Pregnancies Averted Among U.S. Teenagers By the Use of Contraceptives

By James G. Kahn, Claire D. Brindis and Dana A. Glei

Context: *The personal and social costs associated with teenage pregnancy in the United States concern many policymakers and researchers, yet the role of contraception in preventing these pregnancies has not been adequately quantified.*

Methods: *Published estimates of contraceptive effectiveness were applied to 1995 National Survey of Family Growth data on sexual and contraceptive practices in order to estimate the number of pregnancies averted through the use of contraceptives by U.S. teenagers. Four scenarios of contraceptive access—from current levels of access to highly restricted access—and teenagers' sexual and contraceptive practices in response to such restrictions are used to project the potential impact on pregnancies among teenagers.*

Results: *Current levels of contraceptive use averted an estimated 1.65 million pregnancies among 15–19-year-old women in the United States during 1995. If these young women had been denied access to both prescription and over-the-counter contraceptive methods, an estimated one million additional pregnancies (ranging from 750,000 to 1.25 million) would have occurred, assuming some decrease in sexual activity. These pregnancies would have led to 480,000 live births, 390,000 abortions, 120,000 miscarriages, 10,000 ectopic pregnancies and 37 maternal deaths.*

Conclusions: *Contraceptive use by teenage women prevents pregnancies and negative pregnancy-related health consequences that can disrupt the lives of adolescent women and that have substantial societal costs. Continued and expanded access to contraceptives for adolescents is a critically important public health strategy.*

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Consistently high rates of adolescent pregnancies and births in the United States continue to cause public concern. Controversy over reliance on abortion among adolescents and the high personal and social costs associated with early childbearing remain at the heart of this concern. Recent public policy debates over welfare reform have often revolved around the problem of adolescent pregnancy in low-income families and the number of women who depend on public funds as a result of early childbearing. Despite a variety of interventions, however, each year almost one million adolescents face the difficult choice between parenthood, adoption or abortion.[1]

Notwithstanding societal desires to prevent teenage pregnancy, adolescent contraceptive use is often viewed negatively. Some believe that making information regarding contraception available to young people encourages sexual activity. Yet many studies have suggested that contraceptive availability neither encourages the initiation of sexual activity nor increases the frequency of intercourse among teenagers.[2] Instead, over the past two decades, contraceptive use has been shown to be a moderating influence on the incidence of adolescent pregnancy.[3]

Access to contraceptives has become increasingly crucial for adolescents because many are sexually active at earlier ages than in the past. During the mid-to-late 1950s, 8% of adolescent females had had intercourse by age 16. In contrast, by the early-to-mid–1980s, 21% of female teenagers had had sex by age 16. Among all adolescents in the 1990s, 50% had sex by age 18, compared with 27% of adolescents of similar ages in the 1950s. The proportions who had done so by age 20 were 76% and 61%, respectively.[4]

The delay in age at first marriage is another important trend with implications for unintended pregnancy. Between 1970 and 1994, the median age at first marriage among females rose from 20.8 to 24.5.[5] The length of time between first intercourse and first marriage is estimated to be about seven years for women.[6] Delayed first marriage, combined with earlier ages at first intercourse, results in an extended period of time during which women are at risk of nonmarital pregnancy.

Although increased numbers of adolescents are sexually active, pregnancy rates among sexually experienced teenagers declined by 19% between 1972 and 1990, from 254 to 207 pregnancies per 1,000 sexually active adolescents.[7] Unintended pregnancy rates also decreased between 1981 and 1994, from 78 to 71 per 1,000 adolescents, and abortion rates decreased from 43 to 32 per 1,000 adolescents.[8]

The primary explanation is increased contraceptive use. For example, from 1982 to 1995, among teenage women who were sexually active in the preceding three months, the proportion using reversible contraceptive methods rose from 71% to 81%.[9] Contraceptive use increases with age, with 72% of sexually active 15–17-year-olds and 84% of comparable 18–19-year-olds practicing contraception.[10] Contraceptive use at first intercourse is also more common among adolescents now than in the past: In 1976, 61% of sexually experienced women aged 15–19 used no method at first intercourse, compared with 25% in 1990.[11]

Thus, although a large number of teenage pregnancies occur each year in the United States, today's adolescents have increased their efforts to prevent unintended pregnancies. If they had not, the rise in adolescent sexual activity would have produced an even greater number of pregnancies than occurred. However, the overall benefit of contraceptive use to adolescents has not been quantified.

In this analysis, we estimate the annual number of adolescent pregnancies and pregnancy outcomes that are averted in the United States by the use of contraceptives. We project the number of pregnancies that would occur if adolescents who currently use contraceptives did not have access to contraception. We also analyze the potential impact that various restrictions on contraceptive access might have on these outcomes, taking into account the ways in which teenagers might change their sexual and contraceptive practices in response to such restrictions.

James G. Kahn is associate professor with the Department of Epidemiology and Biostatistics and Institute for Health Policy Studies, and Claire D. Brindis is associate professor with the Department of Pediatrics, Division of Adolescent Medicine and Institute for Health Policy Studies, both at University of California, San Francisco. Dana A. Glei is a graduate student in the Office of Population Research and the Department of Sociology, Princeton University, Princeton, NJ. The research on which this article is based was supported by The California Wellness Foundation.

Methodology

Estimates of Pregnancies Averted

To estimate the number of pregnancies averted by U.S. teenagers' contraceptive use, we used data on this group's sexual and contraceptive practices from the 1995 National Survey of Family Growth and published data on contraceptive effectiveness. We estimated the number of pregnancies averted per year by first calculating the number of months during which each survey respondent had had intercourse (and therefore had been at risk of pregnancy). We then estimated the reduction in each respondent's risk of pregnancy due to contraceptive use.*

We estimated the failure rate with no method to be 90% for 15–19-year-olds. Thus, the reduction in the risk of pregnancy for a teenager who had sex every month for a year and who consistently used a contraceptive method with a 15% likelihood of failure would be calculated as 1.0 x 0.90 – [1.0 x 0.15] = 0.75. Once this value was calculated and weighted for each respondent, we added all of these. The final sum represented the total number of averted pregnancies for 15–19-year-old women in the United States.

Scenarios of Change

We constructed four illustrative, hypothetical scenarios to describe possible restrictions in contraceptive access, as well as resulting shifts in teenagers' contraceptive behavior.

•*Scenario A: No method use.* This scenario represents the number of all pregnancies currently averted by contraceptive use: If every adolescent practicing contraception today were instead not using any method, how many additional pregnancies would occur? However, this scenario fails to take into account that teenagers might change their sexual behavior if contraceptives were not available, and it assumes that young women would stop using even methods that cannot be regulated, such as rhythm. Nonetheless, this scenario establishes a baseline maximum

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benefit of contraceptive practice.

•*Scenario B: No use of prescription methods.* For this scenario, we asked: What if adolescents' access to prescription methods was restricted? In such an instance, we assumed that all users would switch completely to over-the-counter methods. Thus, the number of pregnancies averted is a function of the prevalence of prescription contraceptives and the difference in efficacy between prescription and over-the-counter methods.

•*Scenario C: No use of prescription or over-the-counter methods, but no increase in nonuse.* Here, we asked: What if adolescents' access to over-the-counter methods was restricted as well? And what if the result was that all teenagers who were using these methods shift to other methods, such as rhythm or withdrawal, but not to no method? In such an example, former users of prescription and over-the-counter methods shift to rhythm (22%) and withdrawal or douche (78%).†

•*Scenario D: No use of prescription or over-the-counter methods, and an increase in nonuse.* Here, we posit the same restricted access as in Scenario C, but we imagine that overall levels of contraceptive use shift to the relative frequency—in current-use patterns—of other methods and no methods among users of nonprescription and over-the-counter methods: 19% using other methods and 81% using no method.

We further refined these scenarios by projecting the effects if reductions in the availability of contraceptives directly produced a decline in sexual activity among adolescents. Thus, for each scenario, we included five levels of decrease in the prevalence of sexual intercourse, from no change to a 50% reduction.

We have no basis for precise estimates of such a change: Recent research suggests that increased contraceptive availability has little effect on the prevalence of sexual intercourse.[12] However, we can compare the prevalence of sexual intercourse by age 18 in the 1960s (when contraceptives were far less available to teenagers) to the level in the 1990s. For the period 1959–1967, prevalence was 31%, compared with about 50% in the 1990s.[13] Thus, sexual intercourse among teenagers was 38% less common during 1959–1967 than in the 1990s. We consider this a high-end estimate of change in the prevalence of sexual intercourse, since many factors other than contraceptive availability (such as social mores) affect sexual activity. However, because some may find values higher than 38% to be plausible, we estimated decreases in sexual activity of up to 50%.

Pregnancy Outcomes

We also estimated the pregnancy outcomes averted by teenagers' use of contraceptives. In 1994, approximately 48% of unintended pregnancies among 15–19-year-old U.S. women ended in live births, 39% in abortion and 13% in miscarriages.[14] In addition, in 1989, about 1% of pregnancies among 15–24-year-old women were ectopic.[15] Maternal mortality for these outcomes is about 6.0 per 100,000 for live births,[16] 0.9 per 100,000 for abortions,[17] 0.85 per 100,000 for miscarriages[18] and 38 per 100,000 for ectopic pregnancies.[19]

Unintended pregnancies that occur despite the use of contraceptives are more likely to end in abortion,[20] but it is difficult to know whether adolescents who are denied access to contraceptives would act more like contraceptive users or more like nonusers in how they resolve a pregnancy. Therefore, we used the distribution of pregnancy outcomes for 15–19-year-old women cited above in our estimates of the number of live births, abortions, miscarriages and ectopic pregnancies that would occur if this age-group's access to contraceptives were reduced.

Behavioral Data

We obtained data on sexual and contraceptive practices from the 1995 National Survey of Family Growth (NSFG). Between January and October 1995, a total of 10,847 interviews were completed with noninstitutionalized civilian women aged 15–44. (Further details on the NSFG's methodology are given elsewhere.[21])

From among a total of 1,396 women aged 15–19 in the nationally representative NSFG sample, we identified 752 adolescent females aged 15–19 who had ever had sexual intercourse. Twelve percent (92) of these sexually experienced adolescents were excluded from further analysis, as they had not had intercourse in the previous 12 months, and therefore were not "at risk" of adolescent pregnancy. An additional nine individuals were excluded because they were not at risk of becoming pregnant in the previous 12 months for other reasons, such as already being pregnant. Thus, the final sample consisted of 651 adolescent women, and represented almost 4.0 million U.S. women aged 15–19.

Data on sexual behavior and contraceptive use were reported individually for each of the 12 months preceding the interview. An adolescent was considered to be at "at risk" of pregnancy during a particular month if she had been sexually active and had not been pregnant during

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*Reduced risk was limited to those months in which a method was used, according to the following formula: $R = p_{nc} - p_c = C \times F_0 - [c_1 \times f_1 + c_2 \times f_2 + ... + c_n \times f_n]$, where R is the reduction in pregnancy risk due to contraception; p_{nc} is the probability of pregnancy if contraceptives had not been used; p_c is the probability of pregnancy if contraceptives had been used; C is the proportion of the year in which any method was used; F_0 is the annual "failure rate" with no method use; $c_1, c_2...c_n$ are the proportion of the year when each method is used; and $f_1, f_2...f_n$ are the annual failure rates for each method.

†This percentage split reflects the relative frequency, in current-use patterns, of these specific methods within the "other methods" category.

that month. Contraceptive use was recorded by method in whole months.[22] Months during which a method had been started were classified as whole months of contraceptive use; months in which use of a method had ended were classified as periods of no contraceptive use. The 12-month probability of averting a pregnancy was calculated for each individual. We then generated national estimates of pregnancies averted, using sampling weights provided in the NSFG data.

Contraceptive Failure Rates
For most contraceptive methods, we used estimates of failure rates during the first 12 months of use taken from an analysis of the 1988 NSFG[23] and from other sources.[24] For 15–19-year-olds, these estimates varied from 1% to 52%, depending on the method, on marital status and on poverty status (Table 1).* In general, failure rates were higher for teenagers whose family income was less than 200% of the federally defined poverty level and for those who had ever been married. To adolescents who did not practice contraception, we assigned an annual "failure rate" of 90%.[25] We assumed that the risk of failure is evenly distributed across the 12 months. While actual failure rates may be higher in the first three months of use of a new method, initial pregnancy rates associated with no use of contraceptives are also likely to be higher than the 12-month distribution suggests.

Results
Pregnancy Risk and Contraceptive Use
The 651 respondents in the sample had been at risk of pregnancy during an average of eight months, or 67% of the previous year. They had used contraceptives during 80% of the time in which they were at risk (Table 2, page 32). The most commonly used contraceptives were the pill (28% of risk period) and the condom (41%). All other methods were used for a total of 11% of the risk period, with each of these other methods individually accounting for 5% or less. During the remaining 20% of the risk period, no contraceptive method had been used.

Pregnancies Averted
• *Scenario A.* We estimate that 1.65 million additional pregnancies would occur if contraceptive use were completely absent among teenagers (Table 3, page 32).† Each 10% reduction in the prevalence of sexual intercourse would decrease the number of pregnancies by nearly 199,000. In other words, if contraceptive availability increases the prevalence of sexual inter-

course, then contraceptive use averts fewer pregnancies, since other pregnancies occur as a result of increased sexual intercourse.

If we assume a 38% reduction in sexual activity in response to denied contraceptive access, then 900,000 pregnancies would occur without the use of a method. The prevalence of sexual activity would have to decrease by 83% to avert the same number of pregnancies as are prevented by contraceptive use. (This is the outcome if we assume that abstinence is 100% effective in preventing pregnancy, while the contraceptive techniques currently used by teenagers are 83% effective, on average.)
• *Scenario B.* If legal or policy restrictions were to prompt all adolescent prescription method users to switch to over-the-counter methods, the number of additional pregnancies over the course of a year would range from 160,000 if there were no changes in levels of sexual intercourse to 40,000 if levels decreased by 50%. This outcome is a function of the difference in effectiveness between prescription methods (the pill, the implant and the injectable) and over-the-counter methods (mainly condoms).
• *Scenario C.* If adolescents using prescription and over-the-counter methods were denied access to all of these methods and therefore had to switch to other methods, we could expect 400,000 additional pregnancies to occur. Each 10% reduction in the prevalence of intercourse would decrease this number by 70,000. However, this scenario probably understates the effects of complete restriction of prescription and over-the-counter contraception for adolescents: While it assumes that all current users of these methods would switch to less-effective methods, it still assumes that no current users would have sex without using contraceptives.
• *Scenario D.* Finally, if we assume that in the face of such restrictions, 81% of current users of prescription and over-the-counter methods would instead use no method, up to 1.37 million more pregnancies would result. Each 10% increase in abstinence would decrease this number by about 167,000.

Table 1. Percentage of teenagers experiencing contraceptive failure during the first 12 months of use, by method, according to marital status and poverty status

Method	Never-married		Ever-married	
	<200% of poverty	≥200% of poverty	<200% of poverty	≥200% of poverty
Medical				
Sterilization	0.87*	0.87*	0.87*	0.87*
Implant	0.275†	0.275†	0.275†	0.275†
Injectable	0.4†	0.4†	0.4†	0.4†
Pill	12.9	5.9	26.8	12.9
Emergency contraception	u	50.000	u	u
Diaphragm	37.3	u	u	u
Over-the-counter				
Condom	27.3	13.2	51.3	51.3‡
Sponge	u	30.0§	u	u
Spermicide	49.8	26.3	49.8§	u
Other				
Rhythm	51.7	27.5	51.7**	27.5**
Withdrawal/other	43.7	22.5	u	u

*Failure rates for sterilization were assigned based on the first year of sterilization among 18–27-year-olds. †The average between the high and low failure rates for all teenagers <20 is used, because data are not available by marital status or poverty status. ‡Data on failure rates were not available for this subgroup (n=5), the value for condom use among ever-married young women with an income <200% of the poverty level was substituted. §Because data on failure rates were not available for this subgroup (n=1); the failure rate is taken from reference 20. **Because data on failure rates were not available for these subgroups (n=2 for each), the failure rates for rhythm among never-married young women at comparable income levels were substituted. *Note:* u=unavailable, because there were no cases in this subgroup. *Sources*: Sterilization—Peterson HB, 1996 (reference 2); implant and injectables—reference 8; all other methods—reference 20.

This scenario may overstate the effects of complete restriction of prescription and over-the-counter methods, however, because it assumes that most current users of these methods would use no method.

Averted Pregnancies and Outcomes
We believe that the most likely number of pregnancies averted by adolescent contraceptive use is about one million, with

*Because 10 respondents used methods for which our sources provided no age-specific estimates, we extrapolated for these methods (see notes to Table 1).

†To increase our confidence that we appropriately translated contraceptive use into pregnancies averted, we also estimated pregnancies averted using a method that does not consider the frequency or effectiveness of contraceptive use. The 1995 NSFG, according to our analysis, indicates that 3.99 million females aged 15–19 in the United States were at risk of unintended pregnancy for a mean of 67% of months. The risk of pregnancy over one year in the absence of contraceptive use has been estimated to be 90% among teenagers (Source: reference 3). Thus, if all of these adolescents were to have sex without practicing contraception, a total of 2.41 million pregnancies could be projected (3.99 million x 67% x 90%). In 1994, an estimated 894,9000 pregnancies occurred among females aged 15–19 (781,900 births and abortions, plus about 113,000 miscarriages); approximately 78% of these (698,000) were unintended (Source: reference 1). The number of pregnancies averted by contraceptive use is the difference between pregnancies expected without contraception (2.41 million) and actual unintended pregnancies (698,000), or about 1.7 million. This is slightly higher than our estimate for Scenario A (with no access to contraception and without changes in sexual behavior). The difference may be explained in part by our exclusion of months during pregnancy and by our decision not to adjust first-year failure rates.

Table 2. Percentage distribution of months during previous year in which women aged 15–19 were at risk of pregnancy, by contraceptive method used, National Survey of Family Growth, 1995 (N=651)

Method	% of months at risk
ANY METHOD	80.2
Prescription methods	**34.9**
Pill	27.6
Injectable	5.1
Implant	1.8
Sterilization	0.3
Diaphragm	0.0*
Emergency contraception	0.1
Over-the-counter methods	**41.3**
Condom	41.0
Spermicides	0.2
Sponge	0.1
Other methods	**4.1**
Rhythm	1.2
Withdrawl/other	2.9
NO METHOD	19.8
Total	100.0

*Percentage is smaller than .05. *Notes:* Respondents were at risk of pregnancy (sexually active and not pregnant) during an average of 67% of the prior 12 months. If a woman used more than one method during a month, the highest-ranked method was attributed to her, according to the following order of effectiveness: sterilization; implant; injectable; pill; emergency contraception; diaphragm; male condom; sponge; spermicides; rhythm/periodic abstinence; withdrawal/other. None of the respondents used the IUD, female condom or cervical cap. All percentages are weighted.

a range of 750,000 to 1.25 million (Table 4). This is the number of additional teenage pregnancies that would occur if restrictions were placed on adolescents' access to both prescription and over-the-counter methods—a possible, if unlikely, scenario—and if teenagers who had been using these methods adopted a mix of three strategies in response: less-frequent sexual intercourse, use of less-effective contraceptive methods (such as rhythm) and, perhaps, limited informal access to the proscribed methods. For example, a 20% reduction in sexual intercourse in Scenario D generates an estimate of 1.04 million additional teenage pregnancies. A 10% reduction in sexual intercourse, combined with a contraceptive use profile partway between Scenarios C and D, yields an estimate of about 770,000 additional teenage pregnancies.

Our preferred estimate translates into the prevention every year of approximately 480,000 live births, 390,000 abortions, 120,000 miscarriages or stillbirths and 10,000 ectopic pregnancies. For all of these outcomes combined, 37 maternal deaths are prevented, including 29 from live births, three from abortions and one each from miscarriages and from ectopic pregnancies.

Discussion

If adolescents' access to contraceptives were restricted in the United States, the number of teenage pregnancies would rise substantially—perhaps by as many as 1.65 million per year. Our analysis also demonstrates the importance of the specific restrictions in contraceptive access and the impact of various changes in teenagers' sexual behavior that might occur in response to these restrictions. We cannot predict the likelihood of contraceptive restrictions or the nature of teenagers' responses; nonetheless, the consequences clearly could be large in magnitude.

Adolescents' strategies to reduce pregnancy risk would likely vary. Some would abstain from sexual behavior completely; others would alter their behavior to reduce or eliminate their risk of pregnancy—by engaging in oral or anal sex, for example, instead of vaginal intercourse. Other patterns that could emerge include switching from highly effective contraceptive methods (such as the pill) to over-the-counter methods (such as condoms) that are less effective but easier to obtain. Some adolescents might adopt even less effective methods (such as rhythm) or might use no contraceptive at all.

Over the long term, changes could occur in social norms regarding unprotected intercourse that would lead to further decreases in the prevalence of intercourse, especially if limiting the availability of contraceptives to teenagers were coupled with restrictions on legal abortion. Still, research suggests that this effect would be small, since increased contraceptive availability appears to have little effect on sexual behavior.[26]

Another important aspect of restricting contraceptive availability is the potential impact on sexually transmitted diseases (STDs). Since condoms reduce STD transmission by about 90%,[27] restrictions on their availability could increase transmission. In addition, if some adolescents switched from vaginal to anal intercourse to prevent pregnancy, the spread of HIV

might increase: The risk of HIV transmission per unprotected episode of anal intercourse (in casual relationships) is 20-fold higher than for vaginal sex (0.062 per episode of anal intercourse, compared with 0.003 per episode of vaginal intercourse).[28] On the other hand, STD transmission might be reduced if teenagers were to adopt oral sex or mutual masturbation in lieu of intercourse.

If draconian restrictions on contraceptive access did exist, many adolescents would seek contraceptives surreptitiously. For example, they might rely on adults to provide them with over-the-counter or even prescription contraceptives. Previous research has indicated that approximately 50% of teenagers have discussed their sexual activity and contraceptive use with their parents.[29] One can assume that many of these parents or other family members, such as older siblings, would purchase contraceptives for their teenage relatives.

Lessons may be drawn from analogous situations in areas other than teenage contraceptive use. For example, restrictions on adolescents' ability to buy tobacco products are diminished by the willingness of other adults, particularly smokers, to purchase tobacco on their behalf. Moreover, only 28% of tobacco vendors consistently obey laws limiting the sales of tobacco to children, the tobacco industry's "It's the Law" program has had virtually no effect on youths' ability to buy cigarettes and lockout devices on cigarette vending machines have little practical effect.[30] And while intensive efforts have reduced some merchants' likelihood of selling tobacco to adolescents, there is little evidence that these have a substantial effect on the prevalence or consumption of tobacco among young people.[31]

Similarly, just as teenagers may avoid pregnancy (and, with condoms, STDs) by using contraceptives, injection drug users can avoid HIV and hepatitis transmission by obtaining clean syringes. In many settings, injection drug users' access to sy-

Table 3. Estimated number of additional adolescent pregnancies that would occur under various scenarios of contraceptive availability and use, by projected decrease in prevalence of sexual intercourse

Scenario	Decrease in intercourse					
	None	10%	20%	30%	40%	50%
A. No methods are used.	1,650,000	1,450,000	1,250,000	1,060,000	860,000	660,000
B. No medical methods are used; over-the-counter methods are substituted.	160,000	140,000	110,000	90,000	60,000	40,000
C. No medical or over-the-counter methods are used; other methods are substituted.	400,000	330,000	260,000	190,000	120,000	50,000
D. No medical or over-the-counter methods are used; other methods are substituted or none are used.	1,370,000	1,200,000	1,040,000	870,000	700,000	540,000

ringes is limited, either by legal restrictions or by the attitudes of legal vendors of syringes toward illegal drugs. Elaborate compensatory responses have developed: Injection drug users share syringes, without regard to safety; they disinfect syringes (often imperfectly) using bleach; they buy syringes on the black market at prices several times higher than in stores; they rely on friends or relatives with regular legal access to syringes (such as diabetics); and they establish underground syringe exchanges.[32] We suspect that if teenagers were faced with limited contraceptive access, similar compensatory responses would develop, and many teenagers would continue to have sex (both safe and unsafe).

Even without new obstacles to seeking contraceptives, current contraceptive practice is not perfect: During 20% of the time when adolescents are at risk for pregnancy, they do not use contraceptives. A number of factors continue to interfere with adolescents' consistent contraceptive use, including social issues such as power dynamics between men and women and poverty status.[33] In addition, each method has a characteristic failure rate, reflecting limitations inherent to the method, as well as less-than-perfect use patterns.

Our methods may have led us to underestimate the number of pregnancies averted by contraceptive use. First, we calculated benefit from contraception only for those months when adolescent respondents were not pregnant. By so doing, we counted contraceptive failures twice: explicitly by incorporating failure rates into our equation for pregnancies averted, and implicitly by excluding respondents and respondent-months when pregnancy occurred due to contraceptive failure. We could have countered this bias by assuming perfect contraceptive use during months in which adolescents were not pregnant or including months during pregnancy due to contraception failure. However, we preferred to use the method that we selected because it is slightly conservative and, we think, easier to document and understand.

Second, we did not adjust contraceptive failure rates for the difference between the first 12 months and subsequent failure rates, which for all age-groups may require a 27% reduction in estimated failure rates.[34] However, the adjustment for teenage users is likely to be smaller, since a great proportion of teenage contraceptive use is in the first, more failure-prone year.

The cost savings from these averted pregnancies are considerable. Researchers

have estimated that the medical cost of pregnancy is about $3,200 for a woman who does not intend to be pregnant, yet is sexually active and not practicing contraception. These costs include the average medical care required for a full-term pregnancy and delivery, spontaneous or induced abortion, and ectopic pregnancy, weighted to reflect the proportion of pregnancies that result in each of these respective outcomes.[35] This estimate does not include other costs to states, however, such as children's Medicaid or public assistance payments.

Cost savings to the public sector for funding contraceptives are well documented. One analysis found that in 1988, 24% of U.S. women using a reversible method of contraception received family planning services in publicly funded family planning clinics or with Medicaid reimbursement. Assuming a shift to less-effective contraceptive practices, about 1.3 million additional unplanned pregnancies would occur per year in the absence of these services. These pregnancies would cost approximately $1.2 billion in public funds for pregnancy care and abortions, compared with only $412 million spent for the family planning services.[36] Thus, publicly funded contraceptive services resulted in substantial savings to society.

A study of the use of specific contraceptive methods among adolescents found that these methods are extremely cost-effective:[37] The average annual cost per adolescent at risk of unintended pregnancy who uses no method was estimated to be $1,267 in the private sector ($677 in the public sector), and climbed to $5,758 over five years ($3,079 in the public sector). Contraceptive use, regardless of the method or payment mechanism, is cost-effective. For example, use of the implant, an extremely effective method, costs approximately $1,533 over five years in the private sector. This translates into an estimated savings of $4,225. The male condom, which is less expensive but also less effective, is estimated to save $4,301.

Given the high personal and social costs associated with adolescent pregnancy in this country, access to reproductive health services remains important for adolescents across all socioeconomic groups, and is even more so for groups who may not be able to pay for health services and contraceptive supplies. More than half (56%) of 15–19-year-olds who gave birth in the United States in 1988 had an annual family income below $12,000, while only 17% had a family income of more than $25,000.[38] The high contraceptive failure

rate among adolescents, particularly among those at or just above poverty level, also implies the necessity of continuing educational, counseling and support services to assist them in their contraceptive choices and in using their selected methods consistently.

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Table 4. Low, medium and high estimates of the annual number of pregnancies averted by contraceptive use among U.S. women aged 15–19, by pregnancy outcome

Pregnancy outcome	No. averted		
	Low	Medium	High
Total	**750,000**	**1,000,000**	**1,250,000**
Live births	360,000	480,000	600,000
Abortions	292,500	390,000	487,500
Miscarriages	90,000	120,000	150,000
Ectopic pregnancies	7,500	10,000	12,500
Maternal deaths	28	37	46

cit. (see reference 2).

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