



Journal of Adolescent Health 38 (2006) 72-81

Review article

Abstinence and abstinence-only education: A review of U.S. policies and programs

John Santelli, M.D., M.P.H.^{a,*}, Mary A. Ott, M.D.^b, Maureen Lyon, Ph.D.^c, Jennifer Rogers, M.P.H.^d, Daniel Summers, M.D.^e, and Rebecca Schleifer, J.D., M.P.H.^f

"Heilbrunn Department of Population & Family Health, Mailman School of Public Health, Columbia University, New York, New York

b Section of Adolescent Medicine, Department of Pediatrics, Indiana University School of Medicine, Indianapolis, Indiana

c Division of Adolescent and Young Adult Medicine, Children's National Medical Center and Department of Pediatrics, George Washington University

Medical Center, Washington, DC

^dAmerican College of Preventive Medicine, Washington, DC
^eMt. Sinai Adolescent Health Center, Mount Sinai School of Medicine, New York, New York

fHuman Rights Watch, New York, New York

Manuscript received May 31, 2005; manuscript accepted October 14, 2005

Abstract:

Abstinence from sexual intercourse is an important behavioral strategy for preventing human immunodeficiency virus (HIV), other sexually transmitted infections (STIs), and pregnancy among adolescents. Many adolescents, including most younger adolescents, have not initiated sexual intercourse and many sexually experienced adolescents and young adults are abstinent for varying periods of time. There is broad support for abstinence as a necessary and appropriate part of sexuality education. Controversy arises when abstinence is provided to adolescents as a sole choice and where health information on other choices is restricted or misrepresented. Although abstinence is theoretically fully effective, in actual practice abstinence often fails to protect against pregnancy and STIs. Few Americans remain abstinent until marriage; many do not or cannot marry, and most initiate sexual intercourse and other sexual behaviors as adolescents. Although abstinence is a healthy behavioral option for teens, abstinence as a sole option for adolescents is scientifically and ethically problematic. A recent emphasis on abstinence-only programs and policies appears to be undermining more comprehensive sexuality education and other government-sponsored programs. We believe that abstinence-only education programs, as defined by federal funding requirements, are morally problematic, by withholding information and promoting questionable and inaccurate opinions. Abstinence-only programs threaten fundamental human rights to health, information, and life. © 2006 Society for Adolescent Medicine. All rights reserved.

Keywords:

Abstinence; Sex education; Policy

This article reviews key issues related to understanding and evaluating abstinence-only (AOE) or abstinence-untilmarriage policies. We use the term AOE programs and policies to describe those that adhere to federal requirements (Table 1). We begin with background information on definitions of abstinence, initiation of sexual intercourse and marriage, physical and psychological health outcomes from these behaviors, and public support for abstinence and comprehensive sexuality education. Next, we review current federal policy and evaluations of abstinence education, including approaches to program evaluation and concepts of efficacy in preventing pregnancy and sexually transmitted infections (STIs). We then turn to the impact of AOE on other programs and the implications of AOE for specific populations such as youth who are sexually active (i.e., currently engaging in intercourse) and gay, lesbian, bisexual, transgender, and questioning (GLBTQ) youth. Finally,

^{*}Address correspondence to: Dr. John Santelli, Heilbrunn Department of Population and Family Health, Mailman School of Public Health, Columbia University, 60 Haven Avenue, B-2, New York, NY 10032. E-mail address: js2637@columbia.edu

Table 1 Federal definition of abstinence-only education

- Under Section 510 of the 1996 Social Security Act abstinence education is defined as an educational or motivational program which:
- (A) has as its exclusive purpose, teaching the social, psychological, and health gains to be realized by abstaining from sexual activity
- (B) teaches abstinence from sexual activity outside marriage as the expected standard for all school-age children
- (C) teaches that abstinence from sexual activity is the only certain way to avoid out-of-wedlock pregnancy, sexually transmitted diseases, and other associated health problems
- (D) teaches that a mutually faithful monogamous relationship in the context of marriage is the expected standard of human sexual activity
- (E) teaches that sexual activity outside of the context of marriage is likely to have harmful psychological and physical effects
- (F) teaches that bearing children out-of-wedlock is likely to have harmful consequences for the child, the child's parents, and society
- (G) teaches young people how to reject sexual advances and how alcohol and drug use increases vulnerability to sexual advances
- (H) teaches the importance of attaining self-sufficiency before engaging in sexual activity

we explore critical human rights issues raised by AOE, including the right to health information and the ethical obligations of health care providers and health educators.

Methodology

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 policymakers. We also actively monitored newspaper reports and internet 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 AOE are often available only from other sources such as government reports, websites or reports from advocacy organizations. For example, the two federally sponsored evaluation reports of the AOE program are available only as reports; although such reports are generally closely scrutinized by government scientists, they may not receive outside review. Likewise, information on human rights was taken from international declarations and from reports provided by human rights advocacy organizations. A variety of reports have been issued by advocacy groups that often support or oppose AOE. We have included these publications where we considered such opinions to be important, where these opinions were influential in policy debates, or where information was not available from alternative sources. Where research findings from non-peer-reviewed sources are cited, we have identified these in the text.

Definitions of abstinence

Abstinence, as the term is used by program planners and policymakers, is often not clearly defined. Abstinence may be

defined in behavioral terms, such as "postponing sex" or "never had vaginal sex," or refraining from further sexual intercourse if sexually experienced, i.e., ever had sexual intercourse. Other sexual behaviors may or may not be considered within the definition of "abstinence," including touching, kissing, mutual masturbation, oral sex, and anal sex. Self-identified "virgins" engage in a variety of non-coital genital activities [1]. Sexual behavior among adolescents is often sporadic, and "secondary abstinence" is common.

Abstinence, as used in government policies and local programs, is also frequently defined in moral terms, using language such as "chaste" or "virgin" and framing abstinence as an attitude or a commitment. One study of abstinence-only program directors, instructors, and youth found that all groups defined abstinence in moral terms, such as "making a commitment" and "being responsible," as well as in more behavioral terms, such as not engaging in coitus [2]. Federal regulations for domestic AOE funding also adopt a moral and culturally specific definition of abstinence, requiring that abstinence education "teaches that a mutually faithful monogamous relationship in context of marriage is the expected standard of human sexual activity" [3].

In understanding the ongoing debates about abstinence education, it is important to understand that although health professionals generally view abstinence as a behavioral issue or as a health issue, many advocates of AOE programs are primarily concerned with issues such as character and morality, based on their specific religious or moral beliefs. In this review, we have defined abstinence as abstinence from sexual intercourse and focused on abstinence as a public health issue, recognizing that many people view abstinence as a moral or religious issue.

Initiation of sexual intercourse and marriage

Although abstinence until marriage is the goal of many abstinence policies and programs, few Americans wait until marriage to initiate sexual intercourse. Most Americans initiate sexual intercourse during their adolescent years. Recent data indicate that the median age at first intercourse for women was 17.4 years, whereas the median age at first marriage was 25.3 years [4,5] (Figure 1). In 1970, the time between first intercourse and first marriage was considerably shorter. For men in 2002, the corresponding median age at first intercourse was 17.7 years, whereas the age at first marriage was 27.1 years [4,5].

Physical and psychological health outcomes for adolescent sexual behaviors

Initiation of sexual intercourse in adolescence is accompanied by considerable risk of STIs and pregnancy. Adolescents have the highest age-specific risk for many STIs [6], and the highest age-specific proportion of unintended pregnancy in the United States [7]. The United States con-

Age of First Intercourse & First Marriage in Women: 1970, 2002

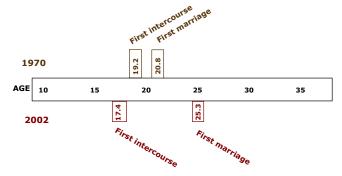


Figure 1. Age of first intercourse and first marriage in women: 1970 and 2002.

tinues to lead the developed world in adolescent pregnancy rates [4]. Over 800,000 adolescents become pregnant each year, 80% of these pregnancies are unintended, and many of these end in abortion [8]. An estimated 18.9 million STIs occurred in 2000 in the United States; almost half of these in adolescents and young adults under 25 [9]. Long-term sequelae of STIs can include infertility, tubal pregnancy, fetal and infant demise, chronic pelvic pain, and cervical cancer [10].

A significant proportion of human immunodeficiency virus (HIV) infections appear to be acquired during adolescence [11,12]. Estimates suggest that 50% of new HIV infections occur among people younger than 25 years, with 25% of infections occurring among adolescents aged 22 years or younger [13]. Young men having sex with men and young heterosexual minority women are at elevated risk of HIV infection [14,15].

Compared with women who have their first child after age 19, adolescents who become mothers are more likely to suffer adverse social and health consequences, although much of the difference in outcomes can be attributed to the adverse economic and social circumstances that contributed to the adolescent pregnancy [16]. The children of adolescent mothers perform more poorly on indicators of health and social well-being than children of older mothers [16]. A recent analysis found that declines in adolescent birth rates in the 1990s were significantly responsible for reducing child poverty and single-parent families during the 1990s [17].

Although federal AOE funding language requires teaching that sexual activity outside of the context of marriage is likely to have harmful psychological effects, there are no scientific data suggesting that consensual sex between adolescents is harmful. Early sexual activity and pregnancy are associated with adverse childhood experiences [18], including sexual abuse [19], unsupportive social environments [20], and individual mental health problems such as conduct disorder and substance abuse [21,22]. Thus, certain mental

health problems are associated with early sexual activity, but these studies suggest that sexual activity is a consequence of pre-existing mental health problems. We are aware of no reports that address whether the initiation of adolescent sexual intercourse itself has an adverse impact on mental health. We also know little about whether purposively remaining abstinent until marriage promotes personal resiliency or sexual function or dysfunction in adulthood.

Studies of psychological reactions following abortion have consistently shown that the risk of psychological harm is low [23], and post-abortion reports of distress and dysfunction are lower than pre-abortion rates [23]. Long-term rates of psychological distress among women after having an abortion are generally the same or lower compared with the general population [24]. Longitudinal studies with adolescents show similar findings of improved psychological functioning post-abortion, and low rates of distress with one- to two-year follow-up [25,26]. Abortion has relatively fewer medical risks, when compared with the risks of child-bearing. From 1991 to 1999, the pregnancy-related mortality ratio was 11.8 deaths per 100,000 live births, whereas the mortality rate averaged less than one per 100,000 legal abortions from 1980 to 1997 [27,28].

Public support for abstinence and comprehensive sexuality education

Public opinion polls suggest strong support for abstinence as a behavioral goal for adolescents [29,30]. These polls also indicate strong support for education about contraception and for access to contraception for sexually active adolescents.

Data from a recent nationwide poll of middle school and high school parents found overwhelming support for sex education in school; 90% believed it was very or somewhat important that sex education be taught in school, whereas 7% of parents did not want sex education to be taught [30]. Only 15% wanted an abstinence-only form of sex education. Parents thought it was appropriate to provide high school and middle school youth with broad information on sexual issues, including sexually transmitted infections (99%), "how babies are made" (96%), waiting to have intercourse until older (95%), how to make responsible sexual choices based on individual values (91%), how to use and where to get contraceptives (86%), abortion (85%), masturbation (77%), homosexuality (73%), oral sex (72%), and that teens can obtain birth control pills from clinics and doctors without parents' permission (71%) [30]. In these polls, most parents and most adolescents do not see education that stresses abstinence while also providing information about contraception as a mixed message [29,30].

Current federal policy and local programs

Although the federal government began supporting abstinence promotion programs in 1981 via the Adolescent Family Life Act (AFLA), 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 other information [31-33]. These expansions include Section 510 of the Social Security Act in 1996, which was part of welfare reform, and Community-Based Abstinence Education projects in 2000, funded through an earmark in the maternal child health block grant for Special Projects of Regional and National Significance (SPRANS) program. The SPRANS program bypasses the 510 program's state approval processes and makes grants directly to community-based organizations. Eligible applicants include faith-based organizations. Both 510 and SPRANS programs prohibit disseminating information on contraceptive services, sexual orientation and gender identity, and other aspects of human sexuality [32]. Section 510 provides an eight-point definition of abstinence-only education (Table 1) and specifies that programs must have as their "exclusive purpose" the promotion of abstinence outside of marriage and may not in any way advocate contraceptive use or discuss contraceptive methods except to emphasize their failure rates [32,33].

Since fiscal year (FY) 1997, programs funded under the AFLA have been required to comply with these Section 510 requirements [32]. The initial implementation of 510 has allowed funded programs to emphasize different aspects of these eight points as long as the program did not contradict any of them. The Congressional intent of the SPRANS program was more rigid: to create "pure" abstinence-only programs, in response to concerns that states were using funds for "soft" activities such as media campaigns instead of direct classroom instruction and were targeting younger adolescents [32]. Programs funded under SPRANS must teach all eight components of the federal definition, they must target 12-18-year-olds, and, except in limited circumstances, they cannot provide young people they serve with information about contraception or safer-sex practices, even with their own non-federal funds [32]. Three states, including, most recently, Maine, have refused federal AOE funding given federal restrictions on providing information about contraception [34].

Federal funding for abstinence-only programs has increased from \$60 million in FY 1998 to \$168 million in FY 2005 [35,36]. Section 510 requires funded states to match three state dollars for every four federal dollars. Virtually all the growth in funding since FY 2001 (to \$105 million in FY 2005) has come in the SPRANS program. In 2004, the administration of the 510 program and SPRANS program was moved administratively within the Department of Health and Human Services (DHHS), from the health-focused Maternal and Child Health Bureau (MCHB) to the

Administration of Children and Families, the federal agency that promotes marriage and responsible fatherhood, reportedly in order "to enhance and coordinate similar youth programs within HHS" [37]. This move may also have reflected some Congressional dissatisfaction with MCHB's flexible implementation of the program.

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

To demonstrate efficacy, evaluations of specific abstinence promotion programs must address methodological issues including (1) clear definitions of abstinence (as discussed above), (2) appropriate research design, (3) measurement issues including social desirability bias, and (4) the use of behavior changes as outcomes [38]. Evaluations should also consider the use of biological outcomes such as STIs, in addition to behavioral measures. Experimental and quasi-experimental research designs can be used to avoid self-selection bias and to isolate program effect from changes in the individual due to increasing age or maturation. Biological outcomes such as STI incidence or prevalence may significantly improve the validity of program evaluations.

Two recent systematic reviews examined the evidence supporting abstinence-only programs and comprehensive sexuality education programs designed to promote abstinence from sexual intercourse [39,40]. These reviews employed similar scientific criteria in selecting studies for evaluation. Program evaluations had to have been conducted since 1980, conducted in the United States or Canada, targeted teens under age 18, used an experimental or quasi-experimental design, and measured behavioral effects such as timing of first intercourse. Kirby also included studies that measured impact on pregnancy or childbearing but did not measure sexual behavior.

Both reviews demonstrated that comprehensive sexuality education effectively promoted abstinence as well as other protective behaviors. Among 28 studies of comprehensive programs evaluated in the Kirby review, nine were able to delay initiation of sexual intercourse, 18 showed no impact, and one hastened initiation of sex. Manlove et al identified three different types of comprehensive sexuality programs, and found that six of nine sex education programs delayed the onset of sex, compared with a control group, five of seven HIV/STI prevention programs delayed the onset of sex, and all four youth development programs delayed the onset of sex.

In contrast to the positive impact in delaying sexual intercourse seen with some comprehensive sexuality programs, Kirby found no scientific evidence that abstinence-only programs demonstrate efficacy in delaying initiation of sexual intercourse. Kirby found only three studies evaluating the impact of five different abstinence-only curricula that met minimal criteria for inclusion in the systematic

review. No new study results have changed this conclusion (personal communication with Doug Kirby, November 2004). The more recent (2004) review by Manlove, reviewing many of the same studies, reached similar conclusions. Both Manlove and Kirby identified the lack of rigorously evaluated programs as a major problem in evaluating the effectiveness of abstinence-only education.

Non-peer-reviewed studies provide little support for the current federal support for abstinence-only programs. A review by Robert Rector identified 10 evaluations of AOE programs that appeared to demonstrate behavior change as a result of program participation [41]. However, few of these evaluations met the minimum scientific criteria listed above, and all contained flaws in methodology or interpretation of the data that could lead to significantly biased results [42]. A review of 10 state program evaluations by Advocates for Youth found no evidence of an impact on adolescent sexual behavior [43].

A rigorous national evaluation of abstinence-only education is currently being conducted by Mathematica Policy Research, Inc. with support from the DHHS's Office of the Assistant Secretary for Planning and Evaluation (OASPE) [44]. The second report from the Mathematica evaluation of first-year impacts of the programs did not include information on behavioral outcomes, reportedly given the short duration of follow-up [45]. First-year impacts did include an increase in abstinence intentions (i.e., pledging to abstain from sex until marriage) and small effects on both norms supportive of abstinence and perceived consequences of teen and non-marital sex. No impacts were found for self-efficacy, self-esteem, or perceived self-control. A report on behavioral outcomes is planned when data collection is completed in 2005 [45].

The minority staff of the Committee on Government Reform of the U.S. House of Representatives reviewed commonly used abstinence-only curricula for evidence of scientific accuracy [35]. This report found that 11 of the 13 curricula contained false, misleading, or distorted information about reproductive health, including inaccurate information about contraceptive effectiveness, the risks of abortion, and other scientific errors. These curricula treat stereotypes about girls and boys as scientific fact and blur religious and scientific viewpoints [35].

Although counseling about abstinence is recommended as part of the American Medical Association's Guidelines for Adolescent Preventive Services, we found no published evaluations of clinical counseling to promote abstinence.

Concepts of efficacy for abstinence in preventing pregnancy and STIs

Abstinence from sexual intercourse has been described as fully protective against pregnancy and sexually transmitted infections. This is misleading and potentially harmful because it conflates theoretical effectiveness with the actual practice of abstinence. Abstinence is not 100% effective in preventing pregnancy or STIs as many teens fail in remaining abstinent. Moreover, some STIs may be spread via other forms of sexual activity, such as kissing or manual or oral stimulation. In addition to the program evaluations described above, attempts have been made to calculate the efficacy of abstinence in preventing pregnancy or STIs.

One approach has relied on notions from contraceptive efficacy research such as *method failure* or *perfect use* (i.e., theoretical or best use efficacy when a method is used perfectly, i.e., consistently and correctly) and *user failure* or *typical use* (i.e., effectiveness of a method as it is commonly used) [46–48]. However, efficacy trials of abstinence as a method of contraception that are comparable to contraceptive efficacy trials have not been conducted. The most useful data in understanding the efficacy of abstinence come from examination of the virginity pledge movement in the National Longitudinal Survey of Youth (Add Health) [49,50]. Virginity pledgers, like contraceptive users, are a self-selected group.

Add Health data suggest that many teens who intend to be abstinent fail to do so, and that when abstainers do initiate intercourse, many fail to protect themselves by using contraception [49,50]. Bearman and colleagues have examined the virginity pledge movement; they estimate that over 2.5 million adolescents have taken public "virginity pledges." They found that pledgers were more likely to delay initiation of intercourse, 18 months on average for adolescents aged 12-18 years. However, those pledgers who failed at abstinence were less likely to use contraception after they did initiate sexual intercourse. At six-year follow-up, the prevalence of STIs (chlamydia, gonorrhea, trichomoniasis, and human papillomavirus [HPV]) was similar among those taking the abstinence pledge and nonpledgers [50]. Although pledgers tended to marry earlier than non-pledgers, if married, most pledgers had vaginal intercourse before marriage (88%). Virtually all non-pledgers who had married had sex before marriage (99%). Although pledgers had fewer sexual partners compared to non-pledgers, they were less likely to report seeing a doctor for an STI concern and were less likely to receive STI testing.

Robert Rector of the Heritage Foundation has reanalyzed the Add Health data and severely criticized the Bruckner study in a recent presentation [51]. However, the Rector study has not undergone peer review and it, in turn, has been severely criticized for manipulating statistical norms for significance [52]. A serious flaw in this analysis was the use of self-reported STIs, instead of laboratory-reported infections as used in the Bruckner study. This is problematic given that many STIs are asymptomatic and pledgers were less likely to be tested for STIs.

Based on our review of the evaluations of specific AOE curricula and research on virginity pledges, user failure with abstinence appears to be very high. Thus, although theoret-

ically completely effective in preventing pregnancy, in actual practice the efficacy of AOE interventions may approach zero.

Impact of abstinence-only policies on comprehensive sexuality education

Health professionals, who often encounter patients who lack basic information about human sexuality, have strongly supported comprehensive sexuality education, including information about contraception and STI prevention [53–55].

Although comprehensive sexuality education is broadly supported by health professionals, increasingly, abstinenceonly education is replacing more comprehensive forms of sexuality education. In Texas, for example, the Texas Board of Education has decided to remove most information about contraception from new health education textbooks [56]. Recent reports describe teachers and students being censured for responding to questions or discussing sexuality topics that are not approved by the school administrators [57], as well as restricting access to HIV/AIDS experts from the classroom, and censoring what experts and teachers can say in the classroom [58]. The cancellation of Programs that Work from the Division of Adolescent and School Health at the Centers for Disease Control and Prevention, is another example. 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 Center for Disease Control and Prevention's (CDC) failure to identify any abstinenceonly programs as effective [59]. Likewise, Rep. Henry Waxman in a July 2005 letter to DHHS Secretary Michael Leavitt criticized an abstinence-inspired DHHS website (4parent.gov) as inaccurate and ineffective, promoting misleading and inaccurate information on STIs and condoms, and providing a narrow focus on abstinence [60]. The website used content from the National Physicians Center for Family Resources, a supporter of AOE, instead of scientists from the National Institutes of Health (NIH) or CDC or physicians from leading professional organizations such as the American Academy of Pediatrics or Society for Adolescent Medicine.

Surveys on health educational practice in the United States provide further evidence of an erosion of comprehensive sexuality education. Data from the School Health Policies and Programs Study in 2000 found that 92% of middle and junior high schools and 96% of high schools taught abstinence as the best way to avoid pregnancy, HIV, and STDs [61]. Only 21% of junior high and 55% of high school teachers taught the correct use of condoms. Between 1988 and 1999, sharp declines occurred in the percentage of teachers who supported teaching about birth control, abortion, and sexual orientation, and in the percentages who actually taught these subjects. For example, in 1999, 23% of secondary school sexuality education teachers taught absti-

nence as the only way to prevent pregnancy and STDs, compared with only 2% who had done so in 1988 [62]. In 1999, one-quarter of sex education teachers said they were prohibited from teaching about contraception.

Impact of federal abstinence policies on pregnancy and HIV prevention programs

Federal and state governments provide support for family planning programs, which are available to adolescents through Title X of the Public Health Service Act. Title X program guidelines stress that abstinence should be discussed with all adolescent clients. Starting in the FY 2004 service delivery grant announcements, Office of Population Affairs announced that program priorities for Title X grantees would include a focus on extramarital abstinence education and counseling, increasing parental involvement in the decisions of minors to seek family planning services, the reporting of statutory rape, and working with faith-based organizations. Thus, Title X grantees are now expected to focus on these new priorities, while continuing to provide condoms and other contraceptive services, STI and HIV prevention education, cancer screening, and other reproductive health services. These changes may weaken efforts to promote effective reproductive health services for adolescents and unmarried individuals who are sexually active [63].

Language stressing abstinence has also appeared in drafts of the CDC's Interim HIV Content Guidelines for AIDS-Related Materials. These Guidelines require that "all programs of education and information receiving funds under this title shall include information about the harmful effects of promiscuous sexual activity and intravenous drug use, and the benefits of abstaining from such activities" [64].

Abstinence-only policies by the U.S. government have also influenced global HIV prevention efforts. The President's Emergency Plan for AIDS Relief (PEPFAR), focusing on 15 countries in sub-Saharan Africa, the Caribbean, and Asia that have been severely affected by AIDS, requires grantees to devote at least 33% of prevention spending to abstinence-until-marriage programs. Human rights groups find that U.S. government policy has become a source for misinformation and censorship in these countries [65]. U.S. emphasis on abstinence may also have reduced condom availability and access to accurate information on HIV/AIDS in some countries [65,66].

Abstinence-only education and sexually active youth

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 [67]. Sexually experienced teens need access to complete and accurate information about contraception, legal rights to

health care, and ways to access reproductive health services, none of which are provided in abstinence-only programs.

Abstinence-only education and GLBTQ youth

Abstinence-only sex education may have profoundly negative impacts on the well-being of gay, lesbian, bisexual, transgender and questioning (GLBTQ) youth. An estimated 2.5% of high school youth self-identify as gay, lesbian or bisexual, and more may be uncertain of their sexual orientation [68]. However, as many as 1 in 10 adolescents struggle with issues regarding sexual identity [69]. Abstinence-only sex education classes are unlikely to meet the health needs of GLBTQ youth, as they largely ignore issues surrounding homosexuality (except when discussing transmission of HIV/AIDS), and often stigmatize homosexuality as deviant and unnatural behavior [70]. Homophobia contributes to health problems such as suicide, feelings of isolation and loneliness, HIV infection, substance abuse, and violence among GLBTQ youth [71,72].

Under Section 510 requirements, emphasis must be placed on heterosexual marriage as the only appropriate context for sexual relationships. Federal law and regulations limit the definition of marriage within the meaning of federally funded abstinence-only programs to exclude samesex couples. With the exception of Massachusetts, no states offer legal marriage to gay and lesbian couples, and recently, 11 states have passed laws specifically barring samesex marriage. Lifelong abstinence as an implied alternative holds GLBTQ youth to an unrealistic standard markedly different from that of their heterosexual peers.

The human right to sexual health information

Paradoxically, although abstinence is often presented as the moral choice for adolescents, we believe that the current federal approach focusing on AOE raises serious ethical and human rights concerns. Access to complete and accurate HIV/AIDS and sexual health information has been recognized as a basic human right and essential to realizing the human right to the highest attainable standard of health [73]. Governments have an obligation to provide accurate information to their citizens and eschew the provision of misinformation; such obligations extend to government-funded health education and health care services [73].

International treaties provide that all people have the right to "seek, receive and impart information and ideas of all kinds," including information about their health [74–76]. The U.N. Committee on the Rights of the Child, the U.N. body responsible for monitoring implementation of the Convention on the Rights of the Child, and which provides authoritative guidance on its provisions, has emphasized that children's right to access adequate HIV/AIDS and sexual health information is essential to securing their rights to health and information [77].

Article 12 of the International Covenant on Economic, Social and Cultural Rights (ICESCR) specifically obliges governments to take all necessary steps for the "prevention, treatment and control of epidemic . . . diseases," such as HIV/AIDS [78]. The Committee on Economic, Social and Cultural Rights, the U.N. body responsible for monitoring implementation of the ICESCR, and which provides authoritative guidance on its provisions, has interpreted Article 12 to require the "the establishment of prevention and education programmes for behaviour-related health concerns such as sexually transmitted diseases, in particular HIV/AIDS, and those adversely affecting sexual and reproductive health" [76].

The United Nations Guidelines on HIV/AIDS and Human Rights provide guidance in interpreting international legal norms as they relate to HIV and AIDS. These guidelines similarly call on states to "ensure that children and adolescents have adequate access to confidential sexual and reproductive health services, including HIV/AIDS information, counseling, testing and prevention measures such as condoms," and to "ensure the access of children and adolescents to adequate health information and education, including information related to HIV/AIDS prevention and care, inside and outside school, which is tailored appropriately to age level and capacity and enables them to deal positively and responsibly with their sexuality" [79]. Access to accurate health information is a basic human right that has also been described in international statements on reproductive rights such as the Programme of Action of the International Conference on Population and Development— Cairo, 1994 [80].

Overall, these international treaties and statements clearly define the important responsibility of governments to provide accurate and complete information on sexual health to their citizens.

Ethical obligations of health care providers and health educators

We believe that patients have rights to accurate and complete information from their health care professionals and that health care providers have ethical obligations to provide accurate health information. Health care providers may not withhold information from a patient in order to influence their health care choices. Such ethical obligations are part of respect for persons [81] and are operationalized via the process of providing informed consent. Informed consent requires provision of all pertinent information to the patient. Similar ethical obligations apply to health educators.

For example, an oncologist who presented only the benefits of chemotherapy and only the risks from radiation therapy would be denounced as failing in his or her obligations to the patient. Similarly, we believe that it is unethical to provide misinformation or to withhold information from adolescents about sexual health, including ways for sexually active teens to protect themselves from STIs and pregnancy. Withholding information on contraception to induce them to become abstinent is inherently coercive. It violates the principle of beneficence (i.e., do good and avoid harm) as it may cause an adolescent to use ineffective (or no) protection against pregnancy and STIs. We believe that current federal AOE is ethically problematic, as 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.

Summary and authors' commentary

Although abstinence from sexual intercourse represents a healthy behavioral choice for adolescents, policies or programs offering "abstinence only" or "abstinence until marriage" as a single option for adolescents are scientifically and ethically flawed. Although abstinence from vaginal and anal intercourse is theoretically fully protective against pregnancy and disease, in actual practice, abstinence-only programs often fail to prevent these outcomes. Although federal support of abstinence-only programs has grown rapidly since 1996, existing evaluations of such programs either do not meet standards for scientific evaluation or lack evidence of efficacy in delaying initiation of sexual intercourse.

Although health care is founded on ethical notions of informed consent and free choice, federal abstinence-only programs are inherently coercive, withholding information needed to make informed choices and promoting questionable and inaccurate opinions. Federal funding language promotes a specific moral viewpoint, not a public health approach. Abstinence-only programs are inconsistent with commonly accepted notions of human rights.

In many communities, AOE has been replacing comprehensive sexuality education. Federally funded AOE programs censor lifesaving information about prevention of pregnancy, HIV and other STIs, and provide incomplete or misleading misinformation about contraception. The federal government's emphasis on abstinence-only approaches may also be harming other public health efforts such as family planning programs and HIV prevention efforts—domestically and globally. Federally funded abstinence-until-marriage programs discriminate against GLBTQ youth, as federal law limits the definition of marriage to heterosexual couples.

Schools and health care providers should encourage abstinence as an important option for adolescents. "Abstinence-only" as a basis for health policy and programs should be abandoned.

Acknowledgments

We would like to thank the following people for their insightful comments on early drafts of this review article:

Sarah Brown, Jonathan Cohen, Cynthia Dailard, Jennifer Hirsch, Barbara Huberman, Doug Kirby, Rona Peligal, Vaughn Rickert, and Tony Tate.

References

- Schuster MA, Bell RM, Kanouse DE. The sexual practices of adolescent virgins: genital sexual activities of high school students who have never had vaginal intercourse. Am J Public Health 1996;86(11): 1570-6.
- [2] Goodson P, Suther S, Pruitt BE, Wilson K. Defining abstinence: views of directors, instructors, and participants in abstinence-onlyuntil-marriage programs in Texas. J Sch Health 2003;73(3):91–6.
- [3] Social Security Administration. Social Security Act: Title V: Maternal and Child Health Services Block Grant. Separate Program for Abstinence Education, SEC. 510 [42 U.S.C. 710]. 2005.
- [4] Abma J, Martinez GM, Mosher W, Dawson BS. Teenagers in the United States: sexual activity, contraceptive use, and childbearing, 2002. Vital Health Stat 23 2004;24:1–48.
- [5] Fields J. America's Families and Living Arrangements: 2003. Washington, DC: U.S. Census Bureau, 2004.
- [6] Centers for Disease Control and Prevention. Sexually Transmitted Disease Surveillance, 2003. Atlanta, GA: U.S. Department of Health and Human Services, 2004.
- [7] Institute of Medicine. The Best Intentions: Unintended Pregnancy and the Well-Being of Children and Families. Washington, DC: National Academy Press, 1995.
- [8] Henshaw SK. U.S. Teenager Pregnancy Statistics with Comparative Statistics for Women Aged 20–24. New York, NY: The Alan Guttmacher Institute, 2004.
- [9] Weinstock H, Berman S, Cates W Jr. Sexually transmitted diseases among American youth: incidence and prevalence estimates, 2000. Perspect Sex Reprod Health 2004;36(1):6–10.
- [10] Donovan P. Testing Positive: Sexually Transmitted Disease and the Public Health Response. New York, NY: Alan Guttmacher Institute, 1993
- [11] Curran JW, Jaffe HW, Hardy AM, et al. Epidemiology of HIV infection and AIDS in the United States. Science 1988:239:610-6.
- [12] Rosenberg PS. Scope of the AIDS epidemic in the United States. Science 1995;270:1372–5.
- [13] Office of National AIDS Policy. Youth & HIV/AIDS: An American Agenda. Washington, DC: Office of National AIDS Policy, 1996.
- [14] Valleroy LA, MacKellar DA, Karon JM, et al. HIV prevalence and associated risks in young men who have sex with men. JAMA 2000:284:198–204.
- [15] Centers for Disease Control and Prevention. Heterosexual Transmission of HIV—29 states, 1999–2002. MMWR 2004;53(6):125–9.
- [16] Alan Guttmacher Institute. Sex and America's Teenagers. New York, NY and Washington, DC: The Alan Guttmacher Institute, 1994.
- [17] US House of Representatives, Committee on Ways and Means, Democrats. Steep decline in teen birth rate significantly responsible for reducting child poverty and single- parent families [cited 2004 Apr 28]. Available from: http://www.teenpregnancy.org/about/announcements/pdf/Ways&MeansReport.pdf
- [18] Anda RF, Chapman DP, Felitti VJ, et al. Adverse childhood experiences and risk of paternity in teen pregnancy. Obstet Gynecol 2002; 100:37–45.
- [19] Koenig MA, Zablotska I, Lutalo T, et al. Coerced first intercourse and reproductive health among adolescent women in Rakai, Uganda. Int Fam Plan Perspect 2004;30(4):156–63.
- [20] Rickert VI, Wiemann CM, Harrykissoon SD, et al. The relationship among demographics, reproductive characteristics, and intimate partner violence. Am J Obstet Gynecol 2002;187(4):1002–7.

- [21] Chen YW, Stiffman AR, Cheng LC, et al. Mental health, social environment, and sexual risk behaviors of adolescent service users: a gender comparison. J Child Fam Stud 1997;6(1):9–25.
- [22] Woodward LF, Fergusson DM. Early conduct problems and later risk of teenage pregnancy in girls. Dev Psychol 1999;11(1):127–41.
- [23] Adler NE, David HP, Major BN, et al. Psychological factors in abortion: a review. Am Psychol 1992;47(10):1194–204.
- [24] Adler NE, Ozer EJ, Tschann J. Abortion among adolescents. Am Psychol 2003;58(3):211–7.
- [25] Zabin LS, Hirsch MB, Emerson MR. When urban adolescents choose abortion: effects on education, psychological status, and subsequent pregnancy. Fam Plann Perspect 1989;21:248–55.
- [26] Quinton WJ, Major BN, Richards CL. Adolescents and abortion: are minors at greater risk? Psychol Public Policy Law 2001;7(3):491– 514.
- [27] Chang J, Elam-Evans LD, Berg CJ, et al. Pregnancy-related mortality surveillance—United States, 1991–1999. MMWR 2003;52(SS02): 1–8.
- [28] Strauss LT, Herndon J, Chang J, et al. Abortion surveillance—United States, 2001. MMWR 2004;53(SS09):1–32.
- [29] Albert B. American Opinion on Teen Pregnancy and Related Issues 2003. Washington, DC: National Campaign to Prevent Teen Pregnancy, 2004.
- [30] Dailard C. Sex education: politicians, parents, teachers and teens. Issues Brief (Alan Guttmacher Inst) 2001(2):1–4.
- [31] Solomon-Fears C. Reducing teen pregnancy: adolescent family life and abstinence education programs. Congressional Research Service. The Library of Congress, #RS20873. Updated April 13, 2005.
- [32] Dailard C. Abstinence promotion and teen family planning: the misguided drive for equal funding. The Guttmacher Report on Public Policy 2002; 5(1).
- [33] Haskins R, Bevan CS. Abstinence education and welfare reform. Child Youth Serv Rev 1997:465–84.
- [34] Carrier P. Maine turns down sex-ed funds. Portland Herald Press. September 20, 2005 [cited 2005 Sep 28]. Available from: http://pressherald.mainetoday.com/news/state/050920funding.shtml
- [35] United States House of Representatives. Committee on Government Reform—Minority Staff. The content of federally funded abstinenceonly education programs. 2004.
- [36] Republican Study Committee. Federal abstinence programs: policy brief 2003 [cited 2005 Jul 29]. Available from: https://johnshadegg-.house.gov/rsc/abstinence1.pdf
- [37] Administration for Children of Families. Fiscal Year 2005 Abstinence Education Formula Grant Program (Section 510) to Title V Social Security Act [cited 2005 Jul 25]. Available from: http://www.acf.hh-s.gov/programs/fysb/absfund-anncmt.htm
- [38] Smith TE, Steen JA, Spaulding-Givens J, et al. Measurement in abstinence education. Critique and recommendations. Eval Health Prof 2003;26(2):180–205.
- [39] Kirby D. Emerging Answers: Research Findings on Programs to Reduce Teen Pregnancy. Washington, DC: National Campaign to Prevent Teen Pregnancy, 2001.
- [40] Manlove J, Romano-Papillo A, Ikramullah E. Not Yet: Programs to Delay First Sex among Teens. Washington, DC: National Campaign to Prevent Teen Pregnancy, 2004.
- [41] Rector RE. The Effectiveness of Abstinence Education Programs in Reducing Sexual Activity Among Youth. The Backgrounder #1533. Washington, DC: The Heritage Foundation, 2002.
- [42] Kirby D. Do abstinence-only programs delay the initiation of sex among young people and reduce unintended pregnancy? Washington, DC: National Campaign to Prevent Teen Pregnancy, 2002 [cited 2005 Jan 23]. Available at: http://www.teenpregnancy.org/resources/data/pdf/abstinence_eval.pdf
- [43] Hauser D. Five Years of Abstinence-Only-Until-Marriage Education: Assessing the Impact. Washington, DC: Advocates for Youth, 2004.

- [44] Devaney B, Johnson A, Maynard R, Trenholm C. The Evaluation of Abstinence Education Programs Funded Under Title V Section 510: Interim Report to Congress on a Multi-Site Evaluation. Princeton, NJ: Mathematica Policy Research, Inc., 2002.
- [45] Maynard RA, Trenholm C, Devaney B, et al. First-Year Impacts of Four Title V, Section 510 Abstinence Education Programs. Princeton, NJ: Mathematica Policy Research, Inc., 2005.
- [46] Trussell J. Contraceptive efficacy. In: Hatcher RA, Trussell J, Stewart FH, et al, eds. Contraceptive Technology, 18th edn. New York, NY: Ardent Media, Inc., 2004:773–846.
- [47] Pinkerton SD. A relative risk-based, disease-specific definition of sexual abstinence failure rates. Health Educ Behav 2001;28(1):10– 20
- [48] Haignere CS, Gold R, McDanel HJ. Adolescent abstinence and condom use: are we sure we are really teaching what is safe? Health Educ Behav 1999;26(1):43–54.
- [49] Bearman PS, Bruckner H. Promising the future: virginity pledges and first intercourse. Am J Sociol 2001;106:859–912.
- [50] Bruckner H, Bearman PS. After the Promise: the STD consequences of adolescent virginity pledges. J Adolesc Health 2005;36:271–8.
- [51] Rector RE, Johnson KA. Adolescent virginity pledges, condom use, and sexually transmitted diseases among young adults. Presented to the National Welfare Research and Evaluation Conference of the Administration of Children and Families, Washington, DC, June 14, 2005.
- [52] Ellenberg J. Sex and significance: how the Heritage Foundation cooked the books on virginity [cited 2005 Jul 29]. Available from: http://slate.msn.com/id/2122093/
- [53] American Academy of Pediatrics. Sexuality education for children and adolescents. Pediatrics 2001;108(2):498–502.
- [54] American Medical Association. H-170.968 Sexuality Education, Abstinence, and Distribution of Condoms in Schools. Chicago, IL: American Medical Association, 2004.
- [55] American Public Health Association. 2003-14 Support for Sexual and Reproductive Health and Rights in the United States and Abroad. Washington, DC: American Public Health Association, 2003.
- [56] Henry Kaiser Family Foundation. Texas Board of Education approves health textbooks that promote abstinence-only education [cited 2004 Nov 8]. Available from: http://www.kaisernetwork.org/daily_reports/ rep_index.cfm?hint=2&DR_ID=26615
- [57] The National Coalition against Censorship. Abstinence Only Education? A Joint Statement. New York, NY: The National Coalition against Censorship, 2002.
- [58] Human Rights Watch. Ignorance Only: HIV/AIDS, Human Rights and Federally Funded Abstinence-Only Programs in the United States. Texas: A Case Study. New York, NY: Human Rights Watch, 2002.
- [59] Kick R. Bush administration removes health info from federal websites [cited 2005 Jul 29]. Available from: www.thememoryhole.org/ health/healthsites-scrub.htm
- [60] Letter from Rep. Henry A. Waxman to Secretary Michael O Leavitt dated July 13, 2005 concerning the 4parents.gov website [cited 2005 Jul 29]. Available from: http://www.democrats.reform.house.gov/ story.asp?ID=888.
- [61] Centers for Disease Control and Prevention. School health policies and programs study, 2000 [cited 2004 Nov]. Available from: www. cdc.gov/shpps
- [62] Darroch JE, Landry DJ, Singh S. Changing emphases in sexuality education in U.S. public secondary schools, 1988–1999. Fam Plann Perspect 2000;32(5):204–11.
- [63] Dailard C. Title X program announcement articulates new priorities for nation's. The Guttmacher Report on Public Policy 2003; 6(5).
- [64] [Office of the] Federal Register. 2004 Federal Register. Washington, DC: National Archives and Records Administration, 2004;69(115).

- [65] Human Rights Watch. Access to Condoms and HIV/AIDS Information: A Global Health and Human Rights Concern. New York, NY: Human Rights Watch, 2004.
- [66] Human Rights Watch. The Philippines. Unprotected: Sex, Condoms, and the Human Right to Health. New York, NY: Human Rights Watch, 2004.
- [67] Brindis CD, Ott MA. Adolescents, health policy, and the American political process. J Adolesc Health 2002;30(1):9–16.
- [68] Garofalo R, Wolf C, Kessel S, et al. The association between health risk behaviors and sexual orientation among a school-based sample of adolescents. Pediatrics 1998;101:895–902.
- [69] Sturdevant M, Remafedi G. Special health care needs of homosexual youth. Adolesc Med 1992;3:359–71.
- [70] Kempner ME. Toward a Sexually Healthy America: Abstinence-Only-Until-Marriage Programs that Try to Keep Our Youth 'Scared Chaste'. New York, NY: Sexuality Information & Education Council of the United States, 2001.
- [71] Garofalo R, Katz E. Health care issues of gay and lesbian youth. Curr Opin Pediatr 2001;13:298–302.
- [72] Garofalo R, Cameron Wolf R, Wissow LS, et al. Sexual orientation and risk of suicide attempts among a representative sample of youth. Arch Pediatr Adolesc Med 1999;153:487–93.
- [73] Freedman LP. Censorship and manipulation of reproductive health information. In: Sandra Coliver, ed. The Right to Know: Human Rights and Access to Reproductive Health Information. Philadelphia, PA: University of Pennsylvania Press, 1995:1–37.
- [74] International Covenant on Civil and Political Rights. Adopted December 16, 1966, entered into force March 23, 1976, G.A. res. 2200A

- (XXI), 21 U.N. GAOR Supp. No. 16 at 52, U.N. Doc. A/6316 (1966), article 19. 1966.
- [75] Convention on the Rights of the Child. Adopted November 20, 1989, entered into force September 2, 1990, G.A. res. 44/25, annex, 44 U.N. GAOR Supp. (No. 49) at 167, U.N. Doc. A/44/49, (1989) article 13. 1990
- [76] Committee on Economic Social and Cultural Rights. General Comment 14: The Right to the Highest Attainable Standard of Health, 22nd Sess. 2000.
- [77] Committee on the Rights of the Child. General Comment No. 3 (2003a) HIV/AIDS and the rights of the child, 32nd Sess. (2003), para. 13. 2003.
- [78] International Covenant on Economic, Social and Cultural Rights. Adopted December 16, 1966, entered into force January 3, 1976, GA Res. 2200A (XXI), 21 UN GAOR, 21st Sess., Supp. No. 16, at 49, UN Doc. A/6316 (1966), art. 12. 1966.
- [79] Office of the United Nations High Commissioner for Human Rights and UNAIDS HAaHR. International Guidelines, U.N. Doc. HR/PUB/ 98/1, paras. 38(g), 38(h). 1996.
- [80] United Nations. Report of the International Conference on Population and Development (Cairo, 5-13 September 1994). New York; 1994. Report No.: A/Conf.171/13.
- [81] National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research. The Belmont Report: Ethical Principles and Guidelines for the Protection of Human Subjects of Research. Washington, DC: Department of Health, Education, and Welfare Government Printing Office, publication no. (OS) 78-0012, 1978