way to avoid getting an STD is for them not to have vaginal, oral, or anal sex until they are in a mutually faithful, monogamous relationship, preferably marriage.

This information differs little from that appearing on CDC websites, and is consonant with both the NIH report on condom efficacy⁹⁴ as well as more recent documents.⁹⁵ Additionally, the last sentence of the condom paragraph quoted above, far from providing a "narrow focus on abstinence," is in agreement with the 2004 Common Ground statement,⁹⁶ endorsed by 140 AIDS specialists and policy-makers from 20 countries, which states

[W]hen targeting young people, for those who have not started sexual activity the first priority should be to encourage abstinence or delay of sexual onset, . . . After sexual debut, returning to abstinence or being mutually faithful with an uninfected partner are the most effective ways of avoiding infection.

It is worth noting that health-related government websites and information often offer opinions rather than evidence-based information on sexual health topics. For instance, from 1999 until 2002 the following statement was posted on the FDA website, "Some experts believe nonoxynol-9 may kill the AIDS virus during intercourse, too. So you might want to use a spermicide along with a latex condom as an added precaution. . . ."⁹⁷ This statement was posted despite the fact that no clinical trials had ever demonstrated any risk reduction for HIV transmission associated with nonoxynol-9; in fact, some studies had suggested increased STI risk. As recently as May 2006, the CDC website⁹⁸ contained the following HIV prevention information

Studies have shown that latex condoms are very effective, though not perfect, in preventing HIV transmission when used correctly and consistently. . . If you choose to perform oral sex with either a male or female partner and this sex includes oral contact with your partners [sic] anus (analgingus or rimming), use a latex barrier (such as a natural rubber latex sheet, a dental dam or a cut-open condom that makes a square) between your mouth and the anus. *Plastic food wrap* [emphasis added] also can be used as a barrier.

Although there are multiple studies to support the first sentence in this statement, there are no studies to support the recommendations that follow it. Recommendations that are based solely on opinion should be clearly described as such.

Finally, Santelli et al state that in 1999, one quarter of surveyed sex education teachers “said they were prohibited from teaching about contraception.” Although readers may interpret this as evidence of federal restrictions or censorship, the authors failed to mention that the very same survey revealed that half of the teachers said that they *had been directed to teach* about birth control, and also that the proportion of teachers who formally taught about birth control changed little between 1988 (70%) and 1999 (68%).⁹⁹ All this survey demonstrates is that decisions about curriculum content are made at the state and local rather than the federal level.

Impact of federal abstinence policies on pregnancy and HIV prevention programs

In this section, Santelli et al state that because program priorities for “Title X grantees would include a focus on extramarital abstinence education and counseling, increasing parental involvement in the decisions of minors, the reporting of statutory rape, and working with faith-based organizations,” efforts to promote “effective reproductive health services for adolescents” may be weakened. They cite a 2-page Guttmacher report.¹⁰⁰ This report, however, provides *no* evidence to substantiate the assertion. Instead, it mentions that services include “extramarital abstinence education and counseling” designed to “encourage abstinence outside a mutually monogamous marriage or union” and states that HIV/AIDS education “should incorporate the ‘ABC’ message.”

Next, Santelli et al state that the President’s Emergency Plan for AIDS Relief (PEPFAR) that requires grantees to promote abstinence-until-marriage programs has influenced global HIV prevention efforts. They go on to assert that the “US government policy has become a source for misinformation and censorship in these countries.” The policy to which the authors refer, ABC – or abstinence, be faithful, and use condoms – was adopted from Uganda, the one country in the world to have dramatically reversed a nationwide HIV epidemic.¹⁰¹

To support their allegations of misinformation and censorship, Santelli et al cite from the non-peer-reviewed *Human Rights Watch*.¹⁰² However, a word search (misinformation, censorship) of the document reveals no passages that are remotely relevant to this assertion. Although one passage states that “according to testimony gathered by [HRW] in 2002, government officials [in India] and medical staff sometimes provided misinformation about HIV transmission and disease progression,” this is also irrelevant, as India is not a PEPFAR country and the PEPFAR initiative was not announced until January 2003.

Finally, the authors maintain that the emphasis on abstinence “may have reduced condom availability and access to accurate information on HIV/AIDS” in some countries. However no data are provided to support the assertion that condom availability has been reduced by US government policy. Santelli et al neglect to mention that to date, in HIV endemic areas such as sub-Saharan Africa, the countries with the highest levels of condom availability are also the countries with the highest HIV prevalences; and that the countries with low availability have low HIV rates.¹⁰³

Abstinence-only [sic] education and sexually active youth

In this section, Santelli et al state, “Programs geared to adolescents who have not yet engaged in coitus systematically ignore sexually experienced adolescents, a group with specific reproductive health needs and who often require more than abstinence education.” While they cite 1 commentary,¹⁰⁴ they provide no data to support this assertion.

To the contrary, the authors of a recent peer-reviewed evaluation of an abstinence curriculum¹⁰⁵ describe the curriculum as “...designed to address both the sexually experienced and inexperienced by emphasizing the value of renewed abstinence among the sexually experienced.” Additionally, the 2004 Common Ground statement,¹⁰⁶ mentioned earlier, advises sexually active young people to [return] to abstinence or [be] mutually faithful with an uninfected partner . . . [to avoid HIV] infection.

Abstinence-only [sic] education and GLBTQ youth

In this section, Santelli et al allege that “[a]bstinence-only [sic] sex education *may* [emphasis added] have profoundly negative impacts on the well-being of gay, lesbian, bisexual, transgender and questioning youth.” They provide no citation to support this allegation.

They go on to state that abstinence only [sic] sex education classes “ . . . often [emphasis added] stigmatize homosexuality as deviant and unnatural behavior.” The cited reference¹⁰⁷ does not contain the words “stigmatize” or “deviant” and just 1 abstinence education curriculum that describes anal intercourse as “unnatural behavior” is mentioned. However, the referenced curriculum does not describe homosexuality as deviant or unnatural.

Finally, Santelli et al assert that “[h]omophobia contributes to health problems such as suicide, feeling of isolation and loneliness, HIV infection, substance abuse, and violence among GLBTQ youth.” Although 2 articles by Garafalo et al are cited to support this statement, neither one mentions the word “abstinence” in any context. One article¹⁰⁸ makes no mention of the word “homophobia;” Garafalo et al do, however, state that “the data collected were part of a cross-sectional survey, and therefore we cannot draw conclusions about causality.” The other article¹⁰⁹ is a review that cites other review articles to support the contention that “internalized homophobia” causes risky behavior. Scientific articles that use primary sources to support their arguments are usually considered more credible than those relying on secondary or tertiary sources.

The human right to sexual health information

In this section, Santelli et al state that “although abstinence is often presented as the moral choice for adolescents, we believe that the current federal approach focusing on AO[sic]E raises serious ethical and human rights concerns.”

Despite having previously rejected moral considerations to inform public health prevention messages, throughout the last 3 sections of this article, the authors tout internationally recognized ethical obligations as the *ne plus ultra* of public health decision making. They appear oblivious to the fact that ethics has to do with conforming to moral standards or to professional standards of conduct. And, despite having communicated with a “broad range of scientists and policymakers,” the authors appear unable to identify any *domestic* documents or policies to support their arguments. Instead, they rely exclusively on international documents.

No one would dispute that all individuals should be able to easily access complete and accurate HIV/AIDS and sexual health information so that they can attain the highest standard of health. No one would disagree that governments and government-funded health education and health care services should provide accurate information to their citizenry. Everyone would agree that any health information provided should be age appropriate. Likewise, right-minded people would agree that governments should take all necessary steps for the “prevention, treatment, and control of . . . diseases.” However, Santelli et al select statements from international documents that appear to condone family planning services for children.

For instance, Santelli et al cite UN Guidelines on HIV/AIDS and Human Rights that state that “children and adolescents [should be ensured] adequate access to confidential sexual and reproductive health services, including HIV/AIDS information, counseling, testing and prevention measures such as condoms[.]”¹¹⁰

Let us be perfectly clear: in the US, any child in “need” of reproductive health services or condoms is an abused child. Such a situation must – morally, ethically, and legally – be reported to authorities. Any adult who allows child abuse to go unreported is complicit in the abuse and is morally bankrupt. It is not surprising that Santelli et al quote international documents to support arguments for

pediatric reproductive health services and condoms. In the US, provision of reproductive services or condoms to children is considered a serious human rights violation as it implicitly condones the sexual exploitation and abuse of children.

Ethical obligations of health care providers and health educators

Throughout this section, Santelli et al remind the reader that healthcare providers have ethical obligations to provide accurate information, to not withhold information, and to provide informed consent. They then state that similar obligations apply to health educators. This is not exactly true, and most of the authors' errors in this section stem from conflating the professional roles, codes of conduct, and professional-client relationships for health educators and physicians. It is useful here to compare and contrast societal roles and responsibilities of health educators and healthcare providers. We focus here on physicians, as they are the healthcare providers with the most responsibility and are therefore held to the highest ethical standards.

Health educators are responsible for educating groups of students residing within a given community that has a particular set of norms and values. *Physicians* are responsible for treating and educating one patient at a time in a manner that is respectful of each patient's individual values, but without particular deference to community values. *Health educators* must tailor their messages to a population of students with a wide range of behaviors, backgrounds, and sensitivities. *Physicians* must tailor their communication to an individual patient. *Health educators* usually have a brief relationship (1 or 2 semesters) with their students. *Physicians* generally have much longer (often years) and more personal relationships with their patients. *Health educators* communicate information to students; this information is primarily unidirectional. *Physicians* communicate with their patients; this information is bidirectional. *Health educators* are not authorized to practice medicine. Indeed, they have a duty to be "truthful about their qualifications and the limitations of their expertise and provide services consistent with their competencies"¹¹¹ and to "recognize the boundaries of their professional competence . . ."¹¹² *Physicians*, on the other hand, are authorized to practice medicine and have a duty to "study, apply, and advance scientific knowledge . . [and] maintain a commitment to medical education."¹¹³ *Health educators* who interact with sexually active students should refer them to a *physician* (or other healthcare practitioner licensed to provide primary care under the supervision of an MD, such as an LNP or PA) for individualized attention.

The authors' statement that "[i]nformed consent requires provision of all pertinent information to the patient" applies to physicians only, and not to health educators, as suggested by the authors. Students are not patients and any health educator obtaining informed consent from a student is operating beyond the boundaries of their professional competence.¹¹⁴ In contrast, physicians are ethically obligated and legally required to employ informed choice to explain risks and benefits of proposed treatments to patients. According to the AMA, "informed consent [choice] is a process of communication between a patient and physician that results in the patient's authorization or agreement to undergo a specific medical intervention."¹¹⁵ During this process, the physician and patient discuss risks and benefits of proposed treatments and alternatives.

Sexually active adolescents need to be individually counseled by a physician or other healthcare provider about their risks and informed of the best way to avoid risks – abstinence. Physicians should advise adolescents who plan to be sexually active on the expected degree of risk reduction for STIs and pregnancy provided by contraceptive and condom use. They should discuss oral sex and anal intercourse with sexually active adolescents. Physicians should tell sexually active adolescents that there are no scientific data that show that consistent condom use provides statistically significant HIV risk reduction for either oral sex or anal intercourse (Appendix). They should also teach sexually active adolescents how to use both contraceptives and condoms, and teach that both must be used consistently during vaginal sex to reduce STI and pregnancy risk. Physicians should regularly screen sexually active adolescents for STIs.¹¹⁶

No one would disagree that “it is unethical to provide misinformation” to students on sexual health, and most abstinence curricula discuss contraceptives and condoms. Santelli et al appear to suggest that educators who refrain from advising students about contraceptive and condom use are somehow keeping adolescents from “protecting” themselves against STIs and pregnancy. This statement is predicated upon the assumption that the use of contraceptives and condoms protect sexually active adolescents against STIs and pregnancy when, in fact, these methods only reduce the risk of these adverse outcomes. The authors conclude this section by stating that AO[sic]E is “ethically problematic” because it “. . . excludes accurate information about contraception, misinforms by overemphasizing or misstating the risks of contraception, and fails to require the use of scientifically accurate information while promoting approaches of questionable value.” The authors have not disappointed the readers; they have maintained their strategy of presenting unsubstantiated allegations.

Conclusion

Over the last few years, abstinence education programs have been unfairly attacked from many quarters. While such attacks are to be expected from advocacy groups who oppose abstinence education, it is unusual for a peer-reviewed journal to publish a review article based on absent or unconvincing evidence. The Santelli et al review article is replete with serious omissions, misrepresentations, deviations from accepted practices, and opinions represented as fact.

Research on brain development ¹¹⁷ demonstrates that it is important for adults who provide guidance to adolescents to give them more than just information – they need direction. Most international HIV/AIDS experts agree that abstinence is the best choice for youth.¹¹⁸ Abstinence education is based on the public health principle of primary prevention – risk avoidance rather than risk reduction. Adolescents need to be given accurate information about STI and pregnancy risks associated with sexual activity. Both adults and adolescents need to know that although risk reduction strategies (ie, condoms and contraceptives) may partially reduce the burden of adverse outcomes in a population, they leave individuals at significant risk. In contrast, abstinence education teaches risk avoidance strategies that help adolescents to each achieve their human right to the “highest attainable standard of health.”¹¹⁹

As summarized in Table 2, school-based sex education programs have yet to be proven effective in reducing STI or pregnancy rates. In contrast, evaluations of community-based abstinence programs published in peer-reviewed journals ^{120,121} have demonstrated effectiveness in significantly reducing pregnancy rates. Therefore, federal policies that promote community-based abstinence strategies for adolescent pregnancy and STI prevention are supported by scientific evidence. Adolescents need to receive a clear abstinence message from all sectors of society – from the media, from schools, from the faith community, from their peers, and most importantly, from their parents and other trusted adults. Anything less is neither moral nor ethical.

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Appendix

To identify articles that might address whether condom use during anal intercourse provides significant risk reduction for HIV infection the following search string was used: ("anal intercourse" OR "anal sex") AND HIV AND condoms AND ("risk reduction" OR "harm reduction" OR protection) AND (efficacy OR effectiveness). 16 articles were identified.¹⁻¹⁶ None included data showing that condom use significantly reduces HIV risk when consistently used during anal intercourse. We called experts in the field to identify other possible articles that might address this same issue. One additional article was identified. This article, by Vittinghoff et al,¹⁷ seems to include data that could potentially address the degree of HIV risk reduction provided by consistent condom use. According to the authors, consistent use decreases risk from 2.7 (CI 0.6 – 4.9) to 1.8 (CI 1.0 – 2.8) per 1,000 acts with a partner who is HIV (+) or of unknown status – or about 30%. Despite the fact that the authors performed and reported extensive statistical tests for several other variables (ie, risk factors) in their data set, a statistical test to assess whether consistent condom use significantly reduced risk (ie, was a protective factor) was conspicuously omitted for this variable. In the discussion, the authors speculate on, but do not explain, why HIV infection risk for anal intercourse *with* condoms is still two-thirds the risk of HIV infection *without* condoms.

To identify articles that might address whether condom use during oral sex provides significant risk reduction for HIV infection the following search string was used: ("oral sex") AND HIV AND condoms AND ("risk reduction" OR protection OR "harm reduction") AND (efficacy OR effectiveness). 5 articles were identified.¹⁸⁻²² None included data showing a significant reduction in HIV infection with consistent condom use during oral sex.

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