

Editorial

The limits of abstinence-only in preventing sexually transmitted infections

Over the past century, public health approaches to sexually transmitted infections (STIs) have come from 1 of 2 camps. Although specific policies certainly reflected the times in which they arose, the debate over STI prevention today is surprisingly similar to that of the early 20th century [1]. One camp advocates comprehensive education and skills. The other focuses only on eliminating adolescent sexual activity. Today, national as well as state and local public health policy is driven increasingly by an abstinence-only-until-marriage prevention approach. Although supporters of this approach to policy may have varied religious and moral agendas, abstinence is promoted by them as unambiguous, safe, and 100% effective. These claims are based on a common sense foundation of epidemiologic causality: sexual activity is a necessary and sufficient cause for infection transmission when 1 partner is infected.

However, despite traditional appeal and logical relevance, public health policy based solely on abstinence has not been shown to be effective. One deficiency of the abstinence-only argument is its failure to distinguish between abstinence as a personal choice and abstinence as a public health intervention. As a personal choice, abstinence is always 100% effective for STI prevention because, logically, abstinence cannot simultaneously be nonabstinence. However, as a public health intervention used at a population level, abstinence almost certainly will have a failure rate, even if it is successful in a larger sense. For example, simulation studies suggest that abstinence appears to be about as good as condoms for the prevention of STI [2]. Furthermore, potentially adverse effects of abstinence-only interventions have not been addressed systematically [3,4]. The assumption that abstinence-only interventions are without negative consequences has not been tested in careful, longitudinal research.

The study by Brückner and Bearman [5] in this issue of the *Journal of Adolescent Health* begins to address these issues. Data for the study were obtained from the National Longitudinal Study of Adolescent Health (Add Health). Methodologic details of the Add Health study are described in detail in the article and are available publicly [6]. The current article contains a methodologic innovation that de-

serves attention. Add Health respondents were asked on 3 different occasions whether they had ever taken a virginity pledge. Those who consistently reported never making a virginity pledge were classified as nonpledgers. Those who consistently reported making a virginity pledge were classified as consistent pledgers. Participants who reported making a pledge at some earlier date but subsequently reported never having made a virginity pledge were classified as inconsistent pledgers. This methodologic innovation is important because it allows us to examine pledging effects among adolescents who may be assumed to have different levels of commitment to pledging.

An earlier analysis of Add Health data, replicated by Bearman and Brückner [7], showed that pledgers as a group become sexually active at older ages than nonpledgers. In fact, data in the current article show that up to 25% of consistent pledgers report no lifetime sexual intercourse by age 25. The current data also suggest that consistent pledgers marry at younger ages than either nonpledgers or inconsistent pledgers. This suggests that pledgers are subject to lower levels of STI risk than nonpledgers. Brückner and Bearman do not address issues such as marital and sexual satisfaction, or marital stability of pledgers and nonpledgers, leaving open questions about other, perhaps unintended, effects. Married participants had fewer STIs than unmarried participants. However, infection rates among the married participants did not differ based on whether or not a virginity pledge was made during adolescence. From a public health perspective, marriage was a useful but imperfect protection against STIs among young adults, and adolescent virginity pledges did not enhance the STI protective effects of subsequent marriage.

Implicit in these data is the fact that a substantial proportion of adolescent virginity pledgers became sexually active outside of marriage. In fact, 88% of pledgers who reported sexual intercourse did so before marriage. In what may be Brückner's and Bearman's most important finding, STIs among young adults did not significantly differ according to whether or not a virginity pledge was made at some point during adolescence. This is despite the fact that pledgers have fewer years of sexual exposure, fewer part-

ners, and fewer risky partners. The STI protective effects of virginity pledges for adolescents, if any, have disappeared completely by young adulthood.

The question of whether virginity pledges have short-term protective effects cannot be comparably addressed by the Add Health data because STI screening tests were obtained only when participants were young adults, not during their participation as adolescents. However, Brückner and Bearman do offer 3 additional findings of clinical and public health relevance. First, pledgers who became sexually active were less likely to use condoms at first sex than nonpledgers. Because a substantial proportion of pledgers did become sexually active, this increases concern about increased STI risk for these adolescents. Second, pledgers are more likely to engage in noncoital oral-genital and anogenital sexual behaviors that represent some risk for STI. Finally, pledgers were less likely to seek and obtain care related to STIs. This is an area that deserves additional research because of the importance of perceived risk and stigma in adolescents' STI-related care-seeking [8].

Are there potential biases or issues that suggest inferences other than those offered by the authors? Readers should note some additional issues. First, the data are not representative of all adolescents. Because the Add Health survey uses schools as its basic sampling frame, out-of-school adolescents—likely at higher risk for STIs than those in school—are unrepresented. If out-of-school adolescents were less likely to make virginity pledges, one might argue that the Add Health data underrepresents STI rates among nonpledgers.

Second, alternative explanations might be important if 1 of the 3 pledge groups were more or less likely to participate as young adults. Brückner and Bearman addressed this issue in some detail, with little evidence for significance influence on the results.

Finally, the results represent data from a survey, not an experiment. Because the pledge intervention was not assigned randomly to adolescents, the complex personal, family, religious, and sociocultural selectivity that may influence a decision to make a virginity pledge cannot be assessed fully. It is possible that making a virginity pledge is simply a marker for adolescents with specific characteristics associated with later onset of sexual activity in the first place.

Perhaps the most important lesson to take from these data is the confirmation that absolutist approaches to STI prevention, whatever their moral, religious, or philosophic

origins, incompletely serve those at risk. The data suggest that the vivid national dialogue about the content of STI prevention messages for adolescents has helped create a social environment in which abstinence, until an older age or until marriage, is a relevant choice [9]. However, abstinence-only prevention efforts such as those represented by virginity pledges clearly are limited. They lack effectiveness for a substantial proportion of teenagers who become sexually active during early adolescence. They ignore adolescents who initially heed the prevention messages but become sexually active later. In addition, they may, in fact, cause harm by decreasing perceived risk or increasing stigma. Sexuality is a complex developmental moving target that enriches lives as well as increases risk for adverse health consequences. From a public health perspective, we must get past notions that simple, perfectly effective, and completely harm-free interventions exist for any of the health-harming consequences of sexuality [10][2].

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References

- [1] Moran JP. *Teaching Sex: The Shaping of Adolescence in the 20th Century*. Cambridge, MA: Harvard University Press, 2000.
- [2] Pinkerton SD. A relative risk-based, disease-specific definition of sexual abstinence failure rates. *Health Educ Behav* 2001;28:10–20.
- [3] Silva M. The effectiveness of school-based sex education programs in the promotion of abstinence behavior: a meta-analysis. *Health Educ Res Theory Pract* 2002;17:471–81.
- [4] Perrin KK, DeJoy SB. Abstinence-only education: how we got here and where we're going. *J Public Health Policy* 2003;24:445–59.
- [5] Brückner H, Bearman PS. After the promise: the STD consequences of adolescent virginity pledges. *J Adolesc Health* 2005;36:271–78.
- [6] The National Longitudinal Study of Adolescent Health (Add Health)—UNC Carolina Population Center. Available from: <http://www.cpc.unc.edu/projects/addhealth/>. Accessed: January 27, 2005.
- [7] Bearman PS, Brückner H. Promising the future: virginity pledges and first intercourse. *Am J Sociol* 2001;106:859–912.
- [8] Fortenberry JD. Health care-seeking behaviors related to sexually transmitted diseases among adolescents. *Am J Public Health* 1997; 87:417–20.
- [9] Santelli JS, Abma J, Ventura S, et al. Can changes in sexual behaviors among high school students explain the decline in teen pregnancy rates in the 1990s? *J Adolesc Health* 2004;35:80–90.
- [10] Sonenstein FL. What teenagers are doing right: changes in sexual behavior over the past decade. *J Adolesc Health* 2004;35:77–8.